Evaluation of a classroom-based psychosocial intervention in conflict-affected Nepal: a cluster randomized controlled trial

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Background: In situations of ongoing violence, childhood psychosocial and mental health problems require care. However, resources and evidence for adequate interventions are scarce for children in low- and middle-income countries. This study evaluated a school-based psychosocial intervention in conflict-affected, rural Nepal. **Methods:** A cluster randomized controlled trial was used to evaluate changes on a range of indicators, including psychiatric symptoms (depression, anxiety, posttraumatic stress disorder), psychological difficulties, resilience indicators (hope, prosocial behavior) and function impairment. Children ($n = 325$) (mean age = 12.7, SD = 1.04, range 11–14 years) with elevated psychosocial distress were allocated to a treatment or waitlist group. **Results:** Comparisons of crude change scores showed significant between-group differences on several outcome indicators, with moderate effect sizes (Cohen $d = .41$ to $.58$). After correcting for nested variance within schools, no evidence for treatment effects was found on any outcome variable. Additional analyses showed gender effects for treatment on prosocial behavior (mean change difference: 2.70; 95% CI, .97 to 4.44), psychological difficulties (−2.19; 95% CI, −3.82 to −.56), and aggression (−4.42; 95% CI, −6.16 to −2.67). An age effect for treatment was found for hope (.90; 95% CI, −1.54 to −.26). **Conclusions:** A school-based psychosocial intervention demonstrated moderate short-term beneficial effects for improving social-behavioral and resilience indicators among subgroups of children exposed to armed conflict. The intervention reduced psychological difficulties and aggression among boys, increased prosocial behavior among girls, and increased hope for older children. The intervention did not result in reduction of psychiatric symptoms. **Keywords:** Psychosocial, war, children, efficacy.

Child mental health problems are a major contributor to the global burden of disease (Remschmidt, Nurcombe, Belfer, Sartorius, & Okasha, 2007; Patel et al., 2007), and armed conflict is a major risk factor for mental health and psychosocial problems in children (Barenbaum, Ruchkin, & Schwab-Stone, 2004; Stichick, 2001). Consequently, humanitarian agencies increasingly implement mental health and psychosocial care programs in low- and middle-income countries (LAMIC) affected by armed conflict. Despite a growing consensus on objectives and programmatic strategies (IASC, 2007), evaluations of child-focused interventions in these settings are relatively scarce (Barenbaum et al., 2004; Morris, Van Ommeren, Belfer, Saxena, & Saraceno, 2007; Stichick, 2001). Given the growing implementation of non-evidence-based interventions in resource poor settings, it is crucial to implement more treatment outcome studies.

To date, four randomized controlled trials have been conducted for psychosocial and mental health interventions for children in LAMIC. A recent trial demonstrated the efficacy of the Classroom-Based Intervention in Indonesia for reducing posttraumatic stress symptoms and maintaining hope among school children (aged 8–12 years) (Tol, Komproe, Susanty, Jordans, & de Jong, 2008). Another trial showed the efficacy of Group Interpersonal Therapy in reducing depression symptoms among adolescent girls (aged 14–17 years) in Uganda while creative workshops showed no effect compared to the control condition (Bolton et al., 2007). Layne and colleagues (2008) demonstrate the effectiveness of a trauma- and grief-focused group intervention in reducing PTSD and depression symptoms among school children (aged 13–18 years) in Bosnia. Finally, a randomized controlled trial on a mother intervention in Bosnia showed a small positive effect on mothers' mental health, children's weight gain and children's psychological functioning (Dybdahl, 2001). A systematic review of these and other treatment studies for children in conflict-affected LAMIC concludes that the scarcity of rigorous studies, diversity of interventions, skewed PTSD focus and mixed results

of evaluations demonstrate a need to identify evidence-supported interventions (Jordans, Tol, Komproe, & de Jong, 2009a).

The goal of this study was to contribute to an evidence-base for psychosocial interventions addressing children affected by armed conflict in LAMIC. This paper describes a cluster randomized controlled trial (CRT) to assess the efficacy of Classroom-Based Intervention (CBI) among school-going children in rural Nepal. The study was conducted within a comprehensive psychosocial care program for children in war-affected countries.[1] A cluster-RCT design was chosen over an individually randomized trial to avoid contamination within groups. The primary research question concerned the efficacy of CBI in reducing psychosocial distress and increasing positive aspects of wellbeing. The first hypothesis was that children in the treatment condition would show greater improvements on all outcome measures compared to a waitlisted control condition. Based on findings from the only two trials for group interventions in low-income countries (Bolton et al., 2007; Tol et al., 2008), in which girls benefitted more from interventions than boys, the second research question concerned differential treatment effects based on gender. The second hypothesis was that girls would benefit more from the intervention compared to boys. Given the variation in outcomes and ages targeted in prior studies, we also examined the effect of age on treatment efficacy. The third hypothesis was that younger children would benefit more from the intervention compared to older children (see Khamis, Macy, & Coignez, 2004). The description of the study and its findings conform to the latest CONSORT guidelines for reporting CRTs (Campbell, Elbourne, & Altman, 2004).

Methods

Setting

Nepal has a population of approximately 28 million, of whom 90% live in rural areas. Nepal, the poorest country in South Asia (World Bank, 2007), suffered a 10-year civil war between the Communist Party of Nepal (Maoist) and government security forces, which exacerbated Nepal's socioeconomic situation. The conflict, which officially ended in 2006, claimed 13,000 lives. Government mental health resources are scarce with virtually no formal mental health care in rural areas (Regmi, Pokharel, Ojha, Pradhan, & Chapagain, 2004).

Participants

Study participants (*n* = 325) were school-going children, aged 11 to 14 years, living in four districts in southwestern Nepal (Banke, Dang, Bardia, Kailali).

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[1]See for details: http://www.psychosocialcarechildren.org

Allocation to study conditions followed a three-step procedure. First, districts were randomly allocated to either CBI or control condition (2 CBI districts, 2 wait-list districts). Second, two schools per district were randomly selected from a list of all eligible schools. Exclusion criteria for schools were (a) schools in Village Development Committees (VDC; the smallest administrative unit in Nepal) where CBI had already been implemented and schools in adjoining VDCs to avoid contamination; (b) schools in parts of the district with large geographic or ethnic differences compared to the majority of the district to increase group homogeneity within districts. Third, children were randomly selected from a list of all children aged 11–14 years in the school. The randomization was done, without imposing a randomization constraint, by use of computer-generated random numbers (in SPSS) by the research team in Amsterdam.

Out of 53 eligible schools, 8 were randomly selected with a total of 1367 eligible children of whom 149 were absent and 30 refused (see Figure 1). The remaining 1188 children were screened: 325 individuals met inclusion criteria (see below). Two children did not complete the study: one due to absence and the other refused to continue participation. Excluded children were offered low-intensity (1 to 2 times) non-therapeutic group activities to avoid stigmatization of either group. Data collection took place during December 2006 and January 2007 for screening and baseline, pre-intervention (T1) interviews and March 2007 for post-intervention (T2) interviews. For additional detailed information on power analyses for sample size determination, refer to the CRT done in Indonesia (Tol et al., 2008).
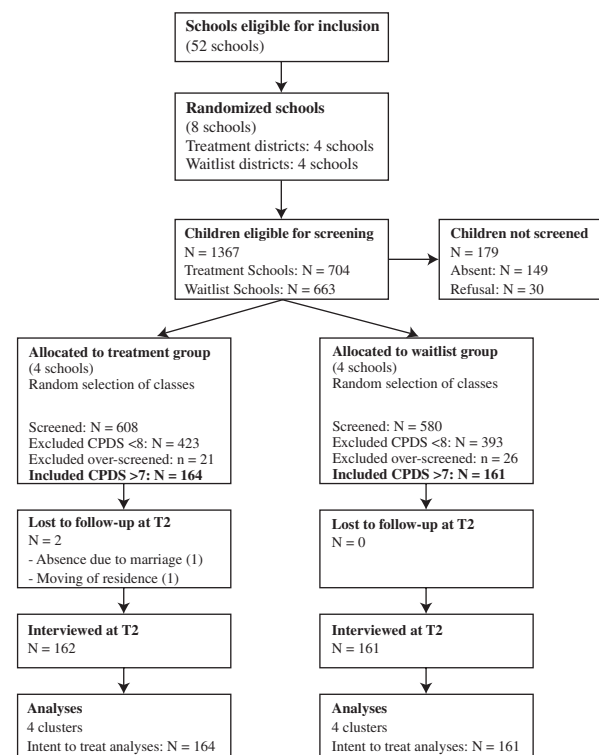

Figure 1 Participant flow chart

Screening

We screened for generic psychosocial distress because of: (a) the intervention's broad focus and aims (see below), (b) the aim of testing the intervention as implemented in non-specialized practice, and (c) previous epidemiological research among children in Nepal that demonstrated a wide range of psychological sequelae (Kohrt et al., 2008). Screening for participation of children in the study was done with the Child Psychosocial Distress Screener (CPDS). The CPDS is a brief, multi-informant instrument that assesses non-specific child psychosocial distress: a combination of distress indicators (traumatic and current stress and school attendance) and resilience factors (perceived social support and coping) (Jordans, Komproe, Ventevogel, Tol, & de Jong, 2008; Jordans, Komproe, Tol, & de Jong, 2009b). The CPDS was validated for the Nepali context among a general school population (n = 162), demonstrating acceptable accuracy for detecting children indicated for psychosocial care (caseness) (area under the curve [AUC] = .72; diagnostic sensitivity = .86; diagnostic specificity = .52), using an experienced counsellor as the criterion. The project's paraprofessional helpers administered the CPDS and assessed the only exclusion criterion, psychiatric problems (mutism, mental retardation, dissociative disorders, epilepsy without medication, panic or phobic disorders, and child psychosis), which were expected to obstruct participation in the group intervention.

Outcome measures

We included a broad range of outcome indicators including psychological difficulties, positive aspects of wellbeing, and levels of symptomatology. Positive aspects of wellbeing were included as possible antecedents of post-traumatic adaptation or resilience (Layne, Warren, Shalev, & Watson, 2007). We used structured self-report checklists during verbal interviews with the children to assess the study variables. All instruments were translated into Nepali using a five-step procedure, developed for transcultural research (Van Ommeren et al., 1999). Test–retest reliability of the instruments was determined among 20 participants.

The 17-item *Child PTSD Symptom Scale* (CPSS) assessed PTSD symptoms, using a 4-point scale from 0 to 51 (Foa, Johnson, Feeny, & Treadwell, 2001). Internal reliability in the total sample (n = 325) was .81 (Cronbach α) and test–retest reliability was .85 (Spearmen–Brown coefficient) (in the remainder of this paragraph the instruments' response categories, score range, internal and test–retest reliability are mentioned respectively in parentheses). Depression symptoms were assessed with the 18-item *Depression Self-Rating Scale* (DSRS) (3; 0–36; .60; .80) (Birleson, 1981). Non-clinical psychological difficulties were assessed with the 20-item 'total difficulties' subscale of the *Strength and Difficulties Questionnaire* (SDQ) (3; 0–40; .58; .85) (Goodman, 1997). The 5-item *Screen for Child Anxiety Related Emotional Disorders* (SCARED-5) assessed

anxiety symptoms (3; 0–10; .35; .84) (Birmaher et al., 1999). Function impairment was assessed with a 10-item *Children's Function Impairment* (CFI) questionnaire developed in Nepal using an adapted methodology described by Bolton and Tang (2002) (4; 0–30; .70; .70). The 6-item *Children's Hope Scale* (CHS) assesses a sense of hope, with a higher score denoting more hope (5; 0–24; .71; .70) (Snyder et al., 1997). The 10-item *Concern for Others Scale* measures the child's feeling of concern for, and desire to help, other people (prosocial behavior [PSB]) with higher scores reflecting more pro-social behavior (5; 0–40; .59; .80) (Development Studies Center, 2005). Physical Aggression (PA), and children's ability to deal with aggression, was measured with a 9-item subscale of the *Aggression Questionnaire* (5; 0–36; .67; .78) (Buss & Perry, 1992). Average inter-rater reliability between all assessors was .891 (Kappa statistic) for all dichotomous items and .972 (intra-class correlation) for all continuous items. The instruments were verbally administered. Interviewers read the questions out loud and recorded children's responses. This was done to control for the variable literacy aptitude of participants and because of children's unfamiliarity with completing standardized questionnaires.

Predefined primary outcome measures were on mental health and functioning (CPSS, DSRS, SCARED, PA, FI and SDQ), while scales for positive aspects of wellbeing were conceptualized as secondary outcome measures (PSB, CHS), all of which were measured at the individual level.

Intervention

The Classroom-Based Intervention (CBI) is a 5-week, 15-session (approximately 60-minute sessions) protocolized group intervention. CBI is an eclectic intervention based on concepts from creative-expressive and experiential therapy, cooperative play and cognitive behavioral therapy. CBI combines specific techniques such as psycho-education, socio-drama, movement/dance, group cohesion activities, stress inoculation techniques and trauma-processing through (voluntary) narrative exposure through drawings. CBI's core objectives are to (1) reduce psychosocial problems and risk of mal-adaptation and (2) facilitate resilience and empowerment through enhancing coping, prosocial behavior and hope. Week one focuses on safety and control; week two on stabilization and awareness; week three on a trauma narrative around thoughts and reactions during and after times of danger; week four on an appraisal narrative including resource identification and coping; and week five on future orientation and social networks. Sessions are structured around an opening ritual, a theme-centered central activity, group cooperative play and a closing ritual (manual is available upon request at the Center for Trauma Psychology in Boston, MA, USA) (Macy, Johnson Macy, Gross, & Brighton, 2003). A gender-balanced group of interventionists was selected, based on previous experience and affinity to work with children, from targeted communities and trained during a 15-day skills-oriented course. An experienced counsellor provided regular supervision. Children with severe problems were referred to a counsellor. While CBI has a distinct trauma-focused element, the intervention's aims are

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Correction added on 12 February 2010 after first online publication: The Nepali translation of the SDQ concerned a draft version that was not authorized for wider use.

broader. This is congruent with the notion that exposure to traumatic events in LAMIC is related to a broad and interrelated range of psychological sequelae, not only PTSD (c.f. Williams, 2006). We therefore expected the intervention to have a wide spectrum of effects for different groups of children, i.e., emotion regulation, stress reduction, behavioral adjustment, and prosocial behavior.

CBI was offered as part of a multi-layered care system that included activities geared towards strengthening community resilience through parental support groups, recreational activities, community sensitization and psycho-education (tier 1), the Classroom-Based Intervention (CBI) to target children with elevated psychosocial distress upon primary screening (tier 2), and individual supportive and problem-solving counseling and referral to psychiatric care (if available) for children, mainly referred on from the group intervention, in need of more individualized or specialized care (tier 3). Within this public mental health program, CBI was employed as a secondary prevention intervention, selected because of its dual foci of distress reduction and resilience enhancement. In a setting with high levels of psychosocial problems due to ongoing violence, an intervention that targets a range of mental health and psychosocial wellbeing domains was chosen. Moreover, it was argued that group-based support better addresses the social mechanisms related to those domains.

Procedure

Four local research assistants who were not involved in service delivery, with previous experience in working with children and who had a bachelor's degree in social science, were selected and received three weeks of training. Informed written consent for participation was obtained from both parents and children. All participants were informed about the nature of the study, research objectives and confidentiality of data, with assurances that non-participation would not lead to negative consequences. It was not possible to blind assessors to treatment status as they needed to visit schools to conduct the interviews. The International Review Board of the Vrije Universiteit (Amsterdam, the Netherlands) and the Nepal Health Research Council approved the design of the study.

Statistical analysis

We compared baseline characteristics between groups with χ^2 tests for categorical data and independent sample *t*-tests for continuous data. For descriptive analysis of changes in scores *between* groups, crude mean change scores were calculated (difference between T1 and T2 scores of the participants) on an intent-to-treat basis. Mean change scores were compared with independent sample *t*-tests (two-tailed). To establish the size of the differences in change, effect sizes (δ, Cohen's *d*) were calculated (Cohen, 1988). Additionally, to assess clinical significance we conducted Reliable Change Index analyses to determine whether the magnitude of case-based change is statistically reliable (Jacobson & Truax, 1991). RCI val-

ues were calculated for each respondent (see Layne et al., 2008). We calculated Intra-Cluster Correlations to estimate the amount of nested variance of the data. To correct for multiple comparisons we considered *p*-values of ≤.01 as statistically significant. As recommended for CRT's (Campbell et al., 2004), we used linear mixed (effects) methods, including fixed and random effects to analyze impact of the intervention when adjusted for nested variances. We compared intervention and control (waitlist) groups with different linear models to adjust for standard errors for clustering at school and district levels. In addition we specified the fixed and random effects of time and intervention. Analyses took place in two steps. In a first step we established the fixed and random effects of treatment, by examining two-way interactions (time by intervention). Subsequently, we estimated the fixed and random effects of gender and age in treatment by testing two- and three-way interactions (time by gender, time by age, time by intervention by gender, time by intervention by age). If three-way interactions were significant for gender, we repeated testing of two-way interactions (time by intervention) to establish the efficacy of treatment per gender subgroup. We used SPSS 16.0 for Windows to test the linear mixed models.

Results

Baseline characteristics

Of the 325 participants in the study, 167 (51.4%) were boys and 158 (48.6%) were girls. The age of respondents ranged from 11 to 14 years (Mean = 12.7, SD = 1.04). Levels of education ranged from grades 2 to 8, with the majority in grades 6 to 8 (68%). Most children (91%) reported being Hindu and living in their native village (97%). Table 1 shows comparisons at baseline of demographic variables between treatment and control conditions. Chi-square tests showed significant group differences on gender, education, caste/ethnicity, religion and place of residence. Despite the significant Chi-square tests, distribution of the categories of the variables religion (both groups around 90% Hindu) and place of residence (both groups more than 95% other village) are largely comparable. We found no significant baseline differences between boys and girls on any of the outcomes.

Intervention outcome

Table 2 reports independent sample *t*-tests on crude change scores to illustrate changes in mean scores. Descriptive analyses demonstrated statistically significant differences between changes on mean scores of the CBI group compared to the control group on several outcome measures. Moderate effect sizes for these differences were found for function impairment (*d* = .58), prosocial behavior (*d* = .44), generic psychological difficulties (*d* = .41) and depression

Table 1 Demographics

	Treatment group (*n* = 164)	Waitlist group (*n* = 161)	Total (*n* = 325)	Statistics df (323)
Girls, No. (%)	91 (55.5)	67 (41.6)	158 (48.6)	χ^2 = 6.26 p = .015*
Age, Mean (SD)	12.7 (1.05)	12.7 (1.02)	12.7 (1.04)	t = −.60 p = .953
Caste/Ethnicity				
Brahmin/Chhetri/Thakuri	100 (61.1)	47 (29.2)	147 (45.2)	χ^2 = 69.05
Tharu	38 (23.2)	42 (26.1)	80 (24.6)	p = .000***
Terai caste	1 (.60)	50 (31.1)	51 (15.7)	
Dalit	16 (9.8)	9 (5.6)	25 (7.7)	
Other Janajati	9 (5.5)	13 (8.1)	22 (6.8)	
Religion				
Hindu	152 (92.7)	144 (89.4)	196 (91.1)	χ^2 = 14.69
Buddhist	5 (3.0)	3 (1.9)	8 (2.5)	p = .005 **
Islam	2 (1.2)	14 (8.7)	16 (4.9)	
Others♣	5 (3.0)	0 (.0)	5 (1.5)	
Family member, Mean (SD)	6.8 (2.5)	6.4 (2.2)	6.6 (2.5)	t = 1.386 p = .167
Place of residence				
Other village	157 (95.7)	158 (98.1)	315 (96.9)	χ^2 = 14.65
Original village	7 (4.3)	3 (1.9)	10 (3.1)	p = .005 **
Level of education				
Up to grade five	54 (32.9)	58 (36.1)	112 (34.5)	χ^2 = 17.27
Grade six	42 (25.6)	68 (42.2)	110 (33.8)	p = .001**
Grade seven	46 (28.0)	26 (16.1)	72 (22.2)	
Grade eight	22 (13.4)	9 (5.6)	31 (9.5)	

Note: ♣ Kirat or Christian; p = level of significance. *p < .05; **p < .01; ***p < .001.

(d = .46), and a small effect size for anxiety (d = .27). PTSD complaints and hope changed significantly over time, but equally in both groups. The RCI values follow the same trend, with additional information on reliable deterioration within both treatment and control groups (see Table 2).

For assessing intervention efficacy, we performed linear mixed methods analyses to adjust for nested data. When adjusting for nested variance on the different specified levels of nested variance, we found no significant effect of treatment (two-way interaction time × intervention) on any of the outcome indicators (see Table 3).

The linear mixed methods with additional 3-way interaction terms (time × intervention × gender) demonstrated significant treatment effects for gender on adjusted mean change differences in prosocial behavior (3-way interaction term, 2.70; 95% CI, .97 to 4.44), psychological difficulties (3-way interaction term, −2.19; 95% CI, −3.82 to −.56), and aggression (3-way interaction term, −4.42; 95% CI, −6.16 to −2.67). Treatment was more beneficial for girls on prosocial behavior (i.e., greater increase in self-reported prosocial behaviors among girls in the CBI). Treatment was more beneficial for boys on psychological difficulties and aggression. Furthermore, three-way interaction terms (time × intervention × age) demonstrated significant treatment effect for older children in increasing hope (3-way interaction, .90; 95% CI, −1.54 to −.26). All other interaction terms with gender and age for the other outcome variables were not significant.

Discussion

This cluster randomized controlled trial demonstrated an effect of the Classroom-Based Intervention (CBI) compared to the waitlist condition on social-behavioral and positive aspects of wellbeing indicators among subgroups of children exposed to armed conflict in a low-income country. While comparisons of crude change scores and reliable improvement showed significant between-group differences, we found no evidence for treatment effects for the entire group when adjusting for nested variance of the outcome variables within clusters. Significant different adjusted mean score changes on outcome variables were found for gender and for age subgroups. Findings show moderate reductions on general psychological difficulties (combination of hyperactivity-, peer-, emotional-, and conduct-problems) and aggression for boys and increased prosocial behavior for girls, as well as an increased sense of hope for older children, in comparison to the waitlist condition. CBI did not result in reduction of psychiatric symptoms compared with the waitlist condition.

The study confirms our hypothesis that CBI in Nepal appears sensitive for gender-specific complaints. The gender specificity supports the findings of beneficial effects of treatment for only or mainly girls after Interpersonal Therapy (IPT) in Uganda (Bolton et al., 2007) and CBI in Indonesia (Tol et al., 2008), respectively. The present study indicates that CBI is especially beneficial for boys by reducing

Table 2 Comparisons of mean changes between treatment conditions (intent-to-treat analysis)

	Treatment group (n = 164)						Control group (n = 161)						Between group comparisons		
	Mean at T1 (SD)	Mean at T2 (SD)	T(df); p	% Sign + RCI	% Sign – RCI	T1 –T2 (SD)	Mean at T1 (SD)	Mean at T2 (SD)	T(df); p	% Sign + RCI	% Sign – RCI	T1 –T2 (SD)	T (df); p	δ (95% CI)	ICC
FI	10.99 (4.70)	7.80 (5.06)	7.38 (163); .000	67.1	24.4	3.18 (5.53)	9.48 (4.42)	9.37 (3.77)	.287 (160); .775	16.8	46.6	.11 (4.95)	-5.27 (323) .000	.58 (.36–.81)	.114
CHS	13.49 (4.03)	14.80 (2.98)	-4.09 (163); .000	9.8	2.4	-1.31 (4.10)	12.56 (3.62)	13.25 (3.11)	-2.09 (160); .038	7.5	5.6	-.69 (4.18)	1.35 (323) .177	.15 (-.07–.37)	.037
SCARED	4.55 (1.58)	3.84 (1.53)	4.89 (163); .000	29.9	7.9	.71 (1.87)	3.96 (1.36)	3.71 (1.23)	2.06 (160); .041	21.7	17.4	.25 (1.57)	-2.39 (323) .017	.27 (.05–.48)	.062
PA	12.69 (4.49)	12.71 (4.14)	-.044 (163); .965	9.8	7.3	-.02 (5.34)	10.55 (3.93)	11.12 (4.08)	-1.45 (160); .149	6.8	12.4	-.57 (5.00)	-.96 (323) .336	.11 (-.11–.32)	.091
PSB	22.84 (4.12)	25.40 (4.76)	-6.40 (163); .000	20.1	.6	-2.56 (5.12)	24.53 (4.36)	24.72 (4.41)	-.441 (160); .660	13.0	8.7	-.19 (5.54)	4.00 (323) .000	.44 (.22–.66)	.096
CPSS	20.15 (5.47)	17.71 (4.83)	4.98 (163); .000	21.3	6.1	2.43 (6.26)	21.01 (6.46)	18.62 (5.26)	5.05 (160); .000	20.5	4.6	2.39 (5.82)	-.06 (323) .951	.01 (-.21–.22)	.219
DSRS	13.57 (3.39)	11.41 (3.53)	6.66 (163); .000	23.2	4.9	2.15 (4.14)	12.93 (3.26)	12.60 (2.91)	1.08 (160); .281	13.0	8.1	.32 (3.79)	-4.15 (323) .000	.46 (.24–.68)	.158
SDQ	17.73 (3.30)	14.97 (4.40)	8.24 (163); .000	31.1	1.8	2.76 (4.29)	16.72 (3.79)	15.71 (3.17)	3.03(160); .003	21.1	7.5	1.01 (4.21)	-3.72 (323) .000	.41 (.19–.63)	.087

Note: FI = Function Impairment; CHS = Child Hope Scale; SCARED = Screen for Child Anxiety Related Emotional Disorders; PA = Physical Aggression; PSB = prosocial behavior; CPSS = Child PTSD Symptom Scale; DSRS = Depression Self-Rating Scale; SDQ = Strength and Difficulties Questionnaire; SD = standard deviation; T1 = pre-intervention interview; T2 = post-intervention interview; p = significance level; δ = effect sizes; CI = confidence interval; ICC = intra cluster coefficient; RCI = Reliable Change Index (+ = improvers; – = deteriorators).

Table 3 Mean treatment group differences between baseline and follow-up, adjusted for clustering of participants in schools

Outcome [a]	Mean (SE) at baseline adjusted for school mean	Mean (SE) change	Mean change, %	Mean (SE) change difference [b]	Mean change difference (95% CI)
Function impairment	10.99 (.81)	−3.21 (1.22)	−29.21	3.10 (1.72)	(−1.12 to 7.31)
PTSD symptoms	20.13 (1.68)	−2.43 (.59)	−12.07	−.13 (.85)	(−2.40 to 2.66)
Hope	13.49 (.43)	1.31 (.49)	9.71	.62 (.70)	(−2.34 to 1.10)
Depression symptom	13.58 (.75)	−2.16 (.71)	−15.91	1.84 (1.00)	(−.62 to 4.29)
Psychological difficulties	17.74 (.57)	−2.77 (.81)	−15.61	1.77 (1.14)	(−1.03 to 4.56)
Prosocial behavior	22.84 (.64)	2.54 (1.10)	11.12	−2.35 (1.55)	(−6.15 to 1.45)
Anxiety symptoms	4.55 (.17)	−.72 (.28)	−15.83	.46 (.40)	(−.51 to 1.43)
Aggression	12.69 (.52)	−.02 (.52)	−.12	.55 (.74)	(−1.27 to 2.38)

Note: CI = confidence interval; SE = standard error; PTSD = post traumatic stress disorder. [a] On all measures, except hope and prosocial behavior, a negative change indicates improvement. [b] A larger mean change difference indicates additional positive improvement for the treatment group compared to the waitlist group for all measures, except hope and prosocial behavior.

aggression and behavior-oriented psychological difficulties. This may be explained by the relatively active nature of CBI, which is more compatible with externalizing expressions of distress, typical among boys; an argument supported by findings from a study on the effectiveness of school-based intervention for adolescents in Bosnia (Layne et al., 2008). The differential effects according to gender across these studies call for reflection on possible gender-specific components in future interventions. The beneficial effect of CBI on hope among older children may be explained by the specific components of the intervention (e.g., coping, empowerment) that refer to concepts of maturity and future orientation more developed with increased age.

CBI's effect on broad social-behavioral and positive aspects of wellbeing indicators, rather than disorder specific symptoms, conforms to the eclectic and non-specific psychosocial nature of the intervention. This enforces the argument that CBI should be used for generic psychosocial problems, and that other, more specialized treatment, is needed to target reduction in specific symptomatology; for example, treatment of PTSD with narrative exposure therapy as utilized and evaluated among Somali refugee children in Uganda (Onyut et al., 2005). We argue that CBI as a treatment modality allows different foci for different types of problems. The results support the use of CBI within a larger public mental health framework as a secondary prevention intervention targeting sub-populations *at risk* for developing full-blown psychopathology. Additionally, more specialized services are required that target psychiatric symptoms and psychopathology, as well as resilience-promoting activities for the community at large. From the onset of the program we have followed an approach that combines universal and targeted interventions into a multi-layered care system (IASC, 2007; de Jong, 2002). The choice of CBI as a targeted rather than a universal intervention can be debated. However, although we demonstrate some promising treatment effects in enhancing universal protective factors, these effects are too limited to target the social context (especially in settings with structural inequality, poverty, marginalization, neglect and abuse) as universal interventions should.

This study is one of a few trials in recent years to provide evidence for efficacy of group- or school-based psychosocial interventions for conflict-affected children (Tol et al., 2008; Bolton et al., 2007; Berger, Pat-Horenczyk, & Gelkopf, 2007; Layne et al., 2008; Rousseau et al., 2007). These studies represent the growing potential for evidence-based community-oriented interventions. While the studies demonstrate that existing interventions have significant limitations with regard to widespread effects (Patel et al., 2007; Jordans et al., 2009a), the benefits among specific subgroups are crucial first steps toward developing effective, affordable, culturally feasible community-oriented interventions for children affected by political violence in LAMIC.

The study has limitations that affect interpretation. First, research was conducted in a situation of ongoing political instability, which might have affected the results in ways not measured. Second, internal reliability of some of the instruments was low, especially for the SCARED-5, which hampers pre–post intervention comparisons. Third, despite randomization, there were differences at baseline between groups on demographic variables. Unreported regression analyses showed that ethnicity had a small interaction effect on the impact of CBI. Fourth, the research project used a pre–post assessment and did not allow for a follow-up assessment, hence we have no information about the sustained CBI effect. The study in Indonesia demonstrates that positive gain associated with CBI was retained at 6-month follow-up on some but not all indicators (Tol et al., 2008). Because of the lay screening procedure, children with severe mental health complaints who were excluded from the study (and subsequently offered individual counseling) were possibly under-detected. Finally, assessment of treatment fidelity was not included and assessors were not blinded to treatment status. Thus, results

can be generalized to school-going children only in specific regions of Nepal. Future research will need to determine the role and effect of caste/ethnicity on treatment effectiveness, the effect of the treatment mechanism underlying treatment (i.e., for different subgroups), especially given the intervention's popularity among (in-)direct beneficiaries and shared traits with popular interventions, and determine the treatment effectiveness compared to a low-cost locally available intervention (e.g., structured recreational activities or meditation). Finally, future implementation should address the issue of high levels of reliable deteriorators within the treatment condition.

Conclusion

Scarce mental health resources, a need for large-scale interventions, cultural differences and lack of evidence for psychosocial and mental health interventions in LAMIC warrant the need for rigorous treatment evaluation. Conducting such evaluation proved feasible within a resource-poor, complex emergency setting. This study confirms that psychosocial support can result in moderate reductions in psychosocial distress symptoms (specifically social-behavioral problems) and increased positive aspects of wellbeing (hope and prosocial behavior) among at-risk youth, although effects are limited to subgroups. Based on the lack of treatment effect in reduction of the symptoms of PTSD, anxiety and depression, CBI should be implemented in conjunction with more targeted specialized services for symptomatic children. The study demonstrates that CBI holds potential as a secondary prevention intervention to target broad psychosocial wellbeing, while further research and treatment processes improvements are needed for it to be widely recommended in Nepal.

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Key points

- This study demonstrated efficacy of the Classroom-Based Intervention (CBI) for improving social-behavioral and positive aspects of wellbeing indicators among subgroups of children exposed to armed conflict in a low-income country.
- CBI produced moderate reductions of general psychological difficulties and aggression for boys and increased prosocial behavior for girls. Hope increased for older children.
- CBI did not demonstrate increased reduction of psychiatric symptoms compared with control conditions.
- CBI should be introduced in the context of a stepped-care system as a secondary prevention intervention for at-risk children in conjunction with other interventions for symptomatic children.

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