

Multiple Trauma and Mental Health in Former Ugandan Child Soldiers

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The present study examines the effect of war and domestic violence on the mental health of child soldiers in a sample consisting of 330 former Ugandan child soldiers (age: 11–17 years, female: 49%). All children had experienced at least 1 war-related event and 78% were additionally exposed to at least 1 incident of domestic violence. Prevalences of posttraumatic stress disorder and major depressive disorder were 33%, and 36%, respectively. Behavioral and emotional problems above clinical cutoff were measured in 61%. No gender differences were found regarding mental health outcomes. War experience and domestic violence were significantly associated with all mental health outcomes. The authors' findings point to the detrimental effects of domestic violence in addition to traumatizing war experiences in child soldiers.

Currently, 250,000 children are serving as child soldiers in armed conflicts around the globe, forced to witness and often also to commit atrocities, including rape and murder (Office of the Special Representative of the Secretary-General for Children and Armed Conflict, 2006). According to the Paris Principles, the term *child soldier* refers to any person below 18 years of age who is or has been associated with an armed force or armed group (United

Nations Children's Fund, 2007). This is not limited to children who participate in combat, but also refers to cooks, porters, or sex slaves. Most child soldiers are between the ages of 15 and 18 years, but some are as young as 7 (Betancourt et al., 2008). Reasons for the recruitment of children differ by region and conflict. For example, technical development of lightweight automatic weapons, low costs, and impunity are important factors that make recruitment viable, while poverty and its aftermath are the major causes that drive children to participate (Wessells, 2006).

The present research was conducted in northern Uganda, where one of the most prominent aspects of an over 20-year armed conflict is the forced recruitment of over 25,000 children into the Lord's Resistance Army (Coalition to Stop the Use of Child Soldiers, 2008). Almost 80% (1.4 million people) of the population of northern Uganda have fled from the Lord's Resistance Army terror to camps for internally displaced people and are dependent on international feeding programs. The rebel leaders of the Lord's Resistance Army have been accused of crimes against humanity and the use of child soldiers at the International Criminal Court in The Hague (Allen, 2006). Peace talks have been started.

Child soldiers are one of the most complex traumatized populations of children and adolescents. Typical experiences inflicted on children in armed groups are beatings, torture, witness of killings, and sexual abuse (Betancourt et al., 2008). But

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First and foremost, our gratitude goes to the children at Laroo Boarding School who shared their experiences with us, and we thank the teachers at the school who helped us during data collection. We further wish to thank Manuela Post, Catrin Hoyer, Malisa Mukanga, and Rahel Duresso for their assistance in carrying out this survey. We thank Christophe Bayer for his ideas and support. Finally, our gratitude goes to Prof. Peter Riedesser, Prof. Monika Bullinger, Dr. Claus Barkmann, Dr. James Okello, and Monica Blotevogel for their helpful comments on earlier drafts. This research was financially supported by the Children for Tomorrow Foundation.

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child soldiers are also frequently forced to commit atrocities towards other people. Between 36–93% of Ugandan child soldiers reported having killed someone personally (Bayer, Klasen, & Adam, 2007; Derluyn, Broekaert, Schuyten, & De Temmerman, 2004; Okello, Onen, & Musisi, 2007). Additionally, children in armed conflict settings frequently become victims of violence within their families and communities (Catani, Jacob, Schauer, Kohila, & Neuner, 2008; Pittaway, 2004). To our knowledge, no study has yet addressed the impact of domestic violence on former child soldiers' mental health in addition to war trauma.

Children experiencing trauma are at risk of developing mental health problems. Research on the mental health of child soldiers is only emerging. Studies report point estimates for posttraumatic stress disorder (PTSD) according to criteria of the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV*; American Psychiatric Association [APA], 1994) ranging from 27–97% (Bayer et al., 2007; Derluyn et al., 2004; Kohrt et al., 2008; Okello et al., 2007). Future research needs to explain this wide range, which may be due to differences in sampling methodology and measurements using varying time frames of symptom assessment and different clinical cutoffs. Only one study used a diagnostic interview and reported a rate of 27% for PTSD in Ugandan child soldiers (Okello et al., 2007). Some studies concentrated solely on PTSD symptoms (Bayer et al., 2007; Derluyn et al., 2004), but recent research also indicates high rates for depression and anxiety among former child soldiers (Kohrt et al., 2008; Okello et al., 2007). Whether child soldiers also suffer from externalizing problems such as aggressive behavior has hardly been investigated. One exception is the study by Vinck, Pham, Stover, and Weinstein (2007).

In contrast to the stereotyped perception of a child soldier as a male adolescent, approximately 30% of child soldiers in northern Uganda are female (McKay & Mazurana, 2004; Pham, Vinck, & Stover, 2007). Only very few studies investigated gender differences in tasks assigned to child soldiers and gender-based differences in traumatic experiences. Even though girls are also used as combatants, they seem to be more frequently assigned domestic chores (International Labour Office, 2003). Girls are at high risk of becoming victims of sexual violence (Betancourt et al., 2008) and are often given to rebel commanders as “wives” (Okello et al., 2007). In Nepalese child soldiers, girls showed more mental health problems (Kohrt et al., 2008). Gender differences in mental health outcome of Ugandan child soldiers have not been explored in previous studies.

The objectives of the current research are threefold: (a) to report on Ugandan child soldiers' traumatic war experiences, domestic and community violence, and mental health status; (b) to compare trauma, violence, and mental health outcome in former boy versus girl soldiers; and (c) to test the effect of exposure to traumatic war experiences and domestic and community violence on former child soldiers' mental health outcome.

METHOD

Participants

We conducted a cross-sectional field study interviewing 330 former Ugandan child soldiers. The sample consisted of 170 (52%) boys and 160 (49%) girls. Children were on average 14.4 years old ($SD = 1.6$, range 11–17 years). Their ethnicities were mainly Acholi (62%) and Langi (38%), and they originated from the five war-torn northern districts of Uganda (Apac 18%, Gulu 22%, Kitgum 17%, Lira 21%, Pader 21%, Other 1%). Ninety-eight percent of the children were Christians. Their fathers' occupations were mainly subsistence farming (64%), trader (17%), or security or military servant (12%).

Participants were recruited from Laroo Boarding Primary School for War Affected Children in Gulu Town in November 2006, a special-needs school designed to support war-traumatized children, established by the Ugandan government in July 2006. Because it was the only school of its kind in the entire country, admission priority was given to extremely war-affected children. In the selection process, an assessment of traumatic war experiences and related symptoms was carried out by trained assessors using a questionnaire, and community leaders confirmed war involvement of children. A further requirement was that 60% of the school population be female. The foremost aim of the school is to ready children for the curriculum of the public school system. Due to financial issues, no specialized interventions, such as psychosocial programs, could be started at the school prior to our data collection.

Measures

All instruments were translated and blind back-translated into the local language (Luo) by professional linguists from the Institute of Languages at Makerere University in Kampala. Discrepancies between translations were discussed with local professionals. Teachers, local mental health experts, and adolescents not enrolled in the study reviewed the questionnaires for cultural sensitivity, appropriateness, and noninvasiveness.

Assessed demographic variables included age, gender, ethnicity, district of origin, occupation of father, socioeconomic status (SES) of the participant's families, and orphan status. Family SES was operationalized by a combined measure of parents' educational levels and families' material resources. Items were taken from the Child War Trauma Questionnaire (Macksoud, 1992). This operationalization of SES was discussed with experts in the field and seemed to have high face validity for the current sample. Educational level of each parent was assessed by one item scored 0 (*can't read or write*), 1 (*has done some schooling years*), 2 (*has completed primary school*), 3 (*has completed secondary school or vocational school*), or 4 (*holds a college degree*). Family material resources were assessed by four items pertaining to four categories of resource (i.e., food, shelter,

clothing, and income) rated on a scale from 0 (*very poor*) to 4 (*very rich*). These six items were added to a sum score. Higher scores indicate higher SES. Cronbach's alpha was .78. Orphan status was assessed by asking whether both parents were deceased no matter what the cause.

Assessed variables regarding traumatic experiences during abduction were age at abduction, main tasks during abduction, period abducted, frequency of abductions, and mode of return. Number of traumatic experiences during abduction was assessed by a 19-item yes/no-statement questionnaire based on our own previous research on Ugandan child soldiers (Bayer et al., 2007) and the Child War Trauma Questionnaire (Macksoud, 1992). All items were scored 0 (*never experienced*) or 1 (*experienced*). Cronbach's alpha was .81.

Exposure to lifetime domestic and community violence was assessed by means of a self-developed checklist based on a recent report on violence against children in Uganda (Naker, 2005). This report refers to the experiences of and perspectives on violence of 1,406 children, based on a survey using complementary research methods (i.e., questionnaires, focus group discussions, narrative role plays, key informant interviews). We developed a six-item questionnaire addressing physical and sexual aspects of violence (i.e., physical: caning, burning, locking up; sexual: sexual insults, sexual touches, rape) committed by family members (domestic violence subscale) and/or community members (community violence subscale). Cronbach's alpha was .81 for the total scale, .65 for domestic violence, and .68 for community violence.

For the assessment of current PTSD and current major depressive disorder (MDD), we used the two accordant modules of the MINI-KID (Sheehan et al., 1998). The MINI-KID is the child and adolescent version of the Mini International Neuropsychiatry Interview (MINI), a short structured diagnostic interview following the criteria for 27 diagnoses of psychiatric disorders of the *DSM-IV* (APA, 1994). The MINI has been validated against the Structured Clinical Interview for DSM Diagnoses and the Composite International Diagnostic Interview for ICD-10 Diagnoses (Sheehan et al., 1998). Reliability and validity studies of the MINI-KID are currently under way (Clinical Trials Identifier: NCT00579267). PTSD symptoms were assessed over the past 4 weeks and MDD symptoms over the past 2 weeks. The MINI-KID has recently been employed in another study in Uganda (Okello et al., 2007).

The Youth Self-Report was administered as a broad screening instrument for behavioral and emotional problems. Designed for adolescents aged 11–18, it contains 105 problem items. The problem items are scored 0 (*not true*), 1 (*somewhat or sometimes true*), or 2 (*very true or often true*), on the basis of the preceding month. The Youth Self-Report was scored for the following eight syndrome scales: (1) Anxious/Depressed, (2) Withdrawn/Depressed, (3) Somatic Complaints, (4) Social Problems, (5) Thought Problems, (6) Attention Problems, (7) Rule-Breaking Behavior, and (8) Aggressive Behavior. Syndrome scales 1–3 comprise internalizing

problems, whereas scales 7 and 8 comprise externalizing problems. A total problems score for behavioral and emotional problems can be obtained by summing up all 105 problem items. There is extensive evidence for the reliability and validity of the Youth Self-Report (Achenbach & Rescorla, 2001). The multicultural application of the Youth Self-Report enables users to display problem scale scores in relation to sets of norms based on different societies (Achenbach et al., 2008). We applied Group 2 norms, which serve as standard norms and are recommended if norms for a certain population are missing (Rescorla et al., 2007). In our sample, Cronbach's alpha values for all scales were between .70 and .95, except for Withdrawn/Depressed ($\alpha = .60$) and Attention Problems ($\alpha = .64$).

Procedure

The Ethics Committee of the Medical Association of Hamburg and the Uganda National Council for Science and Technology approved the study protocol and consent process. Written informed consent was obtained from the local authorities and the head teacher of the district, as well as oral informed consent from each participating student. As their parents live scattered throughout the war-torn northern part of Uganda, the boarding school teachers gave oral informed consent as parental proxies. We explained in detail the purpose of our research project to teachers and children, and the children were assured that they were free to withdraw from the study at any time without any consequences. Psychiatrists from Gulu Hospital agreed to provide psychological support during data collection, although support never became necessary. Children were eligible for the study if they had been a child soldier for at least 1 month, and were currently between 11–17 years of age. Inclusion criteria were met by 358 out of 591. Three children refused participation. Children were not asked to justify refusal. Trained local interviewers carried out child interviews supported by an assistant from the research team. All interviewers were primary school teachers and were trained regarding clinical concepts and interviewing techniques. Interviewers were trained to give standardized examples in case children did not understand a question. Children were assigned randomly to interviewers. These trained interviewers read questionnaires aloud to illiterate children, and helped literate children fill out the questionnaires in class. Interviewers were trained to give the same standardized explanation and examples to all children. The school received books for a library as honoraria for supporting the assessment; interviewers received payment. Data from 25 pupils could not be analyzed due to missing inclusion criteria or invalid data, resulting in a final sample for analysis of 330 pupils.

Data Analysis

The main outcome measures were PTSD, MDD, and behavioral and emotional problems. Three multiple linear regression analyses were carried out to predict mental health outcomes. We included

Table 1. Variables Regarding Time during Abduction

Variable	All		Boys		Girls		Differences
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Main tasks as child soldier (<i>n</i> = 318)							
Front-line tasks	133	41.8	93	55.0	40	26.8	26.97 ***
Logistic tasks	89	28.0	58	34.3	31	20.8	7.18 **
Domestic tasks	88	27.7	17	10.1	71	47.7	55.91 **
No tasks	8	2.5	1	0.6	7	4.7	–
Frequency of abductions (<i>n</i> = 297)							
Once	202	68.0	107	69.0	95	66.9	<1
Twice	67	22.6	36	23.2	31	21.8	<1
More than twice	28	9.4	12	7.7	16	11.3	1.08
Mode of return (<i>n</i> = 314)							
Escaped	255	81.2	135	83.9	120	78.4	1.51
Freed by governmental forces	38	12.1	19	11.8	19	12.4	<1
Released by rebel forces	21	6.7	7	4.3	14	9.2	2.90

Note. Values are frequencies (%), unless otherwise indicated.

^aData read as mean (*SD*). Differences between girls and boys are χ^2 values, unless otherwise indicated.

^b*T* values.

** $p < .01$. *** $p < .001$.

sociodemographic variables, traumatic war experiences, domestic and community violence as predictor variables. As PTSD and MDD were count variables, we ran the regression analysis also by using a Poisson regression approach relying on Gagnon et al. (2008). As findings were the same, we only report results from linear regression analysis. Statistical analyses were carried out using Statistical Package for Social Sciences (SPSS), Version 15.0 (SPSS Inc., 2006).

RESULTS

Children joined the armed force at a young age ($M = 10.8$, $SD = 2.3$ years) and served for an average period of 19.8 months ($SD = 17.7$). All children were abducted except one, who was born in captivity. Girls were more frequently assigned domestic chores, e.g., cooking and caring for younger children, while boys were primarily assigned front-line tasks, e.g. fighting, looting, and abducting civilians. Children experienced several potentially traumatizing events during abduction. Descriptive data of variables regarding time spent in abduction are displayed in Table 1. Table 2 lists the types and reported frequencies of all assessed traumatic experiences during this time. The most common experiences were exposure to shooting, beatings, starvation, and the witnessing of killings. More than half of the children had personally killed someone. A quarter of all children were raped during abduction. Although having killed someone personally was significantly more frequently reported by boys, no significant gender differences regarding rape were reported. On average, children had experienced 15 ($SD =$

range 1–19) out of 19 traumatic events during their time as child soldiers. Boys reported significantly more traumatic events during abduction than girls, $t(328) = 3.70$, $p < .001$, $d = 0.41$.

On average, children had returned from the armed group 31.8 months ($SD = 17.9$, range 6–105) prior to data collection. Under the risk of capture and death, 81% of the children had escaped the rebel forces. One third (32%) of the children had been abducted more than once, in some cases up to 5 times. After demobilization, 195 (60%) children had passed through a reception center. These centers are run by aid organizations that provide food and medical care directly to child soldiers after their demobilization and help trace their families. Many children (44% of boys and 42% of girls) were orphans. Before entering the boarding school (which opened 4 months prior to our data collection), 307 (97%) children had lived with family members or relatives. Three quarters (78%) of the children reported at least one experience of domestic and community violence. Table 3 lists type and frequencies of violent acts committed against the children in their families and communities. On a scale of 12 experiences, children reported on average exposure to 2.7 violent acts ($SD = 2.5$, range 0–12). Boys and girls did not differ in the average exposure to domestic and community violence.

Children exhibited on average 8.9 ($SD = 3.4$) PTSD symptoms and 6.5 ($SD = 3.3$) MDD symptoms. Symptoms endorsed during assessment suggested scores within the diagnostic range in 109 (33%) children for current PTSD and in 120 (36%) children for current MDD, respectively. Sixty-one (19%) children qualified for both diagnoses. No significant gender differences appeared in the

Table 2. Type and Frequency of Traumatic Experiences during Abduction

	All (<i>N</i> = 330)		Boys (<i>n</i> = 170)		Girls (<i>n</i> = 160)		χ^2
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Recruited by force	329	99.7	170	100.0	159	99.4	–
Exposure to shooting	303	91.8	160	94.1	143	89.4	2.47
Exposure to bomb explosion	273	82.7	148	87.1	125	78.1	4.60*
Exposure to massacre (many people being killed at the same time)	261	79.1	144	84.7	117	73.1	6.69**
Exposure to air raid	274	83.0	152	89.4	122	76.3	10.13***
Witnessed physical injury	242	73.3	133	78.2	109	68.1	5.92
Witnessed killing	290	87.9	152	89.4	138	86.3	2.52
Beaten by armed forces	299	90.6	159	93.5	140	87.5	3.52
Threatened with death by armed forces	285	86.4	154	90.6	131	81.9	5.31*
Raped by armed forces	85	25.8	38	22.4	47	29.4	2.13
Suffered severe physical injuries	197	59.7	107	62.9	90	56.3	1.53
Remained without food >2 days	294	89.1	154	90.6	140	87.5	<1
Remained without drinking water >2 days	258	78.2	130	76.5	128	80.0	<1
Directly involved in fighting	187	56.7	127	74.7	60	37.5	46.47***
Looted houses	215	65.2	113	66.5	102	63.8	<1
Abducted other children	195	59.1	108	63.5	87	54.4	2.86
Punished/tortured other children	151	45.8	91	53.5	60	37.5	8.53**
Injured someone	190	57.8	115	68.0	75	46.9	15.81***
Killed someone	171	52.6	101	60.1	70	44.6	8.64**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Type and Frequencies of Domestic and Community Violence

	All (<i>N</i> = 330)		Boys (<i>n</i> = 170)		Girls (<i>n</i> = 160)		χ^2
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Domestic violence							
Caning	160	48.5	73	42.9	87	54.4	4.31*
Burning	68	20.6	37	21.8	31	19.4	<1
Locking up, tying up	62	18.8	36	21.2	26	16.3	1.31
Verbal sexual insult	59	17.9	34	20.0	25	15.6	1.08
Touching sexually	39	11.8	22	12.9	17	10.6	<1
Rape	30	9.1	17	10.0	13	8.1	<1
Community violence							
Caning	151	45.8	83	48.8	68	42.5	1.39
Burning	62	18.8	31	18.2	31	19.4	<1
Locking up, tying up	51	15.5	32	18.8	19	11.9	3.05
Verbal sexual insult	95	28.8	52	30.6	43	26.9	<1
Touching sexually	78	23.6	46	27.1	32	20.0	2.28
Rape	50	15.2	24	14.1	26	16.3	<1

* $p < .05$.

Table 4. Mean Scores and Scores above Clinical Cut-off of YSR Scales

	All (<i>N</i> = 330)		All (<i>N</i> = 330)		Boys (<i>n</i> = 170)		Girls (<i>n</i> = 160)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>n</i> >cut-off	% >cut-off	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Anxious/depressed	12.0	5.4	141	42.7	11.5	5.2	12.5	5.5	-1.56
Withdrawn/depressed	6.2	3.1	62	18.8	6.2	3.0	6.2	3.1	<1
Somatic complaints	7.3	4.1	107	32.4	7.1	4.0	7.5	4.3	<1
Social problems	9.0	4.7	150	45.5	9.4	4.5	8.6	4.8	1.59
Thought problems	6.3	4.2	47	14.2	6.6	4.1	5.9	4.2	1.48
Attention problems	7.6	3.7	50	15.2	7.7	3.9	7.3	3.6	<1
Rule-breaking behavior	5.0	3.9	14	4.2	5.1	3.9	4.9	3.9	<1
Aggressive behavior	10.1	6.2	52	15.8	10.1	6.0	10.1	6.4	<1
Internalizing problems	25.5	11.0	216	65.5	24.9	10.4	26.1	11.5	-1.05
Externalizing problems	15.1	9.3	86	26.1	15.2	9.1	15.0	9.5	<1
YSR total problems	75.6	33.2	202	61.2	75.8	32.1	75.4	34.5	<1

Note. *T*-test showed no significant differences between boys and girls. YSR = Youth Self-Report.

prevalences of PTSD (boys 34%, girls 33%), $\chi^2 < 1$, and MDD (boys 35%, girls 38%), $\chi^2 < 1$.

The five most prevalent behavioral and emotional problems were feelings of having to be perfect (80%), headaches (79%), nightmares (74%), worrying a lot (72%), and stomachaches (71%). Suicidal ideations during the past month were reported by 99 (30%) children. The mean score of Youth Self-Report Total Problems Scale (see Table 4) was significantly higher in comparison to an “omnicultural mean” (35.3) reported in a study comparing data from 24 countries; $t(27534) = 137.53$, $p < .001$, $d = .65$ (Rescorla et al., 2007). In accordance with the study by Rescorla et al., untransformed raw scores were used. Compared to multicultural norms, 202 (61%) children from our sample scored above the cutoff for Youth Self-Report total problems score, 216 (66%) for internalizing problems and 86 (26%) above cutoff for externalizing problems. Table 4 shows the mean scores and scores above clinical cutoff for all Youth Self-Report scales. No significant gender differences were found regarding Youth Self-Report scales (see Table 4).

Table 5 displays zero-order correlations among all key variables. Multiple linear regression analyses were calculated to test the impact of war trauma and domestic violence on mental health outcomes. We entered gender, age, family SES, orphan status, traumatic war experiences, and domestic and community violence as predictors into the regression equation. Results of the regression analyses are presented in Table 6. Older age was significantly related to PTSD symptoms and emotional and behavioral problems, while lower SES was significantly associated with MDD symptoms. Exposure to war-related traumatic events and exposure to domestic and community violence were significant predictors of all mental health outcomes, higher exposure being associated with stronger psychopathology. The predictors accounted for 18% of

the total variance in PTSD symptoms, 19% in MDD symptoms, and 25% in behavioral and emotional problems.

DISCUSSION

This study reports high rates of traumatic war experiences, domestic and community violence, and mental health problems in former Ugandan child soldiers. Symptoms endorsed during the assessment suggested scores in the diagnostic range for PTSD in one third of the children. This finding is in line with the rate reported by Okello et al. (2007), using the same measurement as administered here. Further, our study indicates that more than one third of the children scored in the diagnostic range for MDD and two thirds showed behavioral and emotional problems of clinical significance. The behavioral and emotional problems were mainly composed of anxiety and depression, as well as somatic complaints and social problems. In sum, our data provides evidence that internalizing problems are substantially more prevalent than externalizing problems in former child soldiers. This fact is noteworthy, as it contrasts the general assumption that former child soldiers frequently resort to aggressive and violent behavior, and has major implications for future intervention programs. Even though the above estimates may represent the best available information on mental health problems in Ugandan child soldiers, a number of factors, particularly selection effects, are likely to have biased these estimates. Therefore, great caution should be taken when generalizing this data for all child soldiers in Uganda.

Traumatic experiences during abduction and experiences of domestic and community violence posed significant risk factors for all mental health outcomes. Other correlational studies have failed to show the positive association between traumatic war experiences and PTSD symptoms (Bayer et al., 2007; Derluyn et al., 2004).

Table 5. Zero-order Correlations Among Key Variables

Variables	1. ^a	2.	3.	4. ^a	5.	6.	7.	8.	9.	10.	11.
1. Female gender	—										
2. Age	-.30 ***	—									
3. Family SES	.06	-.03	—								
4. Orphan ^a	-.03	.10	.00	—							
5. Traumatic war experiences	-.20 ***	.22 ***	-.05	.19 **	—						
6. Domestic violence	-.02	.17 **	-.09	.11	.21 ***	—					
7. Community violence	-.08	.13 *	-.03	.03	.18 **	.36 ***	—				
8. PTSD symptoms	-.04	.20 **	-.11	.10	.32 ***	.28 ***	.29 ***	—			
9. MDD symptoms	-.06	.17 **	-.23 ***	.07	.31 ***	.27 ***	.25 ***	.58 ***	—		
10. Internalizing problems	.06	.12 *	-.11 *	.11 *	.28 ***	.24 ***	.26 ***	.58 ***	.48 ***	—	
11. Externalizing problems	-.01	.18 ***	-.08	.13 *	.29 ***	.33 ***	.36 ***	.50 ***	.50 ***	.64 ***	—
12. YSR total problems	-.01	.19 ***	-.09	.13 *	.32 ***	.34 ***	.35 ***	.56 ***	.55 ***	.89 ***	.88 ***

Note. N = 330. Zero-order correlations are represented by Pearson correlations, unless otherwise indicated.

^aPoint-biserial correlations. SES = socioeconomic status; PTSD = posttraumatic stress disorder; MDD = major depressive disorder; YSR = Youth Self-Report. * p < .05. ** p < .01. *** p < .001.

Whether this is due to an improved measurement of traumatic war experiences and/or higher statistical power needs to be validated in future research. Future research should also address whether it has a different impact on the mental health of children if they experience domestic violence before or after their time with the rebels.

Boys reported higher scores in cumulative trauma than girls. Contrary to our expectations, we did not find significant gender differences in sexual violence. Further, we did not find any gender differences regarding mental health outcomes. Although larger epidemiological studies tend to indicate female gender as a risk factor for posttraumatic psychopathology in children and adolescents (Breslau & Anthony, 2007; Giaconia et al., 1995; Pfefferbaum, 1997) several studies did not find such gender differences (Essau, Conradt, & Petermann, 1999; Neuner, Schauer, Catani, Ruf, & Elbert, 2006). Future research has to address this open epidemiological question in representative Ugandan samples.

Our study addressed domestic violence in former child soldiers for the first time. Even though research on domestic violence in conflict settings is still very scarce, domestic violence seems to be increased for several reasons. Known risk factors for child abuse such as poverty and parental alcohol abuse (Tolan, Gorman-Smith, & Henry, 2006) are elevated in emergency settings. Catani and colleagues (2008) have applied the so-called cycle of violence hypothesis (Widom, 1989) to predict that higher levels of war violence may lead to higher levels of violence within the family. Psychological theories such as identification with aggressors (MacEwen, 1994) and learning theories of aggressive behavior (Bevan & Higgins, 2002) might be the underlying principles explaining how war violence translates into domestic violence. In a second cycle of violence, violent behavior might be transmitted intergenerationally (MacEwen, 1994) and sustain within postconflict societies long after the armed conflict has ended.

Contrary to this hypothesis in our sample scores of reported aggressive behavior were relatively low compared to internalizing problems, both in boys and girls. This might be due to several factors that need to be investigated in future research. One explanation might be that children underreported aggressive behavior, as our study was restricted to self-report data. Further, we only interviewed children in one special needs school. Therefore, we do not know how much aggression children may show in their communities where they might be confronted with trauma triggers and stigmatization. Another possible explanation could be that children learned to obey orders within the armed group and show adaptive behavior in the rather authoritative Ugandan education system. Longitudinal data on aggressive behavior in adult former child soldiers are still missing. Children might engage in aggressive behavior more frequently once they have gained more control over their lives.

Even though aggression scores were low on average, it is noteworthy that aggression and other mental health problems were significantly related. Recent studies also indicate that former child

Table 6. Multiple Linear Regression Analyses Predicting Mental Health Outcomes ($N = 330$)

	PTSD symptoms			MDD symptoms			Behavioral and emotional problems		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Female gender	0.42	0.36	.06	0.27	0.34	.04	6.49	3.42	.10
Age at interview	0.26	0.12	.12 *	0.18	0.11	.09	2.17	1.11	.10 *
Family SES	-0.07	0.05	-.08	-0.18	0.05	-.20 ***	-0.58	0.45	-.06
Orphan	0.18	0.35	.03	0.00	0.33	.00	3.42	3.32	.05
Traumatic war experiences	0.18	0.04	.23 ***	0.18	0.04	.24 ***	1.70	0.39	.23 ***
Domestic violence	0.33	0.13	.14 *	0.32	0.13	.14 *	4.19	1.26	.18 **
Community violence	1.30	0.38	.19 **	1.00	0.36	.15 **	16.49	3.60	.24 ***
Full regression model	$R^2 = 19.9\%^{***}$ (adjusted $R^2 = 18.1\%$)			$R^2 = 20.8\%^{***}$ (adjusted $R^2 = 19\%$)			$R^2 = 24.7\%^{***}$ (adjusted $R^2 = 23.1\%$)		

Note. PTSD = posttraumatic stress disorder; MDD = major depressive disorder; SES = socioeconomic status.

* $p < .05$. ** $p < .01$. *** $p < .001$.

soldiers with more posttraumatic symptoms are less open to reconciliation, have higher feelings of revenge, and favor violent forms of behavior to resolve conflicts (Bayer et al., 2007; Vinck et al., 2007). Therefore, clinical interventions are urgently needed to prevent children from engaging in aggressive and violent behavior and break a potential cycle of violence.

Several limitations of the study have to be considered. For feasibility reasons, we used a convenience sample. Having chosen one special-needs school for war-traumatized children may have biased our findings. As the political situation is becoming more stable, future research should be done on representative samples of child soldiers. Another limitation of the study was the restriction to self-report data, as parents were scattered throughout the war-torn northern part of Uganda and class sizes were too big to obtain teacher's perspectives. Rates of PTSD and MDD have to be considered with caution as the use of lay interviewers presents a limitation of the study. Further, due to the lack of locally developed instruments, we were forced to rely on Western-oriented questionnaires for mental health outcomes.

In conclusion, the findings of our study have several clinical and interventional implications. First, they document the mental health status of former child soldiers, particularly the high rate of internalizing problems. Second, with high rates of rape reported in both girls and boys, no gender differences were found regarding mental health outcomes. Third, our analyses underline the impact of domestic and community violence on mental health outcomes in addition to war trauma. Therefore, our data indicates that mental health treatment approaches for children and adolescents in postconflict settings need to address not only war trauma, but also violent behavior within families and communities. Frequent mental health problems in traumatized children contrast with a psychiatrist-to-population ratio of 1:1.3 million in Uganda (Ovuga, Boardman, & Wasserman, 2007).

The psychological rehabilitation of former child soldiers is an international obligation according to Article 39 of the United Nations Convention on the Rights of the Child (United Nations, 1989). Our data calls on the medical and humanitarian community to promote and expand mental health support for war-affected children and their families to break the potential cycle of violence and work towards reconciliation.

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