The role of violence perpetration in driving externalizing problems and offending behavior among youth from eastern Democratic Republic of Congo

Dumke, L.; Haer, R. van der; Zawadka, A.; Salmen, C.; Hecker, T.

Received: 1 March 2022 | Revised: 12 July 2022 | Accepted: 14 July 2022

DOI: 10.1002/jts.22871

RESEARCH ARTICLE

ISTSS International Society for Traumatic Stress Studies WILEY

The role of violence perpetration in driving externalizing problems and offending behavior among youth from eastern Democratic Republic of Congo

Lars Dumke[1] | **Roos Haer**[2] | **Annika Zawadka**[1] | **Charlotte Salmen**[3] | **Tobias Hecker**[1]

[1]Department of Psychology, Bielefeld University, Bielefeld, Germany

[2]Institute of Political Science, University of Leiden, Leiden, Netherlands

[3]vivo international, Konstanz, Germany

Correspondence
Lars Dumke; Department of Psychology, Clinical Psychology and Psychotherapy; Bielefeld University; P.O. Box 100131; 33501 Bielefeld, Germany.
Email: lars.dumke@uni-bielefeld.de

This work was supported by the Gerda Henkel Stiftung (AK 18/KF/18).

The authors would like to thank the Gerda Henkel Stiftung for the extensive support of this research. We are also grateful to all the children for their readiness to participate and willingness to talk about often intimate and painful subjects. We especially thank Justin Maisha, Bahati Muchindi Chancelin, Aline Iragi Malekera, and Nicole Kaboyi for their assistance with data collection. Additionally, we want to thank the directors and staff of all participating organizations. We thank them for their warm welcome, interest in the project, and support.

Abstract

Youth in conflict-affected regions are exposed to a multitude of traumatic events. These individuals often witness violence; experience it firsthand; and, in some cases, become perpetrators. The interplay of events shapes systematic trauma histories that may have unique implications for youths' mental health. In a cross-sectional study conducted in eastern Democratic Republic of Congo (DRC), we interviewed 295 war-affected youth (63.4% boys, $M_{age} = 16.70$ years), including former child soldiers ($n = 171$), regarding their traumatic experiences and mental health. Using latent class analysis, we identified four common trauma history classes categorized by (a) low exposure, (b) medium exposure, (c) high exposure, and (d) high exposure/perpetration. Across the sample, gradual increases in trauma load corresponded with increased vulnerability to posttraumatic stress disorder (PTSD) symptoms, $\eta_p^2 = .36$, and internalizing problems, $\eta_p^2 = .12$; however, only youth from the high exposure/perpetration class differed significantly from other youth in their levels of externalizing problems, $\eta_p^2 = .13$, and offending behaviors, $\eta_p^2 = .17$. A longer time in armed groups was related to a higher risk of both experiencing and perpetrating violence. The results indicate that it is not child soldier status, per se, but the perpetration of violence that reinforces a cycle of violence in conflict-affected societies by contributing to increased externalizing problems and offending behaviors. In conflict regions, integrated approaches are needed to address both trauma and externalizing problems of war-affected youth.

Worldwide, 1 out of 5 youths grow up in conflict regions (Save the Children, 2020). These individuals witness severe forms of violence against their communities and families, including physical assault and violent death (Ertl et al., 2014; Mels et al., 2009). Moreover, they are also directly targeted by violence, with grave violations against children and adolescents reported in over 20 conflict-affected regions (United Nations, 2021). In the eastern Democratic Republic of Congo (DRC), for instance, representative data shows that every fifth youth has been injured and every 10th has experienced sexual violence during armed conflict (Mels et al., 2009). Another grave violation against children and increasing feature of armed conflict is the recruitment of children by armed groups (Haer & Böhmelt, 2016a). When youth are recruited by armed groups, their war experiences can differ significantly from nonrecruited youth (Vindevogel et al., 2013). On average, recruited children and adolescents witness and experience a higher number of traumatic events, including potentially more severe forms of violence (Ertl et al., 2014; Kohrt, 2008; Vindevogel et al., 2013), than those who do not serve in armed groups. Furthermore, many child soldiers report not only witnessing and directly experiencing violence but also perpetrating violence (Hermenau et al., 2013; Robjant et al., 2020). Whether child soldiers experience or perpetrate certain traumatic events has been shown to be related to their role in the armed group as well as individual characteristics, such as age and gender (Klasen et al., 2010; Su et al., 2021). Nevertheless, child soldiers are typically assumed to be a homogenous subgroup in terms of their level of trauma exposure, as reflected in numerous studies comparing former child soldiers with nonrecruited children (Ertl et al., 2014; Kohrt, 2008; Vindevogel et al., 2013).

Considering that exposure to certain violent events (e.g., recruitment by armed groups) increases the risk of exposure to other violent events, systematic trauma histories within conflict-affected populations can be assumed (Gibbs et al., 2021). In research, person-oriented analysis approaches have emerged as a tool that can be used to identify common trauma histories by categorizing individuals into latent subgroups based on their exposure to traumatic events (O'Donnell et al., 2017). Individuals within each subgroup share a similar trauma history that is homogeneous regarding the number and types of trauma exposure, whereas trauma histories are heterogeneous between subgroups (Hagan et al., 2016). Such systematic interindividual trauma patterns have been identified in person-oriented studies, including some examining war-affected samples (Gibbs et al., 2021; O'Donnell et al., 2017; Sengoelge et al., 2019). Across these studies, distinct trauma patterns were observed and were distinguished by war-trauma exposure levels and the presence of experiences of interpersonal violence (Dumke et al., 2021; Gibbs et al., 2021; Lor et al., 2022; O'Donnell et al., 2017; Sengoelge et al., 2019).

The identification of trauma patterns offers valuable insights into characteristics associated with severe trauma histories and their mental health consequences (O'Donnell et al., 2017; Rasmussen et al., 2020). For instance, trauma patterns involving interpersonal violence in addition to nonphysical violence have been found to be more strongly associated with depression, posttraumatic stress disorder (PTSD), and suicidality (Dumke et al., 2021; Lor et al., 2022). Similarly, Su et al. (2021) found that aside from the cumulative effect of the number of experienced events (i.e., dose–response effect), particularly violent victimization and involvement in combat as part of a trauma pattern had a larger impact on long-term mental health problems among former child soldiers relative to other types of traumatic experiences.

Although the applicability of person-centered approaches and their utility for enhancing the understanding of the adverse psychological consequences of war-related trauma is indicated, evidence is still scarce with respect to youth living in conflict regions. Previous person-oriented studies have either examined samples of war-affected adults (e.g., Dumke et al., 2021; Gibbs et al., 2020; Lor et al., 2022); focused on specific subgroups of war-affected youth, such as former child soldiers (e.g., Su et al., 2020); examined refugee samples composed of individuals who were no longer living in a conflict region (e.g., Lor et al., 2022; Sengoelge et al., 2019); or did not consider the perpetration of violence (e.g., Sengoelge et al., 2019).

To our knowledge, to date, the perpetration of violence has been included in only one person-oriented study (i.e., Su et al., 2021). This is surprising, as according to previous evidence, engaging in combat and the perpetration of violence has particular implications for the mental health of war-affected youth (Elbert et al., 2018; MacNair, 2002). According to the theory of perpetration-induced traumatic stress (MacNair, 2002), individuals who have perpetrated violence show further traumatization and higher levels of PTSD symptom severity compared to those who have not engaged in violence. For instance, in studies with former child soldiers from Uganda and the DRC, researchers have observed that the perpetration of violence contributes to children's PTSD symptoms independent of other traumatic experiences (Ertl et al., 2014; Hecker et al., 2013). Moreover, conflict-related perpetration has been linked extensively to subsequent externalizing problems and offending behavior, implying a cycle of violence in postconflict regions (Elbert et al., 2018). For example, previous research in samples of child soldiers from Sierra Leone suggests that acts of violence, such as killing and injuring others, are associated with higher rates of

hostility and externalizing problem behavior that can persist over time (Betancourt et al., 2010, 2011). Therefore, in the current study, we used a person-oriented approach to investigate patterns of trauma exposure, including the perpetration of violence among war-affected youth from the eastern DRC, to examine how these patterns are related to youths' psychosocial functioning. For decades, this region has been affected by armed conflict, and young people have been highly exposed to violence (Hecker et al., 2013; Mels et al., 2009). Moreover, armed groups operating in the region have increasingly recognized the utility of child recruitment as a tactic of war, resulting in children and adolescents being drawn into the conflict and engaging in violence (Haer & Böhmelt, 2016a). Addressing the living situation of youth in eastern DRC, our sample included both former child soldiers and nonrecruited youth. Moreover, our assessment of trauma exposure specifically considered the perpetration of violence. Hypothesizing that trauma exposure is not random but subject to systematic patterns and accounting for variations in trauma exposure among presumed homogenous subgroups (e.g., former child soldiers), we applied latent class analysis (LCA) to identify common trauma histories in the sample. Regarding the heterogeneity of trauma exposure among former child soldiers (Klasen et al., 2010; Su et al., 2021), we expected to observe classes distinctively separating children based on their trauma load and the perpetration of violence. We subsequently analyzed whether the trauma histories were related to children's sociodemographic characteristics and psychosocial functioning (i.e., internalizing problems, externalizing problems, offending behaviors, PTSD symptoms). We expected that trauma histories involving higher levels of trauma exposure and more perpetration of violence would be more strongly related to impairments in psychosocial functioning relative to other histories. Furthermore, we expected that trauma histories involving the perpetration of violence would be related to externalizing problems and offending behaviors.

METHOD

Participants

A total of 315 children and adolescents took part in the study. Data from 20 participants were excluded from the analyses because no information was provided about war experiences or mental health problems. Thus, the final sample consisted of 295 war-affected youths, 187 of whom were male (63.4%), and included both former child soldiers ($n = 171$, 58.0%) and nonrecruited youths ($n = 124$, 42.0%). The mean participant age was 16.70 years ($SD = 2.73$, range: 11–26 years). Excluded participants were more frequently former members of armed groups, $t(312) = 1.81$, $p < .001$, and, on average, left these groups a shorter time ago, $t(173) = -1.34$, $p = .048$, than those who were included in the sample. Table 1 reports further sociodemographic information for the total sample, and Table 2 reports demographic information stratified by class.

TABLE 1 Sociodemographic characteristics for the total sample

Variable	*M*	*SD*	*n*	%
Age (years)	16.70	2.73		
Female gender			108	36.6
Educational attainment (years)	6.02	3.05		
Armed group				
Former member			171	58.0
Age when joined (years)	11.93	2.68		
Age when left (years)	14.27	2.45		
Time with group (days)	843.48	651.53		
Time since leaving (years)	3.07	2.92		
Trauma exposure				
Witnessed	5.70	2.64		
Experienced	8.12	3.82		
Perpetrated	2.30	3.05		
Positive screen				
PTSD			83	28.1
Internalizing problems			240	81.4
Externalizing problems			122	41.4

Note: $N = 295$.
PTSD, posttraumatic stress disorder.

Procedure

The study was conducted in Bukavu, South Kivu district, in the eastern DRC. Sample recruitment took place with the help of seven nongovernmental organizations (NGOs) that offer child protective services (e.g., family tracing and reintegration, counseling) and vocational training (e.g., tailoring, mechanics) to war-affected youth (Haer & Brown, 2022). After receiving the necessary permission from these organizations, youths were approached and invited to participate on a voluntary basis.

Interviews were carried out in English by three (i.e., two female and one male) experienced researchers and translated to Swahili, the most common language spoken in eastern DRC, by four (i.e., two female and two male) trained local translators. Standardized introduction and questionnaire administration procedures were implemented. Using a reverse-translation procedure, all instruments were translated to Swahili.

TABLE 2 Sociodemographic characteristics, by trauma exposure class

Variable	Low-exposure class ($n = 36$, 12.2%)				Medium-exposure class ($n = 68$, 23.1%)				High-exposure class ($n = 101$, 34.2%)				High-exposure/perpetration class ($n = 90$, 30.5%)				Statistical test[a]	p
	M	*SD*	*n*	%	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%		
Age (years)	15.61	2.33			15.90	1.89			16.84	2.96			17.61	2.86			$F(3, 291) = 7.75$	< .001
Female gender			20	55.6			26	38.2			53	52.5			9	10.0	$\chi^2(3, 295) = 44.06$	< .001
Educational attainment (years)	6.25	2.88			6.89	2.79			6.31	3.21			4.94	2.87			$F(3, 291) = 6.20$	< .001
Armed group																		
Former member			1	2.8			8	11.8			72	71.3			90	100.0	$\chi^2(3, 295) = 177.19$	< .001
Age when joined (years)					13.13	3.72			11.62	2.88			12.07	2.40			$F(2, 160) = 1.38$	.255
Age when left (years)					13.75	3.15			13.90	2.57			14.60	2.26			$F(2, 159) = 1.79$	.170
Time with group (days)					228.28	271.75			774.76	679.59			953.45	619.08			$F(2, 157) = 5.45$	.005
Time since leaving (years)					2.13	1.89			3.20	3.00			3.05	2.94			$F(2, 158) = 0.48$	.62
Traumatic events																		
Witnessed	0.81	0.95			3.66	1.63			6.98	1.10			7.77	0.52			$F(3, 291) = 460.60$	< .001
Experienced	1.47	1.11			5.25	1.91			9.74	1.91			11.12	2.15			$F(3, 291) = 293.56$	< .001
Perpetrated	0	0.00			0.15	0.12			0.85	1.25			6.59	1.39			$F(3, 291) = 710.25$	< .001
Positive screen for mental health concern																		
PTSD			0	0.0			6	8.8			27	26.7			50	55.6	$\chi^2(3, 295) = 60.20$	< .001
Internalizing problems			22	61.1			58	85.3			82	81.2			78	86.7	$\chi^2(3, 295) = 12.10$	.007
Externalizing problems			11	30.6			22	32.4			32	31.7			57	63.3	$\chi^2(3, 295) = 25.82$	< .001

Note: PTSD, posttraumatic stress disorder.
[a]Difference between classes.

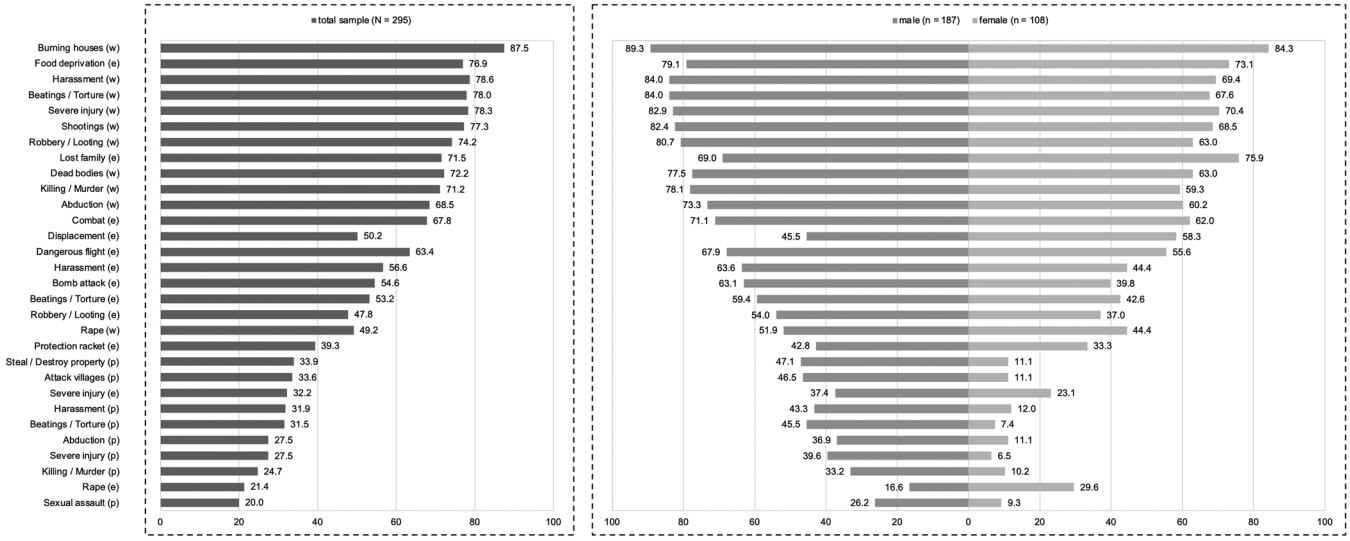

FIGURE 1 Prevalence of traumatic event types in the total sample and stratified by gender.
Note: $N = 295$. w = witnessed traumatic events; e = experienced traumatic events; p = perpetrated traumatic events.

All participants were informed in detail about the content and procedures of the study, and informed consent was obtained prior to the interviews. For underaged participants, additional permission was obtained from the collaborating organizations because no caregivers were available. The interviews lasted approximately 1 hour and took place in privacy-protected rooms. One participant was interviewed by an interviewer at a time. Participants received a compensation of $5 (USD). The study received approval by the Ethical Committee of Bielefeld University (No. 2018–202).

Measures

War experiences

Exposure to war trauma was assessed using a modified version of the Violence, War, and Abduction Exposure Scale (Ertl et al., 2010). This scale was specifically designed for formerly abducted and other war-affected individuals and has been used with child soldiers from the DRC (Hermenau et al., 2013). Based on literature research, the items were adapted to fit the characteristics of the conflict. An event checklist with 30 items, each of which depicts a potentially traumatic event, was compiled (see Figure 1). Participants were asked to indicate whether they witnessed, experienced, or perpetrated each event. Binary answers (i.e., yes/no) were used to identify trauma patterns in the LCA. In the present sample, the internal consistency of the checklist was very good, Cronbach's $\alpha = .94$.

PTSD symptoms

The International Trauma Questionnaire (ITQ; Cloitre et al., 2018) is a brief measure of PTSD based on the criteria in the 11th version of the International Classification of Diseases (*ICD-11*). The ITQ has been validated previously in youth (Haselgruber et al., 2020). The measure includes two items each for the PTSD symptom clusters of reexperiencing, avoidance, and sense of threat, with items scored on a five-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). Item scores greater than 2 (*moderately*) indicate the presence of a symptom. PTSD criteria were considered to be met if at least one item per symptom cluster was answered with a score of 2 or higher. Overall symptom severity was calculated by summing scores across all items (range: 0–24). In the present sample, Cronbach's alpha was .83.

Internalizing and externalizing problems

The Strength and Difficulties Questionnaire (SDQ; Goodman, 1997) was implemented to assess behavioral and emotional problems. The screening instrument covers externalizing (e.g., "I get very angry", "I am restless") and internalizing problems (e.g., "I am often unhappy", "I'm usually on my own") with 10 items each. Items are rated on a 3-point Likert scale ranging from 0 (*not true*) to 2 (*certainly true*). Sum scores range from 0 to 20, with higher scores indicating more problems. Cutoff criteria according to Goodman (2001) were applied to report the prevalence of clinically relevant mental internalizing and externalizing mental health problems. The SDQ has been implemented

with war-affected youth in East Africa, including former child soldiers (Saile et al., 2016). In the present sample, Cronbach's alpha was .66 for the Internalizing Problems subscale and .65 for the Externalizing Problems subscale. The relatively low Cronbach's alpha coefficients mirror the internal consistency observed in previous research and may be explained by the heterogeneity of items across the scales (Hecker et al., 2021).

Offending

We adapted a widely used measure by Raudenbush et al. (2003) to assess current offending behavior. The measure was developed using a Rasch model, and adaptations have previously found application in violent populations, such as youth gangs (Melde & Esbensen, 2013). In total, the measure consisted of 10 items that differed regarding both type (e.g., violent crime, property crime) and severity and ranged from "purposely damaged property" to "killed someone." For each item, participants dichotomously rated whether they have or have not engaged in the behavior in the preceding 12 months. Only behavior outside armed conflict was recorded. A composite score was created by summing up the answers across all items (range: 0 – 10). In the present sample, Cronbach's alpha was .76.

Data analysis

Statistical analyses were conducted using IBM SPSS (Version 28) and *M*plus (Version 8). Less than 2% of data on items assessing children's trauma exposure and psychosocial functioning were missing; missing values were replaced as if the symptom or exposure was not present. Chi-square tests and analyses of variance (ANOVAs) were used to determine differences in sociodemographic characteristics. A person-oriented LCA approach was utilized to identify patterns of war trauma exposure and categorize individuals into a priori unknown subgroups (i.e., latent classes) based on their reported exposure to 30 traumatic events. Maximum likelihood parameter estimation, with default random start values, was used. The best log-likelihood value was replicated. We chose the optimal number of classes by considering commonly used information criteria, likelihood-based tests, and theoretical considerations. We utilized the Akaike information criterion (AIC), Bayesian information criterion (BIC), and the sample-size adjusted BIC (SABIC), with lower values indicating better model fit. We additionally considered the Bootstrapped Lo–Mendell–Rubin adjusted likelihood ratio test (BLRT), Vuong–Lo–Mendell–Rubin adjusted likelihood ratio test (VLMR), and Lo–Mendell–Rubin likelihood ratio test (LMR), whereby significant test values (i.e., $p < .05$) indicate better model fit compared to the model with one fewer class.

A multivariate analysis of covariance (MANCOVA) was conducted for youths' psychosocial functioning (i.e., internalizing problems, externalizing problems, offending behaviors, PTSD symptom severity), using trauma exposure class as the independent variable and controlling for sociodemographic characteristics (i.e., age and gender). Univariate ANCOVAs were calculated as follow-up tests to examine group differences for each psychosocial outcome. Because all outcome variables deviated from the normal distribution, and Box-M test results indicated heterogeneity of the variance-covariance matrix, we used the robust Pillai's test (Nimon, 2012). No multivariate outliers were identified. In some cases, violations of variance homogeneity and the normal distribution of variables were revealed by Levene's test and Shapiro–Wilk's test, respectively; however, ANCOVA models have been proven as robust to these violations (Nimon, 2012). A probability value of less than .05 was considered significant. For pairwise comparisons in the ANCOVAs, the alpha level was adjusted to .008 using a Bonferroni correction to avoid alpha inflation. Effect size measures, calculated as partial eta squared, of .01 or greater, .06 or greater, and .14 or greater were used to indicate small, medium, and large effects, respectively (Cohen, 1988).

RESULTS

Trauma exposure and mental health

On average, participants reported having experienced 16.13 ($SD = 8.33$) traumatic events. Figure 1 shows exposure frequency for each traumatic event in the total sample and stratified by gender. Regarding mental health, 28.3% ($n = 83$) of participants screened positive for PTSD. The results further showed that 41.4% ($n = 122$) and 81.4% ($n = 240$) of participants, respectively, screened positive for externalizing problems and internalizing problems. Participants reported an average of 1.31 ($SD = 1.91$) offending behaviors in the past year.

Latent classes of war-related trauma exposure

We performed LCA of participants' trauma exposure histories for model solutions consisting of two to six classes. Statistically and theoretically, the four-class solution was

TABLE 3 Statistical criteria for latent class models with two to six latent classes

Model	Log-likelihood	AIC[b]	BIC[b]	SABIC[b]	VLMR *p*	LMR *p*	BLRT *p*	Entropy
2 classes	−4,075	8,273.7	8,497.6	8,304.1	.001	.001	< .001	.94
3 classes	−3,659	7,502.3	7,841.5	7,549.8	.003	.003	< .001	.96
4 classes[a]	−3,568	7,382.3	7,835.7	7,445.7	< .001	< .001	< .001	.95
5 classes	−3,491	7,289.3	7,857.1	7,368.7	.620	.621	< .001	.94
6 classes	−3,434	7,237.6	7,919.7	7,333.0	.200	.198	< .001	.95

Note: Significant test values ($p < .05$) indicate better model fit compared to the model with one class fewer. BIC, Bayesian information criterion; SABIC, sample-size adjusted BIC; AIC, Akaike information criterion; VLMR, Vuong–Lo–Mendell–Rubin adjusted likelihood ratio test; LMR, Lo–Mendell–Rubin likelihood ratio test; BLRT, bootstrapped likelihood ratio test.

[a]BIC, VLMR, and LMR values indicate the selection of a four-class solution.

[b]Lower values indicate better model fit.

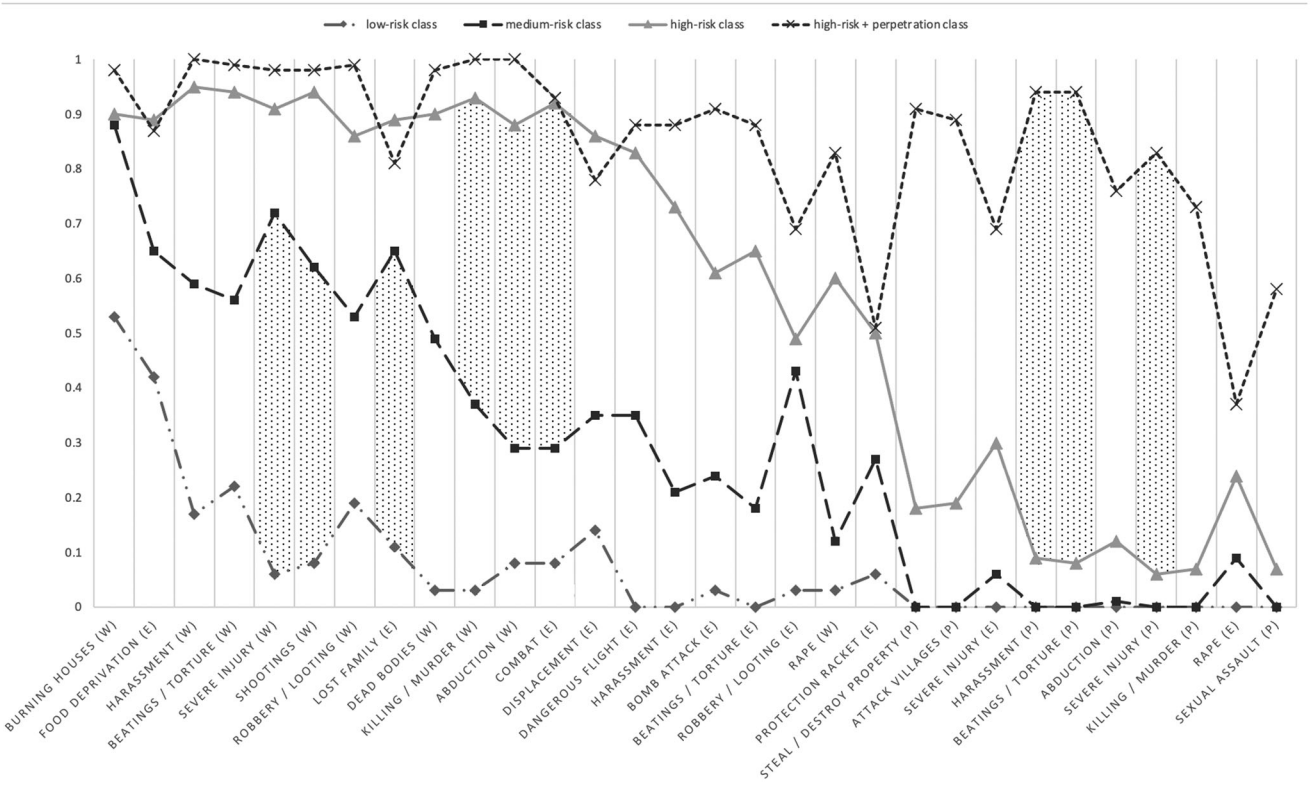

FIGURE 2 Estimated conditional probabilities of trauma exposure, by class membership in the four-class solution.
Note: Events ordered according to average conditional probabilities, with increasing event frequency from left to right. For each class, the highlighted area represents the three events with the largest probability difference relative to the previous class.
w = witnessed traumatic events; e = experienced traumatic events; p = perpetrated traumatic events.

the best-fitting model (see Table 3). The latent class profile plot is shown in Figure 2. Trauma history classes differed in their risk of exposure to war-related violence. Accordingly, only one out of 10 youths (12.2%, $n = 36$) had experienced relatively low levels of war-related trauma exposure relative to the sample average. Participants in this class most frequently reported being close to burning houses (52.8%) and food deprivation (41.1%); subsequently, this class was labeled the "low-exposure class." The probability of exposure to traumatic events increased in the second class, which comprised 23.1% ($n = 68$) of the sample. Most participants in this class witnessed some form of violence (e.g., burning house, 87.9%; injury, 71.5%; beatings, 56.8%). A smaller proportion of youth in this class reported proximity to war-related violence (e.g., being close to combat, being close to bomb attacks) or experienced direct violent victimization. This class was labeled the "medium-exposure class." Youths in the third class (34.2%, $n = 101$) had high probabilities of witnessing and experiencing traumatic events, including war-related violence (e.g.,

witnessing abduction, 87.7%; being close to combat, 92.3%; experiencing dangerous flight, 82.9%). This class was consequently labeled the "high-exposure class." The probability of perpetrating violence was low in the low-exposure, medium-exposure, and high-exposure classes. In contrast, the probability of perpetrating violence (e.g., attacking villages, 89.0%; causing injury, 83.3%; killing another person or people, 73.0%) was high in the fourth class (30.5%, $n = 90$), whereas the overall level of trauma exposure was similar to the high-exposure class. Therefore, the fourth class was labeled the "high-exposure/perpetration class."

Sociodemographic characteristics and psychosocial outcomes by trauma exposure class

Table 2 shows the sociodemographic characteristics of the sample by trauma exposure class. On average, youth in the high-exposure/perpetration class were older than those in the other classes, yet they reported the lowest levels of educational attainment. Most participants in the high-exposure/perpetration class were boys ($n = 81$, 90.0%), and all youths in this class were former members of armed groups. In general, the proportion of former child soldiers decreased from the high-exposure/perpetration class to the low-exposure class. Similarly, the time a participant reported spending in an armed group was the longest in the high-exposure/perpetration class and gradually decreased with membership in the high-exposure and medium-exposure classes.

Psychosocial outcomes, stratified by trauma history class, are presented in Table 4. MANCOVA results revealed that at least one of the psychosocial outcomes differed significantly between the classes after controlling for gender and age, $F(12, 864) = 12.53$, $p < .001$, $\eta_p^2 = .15$. Post hoc analyses showed that youth in the high-exposure/perpetration class had significantly higher scores on measures of all psychosocial outcomes (i.e., internalizing problems, PTSD symptom severity, externalizing problems, and current offending behavior) compared to those in the other classes. However, regarding internalizing problems, significant differences were also observed between the high- and low-exposure classes as well as between the medium- and low-exposure classes. Moreover, youth in the high-exposure class had higher PTSD symptom severity scores compared with those in the medium- and low-exposure classes. Thus, although we found gradual class differences for internalizing problems and PTSD severity scores, unique differences were observed between the high-exposure/perpetration class and the other classes with

TABLE 4 Mean scores for mental health concerns after adjusting for the covariates gender and age

Variable	Low-exposure class ($n = 36$, 12.2%)			Medium-exposure class ($n = 68$, 23.1%)			High-exposure class ($n = 101$, 34.2%)			High-exposure/perpetration class ($n = 90$, 30.5%)			Post hoc
	M	*SE*	95% CI	*M*	*SE*	95% CI	*M*	*SE*	95% CI	*M*	*SE*	95% CI	
PTSD symptoms[a]	1.29	0.83	[.00, 2.91]	3.93	0.60	[2.76, 5.10]	7.89	0.50	[6.92, 8.87]	12.25	0.54	[11.18, 13.32]	3 > 2***, 1*** 4 > 3***, 2***, 1***
Internalizing problems[b]	7.48	0.63	[6.25, 8.71]	9.70	0.45	[8.81, 10.60]	9.90	0.38	[9.16, 10.64]	12.04	0.41	[11.23, 12.86]	2 > 1* 3 > 1* 4 > 3**, 2**, 1***
Externalizing problems[c]	4.96	0.53	[3.93, 6.00]	5.99	0.38	[5.24, 6.73]	6.05	0.32	[5.43, 6.67]	8.55	0.35	[7.87, 9.23]	4 > 3***, 2***, 1***
Offending behaviors[b]	0.34	0.29	[.00, .90]	0.71	0.21	[.30, 1.12]	1.02	0.17	[.68, 1.36]	2.50	0.19	[2.13, 2.87]	4 > 3***, 2***, 1***

Note: Bonferroni adjustment applied. PTSD, posttraumatic stress disorder. [a]$F(3, 289) = 53.41$, $p < .001$, $\eta_p^2 = .36$. [b]$F(3, 289) = 12.62$, $p < .001$, partial $\eta_p^2 = .12$. [c]$F(3, 289) = 14.48$, $p < .001$, $\eta_p^2 = .13$. [d]$F(3, 289) = 19.22$, $p < .001$, $\eta_p^2 = .17$. *$p < .05$; **$p < .01$; ***$p < .001$.

regard to externalizing problems and current offending behavior.

DISCUSSION

The present study investigated patterns of trauma exposure and their psychosocial consequences among war-affected youth in eastern DRC. In the present sample, we observed rates of psychopathology that were markedly higher than those observed in non–war-affected samples (Dyregrov & Yule, 2006). The prevalence rates were similar in magnitude to those observed in previous studies with war-affected youth in the DRC and other conflict regions (Betancourt et al., 2010; Ertl et al., 2014; Hermenau et al., 2013; Kohrt, 2008; Mels et al., 2009; Robjant et al., 2020; Su et al., 2021). Moreover, consistent with previous research (Hecker et al., 2013; Mels et al., 2009; Robjant et al., 2020), the data revealed exposure to a multiplicity of traumatic events among youth in eastern DRC. Besides witnessing violence, most participants additionally endorsed direct victimization, including events typically classified as grave violations against children, such as severe injury and sexual violence. Furthermore, participants reported having perpetrated violence during conflict.

The LCA showed that youth in the current sample could be grouped into four classes based on their exposure to traumatic events. The low-exposure, medium-exposure, and high-exposure classes mainly differed in their probability of exposure to witnessing violence and experiencing violent victimization. However, when comparing the medium- and high-exposure classes, the probability differences between the groups were the largest for witnessing killings (56.3%), witnessing abductions (57.5%), and being close to combat (62.5%). The proximity to combat made children and adolescents in the high-exposure class particularly vulnerable to experiencing multiple traumatic events and interpersonal violence. This mirrors findings from other person-centered studies (Dumke et al., 2021; Sengoelge et al., 2019) in which proximity to conflict-related violence was found to be related to high risks of exposure to multiple traumatic events, including experiences such as sexual violence and torture. Youth in the high-exposure/perpetration class had the overall highest probabilities of witnessing and experiencing violence, including exposure to events indicating these individuals were directly involved in fighting. Furthermore, in contrast to the other classes, this class was distinguished by a high probability of perpetrating violence. Notably, even though the high-exposure/perpetration class comprised of only former child soldiers, youths who were conscripted to armed groups could be found in all classes. Nearly 50% of former child soldiers were not grouped in the high-exposure/perpetration class but rather in the medium- or high-exposure classes. Previous studies from the Great Lakes region of Africa also found that not all child soldiers are equally affected by trauma exposure (Ertl et al., 2014; Hecker et al., 2013); the present findings further suggest that different subgroups of former child soldiers are identifiable, depending on whether or not they perpetrated violence. This is consistent with reports of the roles and tasks typically assigned to child soldiers. For example, Klasen et al. (2010) reported that 40% of former Ugandan child soldiers were assigned to frontline tasks, including fighting and kidnapping civilians, whereas the remaining children were mainly assigned to logistical or domestic tasks. Similarly, Su et al. (2021) reported trauma patterns among former child soldiers that differed by the prevalence of nonviolent combat activities and the perpetration of violence they experienced. The present results not only confirm this finding but also suggest that the trauma histories of a proportion of former child soldiers correspond with the trauma histories of nonrecruited youth who are at high risk of violent victimization but have little or no likelihood of perpetrating violence.

Regarding sociodemographic risk factors for the perpetration of violence, former child soldiers in the high-exposure/perpetration class reported significantly longer times involved with armed groups than those in the medium- and high-exposure classes. Thus, the longer children stayed in armed groups, the greater their risk of not only experiencing but also perpetrating violence.

Youth in the high-exposure/perpetration class reported significantly more mental health problems than children in all other classes. The severity of PTSD symptoms and internalizing problems increased gradually from low-exposure to high-exposure/perpetration class. These results align with research on the dose–response effect of trauma exposure on PTSD symptoms and internalizing problems among war-affected populations, including child soldiers (Ertl et al., 2014; Hermenau et al., 2013; Mels et al., 2010). Notably, youth grouped into the high-exposure/perpetration class had the highest levels of PTSD symptom severity, which may be due to further traumatization because of their violence perpetration. In the literature, this effect, termed perpetration-induced traumatic stress, has also been observed among war veterans and youth gang members (Kerig et al., 2016; MacNair, 2002). In the current study, youth in the high-exposure/perpetration class not only experienced an alarmingly high number of traumatic events but also perpetrated severe forms of violence. These individuals reported having been frequently involved in the perpetration of horrendous acts against their own communities and family members. Emerging feelings of shame and guilt are intended to discourage

these youths from leaving the armed group (Haer et al., 2011); hence, it may be that negative emotions, such as guilt and shame, contribute to further traumatization following the perpetration of violence. Trauma-related guilt has been associated consistently with higher levels of PTSD symptoms among former child soldiers in Uganda (Klasen et al., 2015).

Furthermore, the results show that only youth in the high-exposure/perpetration class differed significantly from those in other groups with regard to externalizing problems and current offending behaviors, which suggests a unique effect of violence perpetration on these psychosocial outcomes. Accordingly, the perpetration of violence is reflected in symptoms that can lead to problems in interpersonal relationships, such as aggressive behavior, as well as difficulties with readjusting to the social norms of civilian life. These results are consistent with research by Betancourt et al. (2011), Maguen et al. (2009), and Hermenau et al. (2013), who found associations between the perpetration of violence during armed conflict and long-term aggressive and violent behavior. Thus, the present findings support a postulated "cycle of violence" (e.g., Elbert et al., 2018; Haer & Böhmelt, 2016b) in which the perpetration of violence during conflict leads to ongoing criminal and violent behavior even when the conflict is over. The perpetration of violence and associated behavioral tendencies can be functional in violent social contexts, as committing violence in these contexts is connected to benefits such as social status, wealth gain, and survival (Crombach et al., 2013). Acquired by social learning and operant reinforcement, these previously beneficial behavior tendencies are, however, sustained even after conflict, when they manifest as problem behavior.

To our knowledge, this was the first study to apply a person-oriented analysis approach to investigate patterns of trauma history among youth living in a conflict-affected region while considering the perpetration of violence. Our analytic approach enabled us to examine the psychosocial consequences of growing up in a conflict-affected area, with consideration given to actual trauma exposure history and the potential qualitative differences in the impact of events. Nevertheless, several limitations of this study provide avenues for future research. First, the sampling procedure did not rely on a random selection of participants due to feasibility, logistical, and safety constraints. Although the current sample may not represent the entire population of youth in the eastern DRC, it provides a broad variety of relevant characteristics (e.g., age, gender, war exposure), and our results are consistent with findings from previous studies (Mels et al., 2009; Robjant et al., 2020). Future studies should examine the mental health of children who have just returned from armed groups, as these individuals were often excluded from the present analysis due to high proportions of missing data on war experiences and mental health problems, which may indicate a substantial burden among these children. Second, the cross-sectional study design does not allow conclusions about causal relations. For instance, it is possible that youth in the high-exposure/perpetration class showed higher baseline levels of externalizing problems prior to the perpetration of conflict-related violence. However, a recent longitudinal study with Burundian soldiers suggests an effect of violence perpetration beyond the effect of the baseline levels of externalizing problems (Nandi et al., 2020). Although the present results are in line with a postulated cycle of violence, we cannot draw any conclusions about the underlying mechanisms. Future studies should include further relevant variables (e.g., appetitive aggression, guilt, shame) as well as multi-informant and objective data (e.g., peer reports, community data) to examine how living in violent environments translates to ongoing violence. The use of data beyond self-report would also overcome possible response and recall bias that studies in conflict populations, including the present article, may face.

This study offers in-depth insights into the traumatic experiences of youth growing up in a conflict-affected region. Youth living in the eastern DRC witness and experience a high amount of violence, and, in some cases, also become perpetrators. The findings indicate that the duration of conscription into an armed group may be a risk factor for the perpetration of violence. Youth who perpetrated violence are not only at risk for high PTSD symptoms and internalizing problems but also for externalizing problems and offending behavior. It is notable that externalizing problems were not generally elevated among all former child soldiers but rather only among those who engaged in violence. These findings have valuable implications for providing psychological support to youth in postconflict regions, including former child soldiers. Treatment allocation policies should not only assess whether a child or adolescent has been a member of an armed group but also consider each youth's actual experiences, particularly regarding the perpetration of violence. Screenings assessing trauma exposure, as well as symptoms of PTSD, internalizing problems, and externalizing problems, could identify youths with the highest need for psychological support. Given the present findings, treatment should focus not only on symptoms of PTSD but, if indicated, also on youths' externalizing problems. Interventions such as narrative exposure therapy for forensic offender rehabilitation (FORNET) have proven their effectiveness in treating PTSD and aggression in former child soldiers (Hecker et al., 2015; Koebach et al., 2021; Robjant et al., 2019). Conducted by trained nonspecialist counselors in a relatively short time, FORNET provides a feasible

approach in unstable postconflict settings (Robjant et al., 2019). Similarly, cognitive processing therapy (CPT) has been found to be an effective, feasible, and sustainable intervention for the treatment of psychological symptoms following sexual violence in the DRC and may be adapted for the treatment of former child soldiers (Lakin et al., 2022). The large-scale dissemination of such interventions may be helpful to break the cycle of violence and prevent war-affected youth from carrying violence into other areas of their lives, such as with peers and partners, and into their children's generation. Neglecting to address war-affected youths' externalizing and readjustment problems may hinder their reintegration back into society.

In summary, trauma exposure among war-affected youth in the DRC is subject to systematic patterns that have distinctive consequences for mental health. War-affected youth can be subdivided into classes according to their level of trauma exposure and whether they have perpetrated violence. Former child soldiers are not necessarily perpetrators of violence; in the present sample, approximately half of the youths who had been recruited by an armed group had trauma histories that coincided with those reported by nonrecruited children. Although a dose–response effect of trauma exposure was observed for PTSD symptom severity and internalizing problems, the present findings show unique associations between violence perpetration and both externalizing problems and current offending behavior. Thus, exposure to traumatic events, particularly the perpetration of violence, may lead to the perpetuation of a vicious cycle of violence in conflict regions. Therefore, mental health treatment for youth growing up in proximity to armed conflict may benefit from addressing both PTSD symptoms and aspects of coping with externalizing problems and current violent behavior, with a goal of helping to break the cycle of violence.

OPEN PRACTICES STATEMENT

The study reported in this article was not formally preregistered. The data and materials have not been made available on a permanent third-party archive to protect the anonymity of participants. The data will only be available upon reasonable request at lars.dumke@uni-bielefeld.de.

AUTHOR NOTE

This work was supported by the Gerda Henkel Stiftung (AK 18/KF/18). The authors would like to thank the Gerda Henkel Stiftung for the extensive support of this research.We are also grateful to all the children for their readiness to participate and willingness to talk about often intimate and painful subjects.We especially thank Justin Maisha, Bahati Muchindi Chancelin, Aline Iragi Malekera, and Nicole Kaboyi for their assistance with data collection. Additionally, we want to thank the directors and staff of all participating organizations. We thank them for their warm welcome, interest in the project, and support.

ACKNOWLEDGMENTS

Open Access funding enabled and organized by Projekt DEAL.

ORCID

Lars Dumke https://orcid.org/0000-0002-1180-6849
Tobias Hecker https://orcid.org/0000-0001-9272-0512

REFERENCES

Betancourt, T. S., Borisova, I. I., De La Soudire, M., & Williamson, J. (2011). Sierra Leone's child soldiers: War exposures and mental health problems by gender. *Journal of Adolescent Health*, *49*(1), 21–28. https://doi.org/10.1016/j.jadohealth.2010.09.021

Betancourt, T. S., Brennan, R. T., Rubin-Smith, J., Fitzmaurice, G. M., & Gilman, S. E. (2010). Sierra Leone's former child soldiers: A longitudinal study of risk, protective factors, and mental health. *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(6), 606–615. https://doi.org/10.1016/J.JAAC.2010.03.008

Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., Karatzias, T., & Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of *ICD-11* PTSD and complex PTSD. *Acta Psychiatrica Scandinavica*, *138*(6), 536–546. https://doi.org/10.1111/acps.12956

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed). Lawrence Erlbaum Associates.

Crombach, A., Weierstall, R., Hecker, T., Schalinski, I., & Elbert, T. (2013). Social status and the desire to resort to violence: Using the example of Uganda's former child soldiers. *Journal of Aggression, Maltreatment & Trauma*, *22*(5), 559–575. https://doi.org/10.1080/10926771.2013.785458

Dumke, L., Haer, R., Koos, C., & Hecker, T. (2021). Patterns of conflict-related trauma exposure and their relation to psychopathology: A person-centered analysis in a population-based sample from eastern DRC. *SSM–Mental Health*, *1*, Article 100005. https://doi.org/10.1016/j.ssmmh.2021.100005

Dyregrov, A., & Yule, W. (2006). A review of PTSD in children. *Child and Adolescent Mental Health*, *11*(4), 176–184. https://doi.org/10.1111/j.1475-3588.2005.00384.x

Elbert, T., Schauer, M., & Moran, J. K. (2018). Two pedals drive the bi-cycle of violence: Reactive and appetitive aggression. *Current Opinion in Psychology*, *19*, 135–138. https://doi.org/10.1016/j.copsyc.2017.03.016

Ertl, V., Pfeiffer, A., Saile, R., Schauer, E., Elbert, T., & Neuner, F. (2010). Validation of a mental health assessment in an African conflict population. *Psychological Assessment*, *22*(2), 318–324. https://doi.org/10.1037/a0018810

Ertl, V., Pfeiffer, A., Schauer-Kaiser, E., Elbert, T., & Neuner, F. (2014). The challenge of living on: Psychopathology and its mediating influence on the readjustment of former child soldiers. *PLoS ONE*, *9*(7), e102786. https://doi.org/10.1371/journal.pone.0102786

Gibbs, A., Abdelatif, N., Said, N., & Jewkes, R. (2021). Associations between exposures to occupation-related events, depression and intimate partner violence among women in the occupied Palestinian Territories. *Global Public Health*, *16*(12), 1834–1847. https://doi.org/10.1080/17441692.2020.1849349

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(11), 1337–1345. https://doi.org/10.1097/00004583-200111000-00015

Haer, R., Banholzer, L., & Ertl, V. (2011). Create compliance and cohesion: How rebel organizations manage to survive. *Small Wars & Insurgencies*, *22*(3), 415–434. https://doi.org/10.1080/09592318.2011.581477

Haer, R., & Böhmelt, T. (2016a). The impact of child soldiers on rebel groups' fighting capacities. *Conflict Management and Peace Science*, *33*(2), 153–173. https://doi.org/10.1177/0738894215570424

Haer, R., & Böhmelt, T. (2016b). Child soldiers as time bombs? Adolescents' participation in rebel groups and the recurrence of armed conflict. *European Journal of International Relations*, *22*(2), 408–436. https://doi.org/10.1177/1354066115581910

Haer, R., & Brown, K. (2022). *The gendered effect of war exposure on children: An exploration of conflict and post-conflict experiences*. Manuscript submitted for publication.

Hagan, M. J., Sulik, M. J., & Lieberman, A. F. (2016). Traumatic life events and psychopathology in a high risk, ethnically diverse sample of young children: A person-centered approach. *Journal of Abnormal Child Psychology*, *44*(5), 833–844. https://doi.org/10.1007/s10802-015-0078-8

Haselgruber, A., Sölva, K., & Lueger-Schuster, B. (2020). Validation of *ICD-11* PTSD and complex PTSD in foster children using the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica*, *141*(1), 60–73. https://doi.org/10.1111/acps.13100

Hecker, T., Dumke, L., Neuner, F., & Masath, F. B. (2021). Mental health problems moderate the association between teacher violence and children's social status in East Africa: A multi-informant study combining self- and peer-reports. *Development and Psychopathology*, Advance online publication. https://doi.org/10.1017/S095457942000228X

Hecker, T., Hermenau, K., Crombach, A., & Elbert, T. (2015). Treating traumatized offenders and veterans by means of narrative exposure therapy. *Frontiers in Psychiatry*, *6*, Article 80. https://doi.org/10.3389/fpsyt.2015.00080

Hecker, T., Hermenau, K., Maedl, A., Hinkel, H., Schauer, M., & Elbert, T. (2013). Does perpetrating violence damage mental health? differences between forcibly recruited and voluntary combatants in DR Congo. *Journal of Traumatic Stress*, *26*(1), 142–148. https://doi.org/10.1002/jts.21770

Hermenau, K., Hecker, T., Maedl, A., Schauer, M., & Elbert, T. (2013). Growing up in armed groups: Trauma and aggression among child soldiers in DR Congo. *European Journal of Psychotraumatology*, *4*(1), Article 21408. https://doi.org/10.3402/ejpt.v4i0.21408

Kerig, P. K., Chaplo, S. D., Bennett, D. C., & Modrowski, C. A. (2016). "Harm as harm": Gang membership, perpetration trauma, and posttraumatic stress symptoms among youth in the juvenile justice system. *Criminal Justice and Behavior*, *43*(5), 635–652. https://doi.org/10.1177/0093854815607307

Klasen, F., Oettingen, G., Daniels, J., & Adam, H. (2010). Multiple trauma and mental health in former Ugandan child soldiers. *Journal of Traumatic Stress*, *23*(5), 573–581. https://doi.org/10.1002/jts.20557

Klasen, F., Reissmann, S., Voss, C., & Okello, J. (2015). The guiltless guilty: Trauma-related guilt and psychopathology in former Ugandan child soldiers. *Child Psychiatry & Human Development*, *46*(2), 180–193. https://doi.org/10.1007/s10578-014-0470-6

Koebach, A., Carleial, S., Elbert, T., Schmitt, S., & Robjant, K. (2021). Treating trauma and aggression with narrative exposure therapy in former child and adult soldiers: A randomized controlled trial in Eastern DR Congo. *Journal of Consulting and Clinical Psychology*, *89*(3), 143–155. https://doi.org/10.1037/ccp0000632

Kohrt, B. A. (2008). Comparison of mental health between former child soldiers and children never conscripted by armed groups in Nepal. *JAMA*, *300*(6), 691–702. https://doi.org/10.1001/jama.300.6.691

Lakin, D. P., Murray, S. M., Lasater, M. E., Kaysen, D., Mataboro, A., Annan, J., Bolton, P., & Bass, J. K. (2022). The end of the trial: Perspectives on cognitive processing therapy from community-based providers in the Democratic Republic of Congo. *Journal of Traumatic Stress*, *35*(1), 269–277. https://doi.org/10.1002/jts.22734

Lor, M., Yu, Z., Chen, W., Xiong, Y., Yonker, J. A., Brown, R., & Krahn, D. D. (2022). Refugee-related trauma patterns and mental health symptoms across three generations of Hmong Americans. *Journal of Traumatic Stress*, Advance online publication. https://doi.org/10.1002/jts.22813

MacNair, R. (2002). *Perpetration-induced traumatic stress: The psychological consequences of killing*. Greenwood Publishing Group.

Maguen, S., Metzler, T. J., Litz, B. T., Seal, K. H., Knight, S. J., & Marmar, C. R. (2009). The impact of killing in war on mental health symptoms and related functioning. *Journal of Traumatic Stress*, *22*(5), 435–443. https://doi.org/10.1002/jts.20451

Melde, C., & Esbensen, F. -A. (2013). Gangs and violence: Disentangling the impact of gang membership on the level and nature of offending. *Journal of Quantitative Criminology*, *29*(2), 143–166. https://doi.org/10.1007/s10940-012-9164-z

Mels, C., Derluyn, I., Broekaert, E., & Rosseel, Y. (2009). Screening for traumatic exposure and posttraumatic stress symptoms in adolescents in the war-affected eastern Democratic Republic of Congo. *Archives of Pediatrics & Adolescent Medicine*, *163*(6), 525–530. https://doi.org/10.1001/archpediatrics.2009.56

Mels, C., Derluyn, I., Broekaert, E., & Rosseel, Y. (2010). The psychological impact of forced displacement and related risk factors on Eastern Congolese adolescents affected by war. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *51*(10), 1096–1104. https://doi.org/10.1111/j.1469-7610.2010.02241.x

Nandi, C., Crombach, A., Elbert, T., Bambonye, M., Pryss, R., Schobel, J., & Weierstall-Pust, R. (2020). The cycle of violence as a function of PTSD and appetitive aggression: A longitudinal study with Burundian soldiers. *Aggressive Behavior*, *46*(5), 391–399. https://doi.org/10.1002/ab.21895

Nimon, K. F. (2012). Statistical assumptions of substantive analyses across the general linear model: A mini-review. *Frontiers in Psychology*, *3*, Article 322. https://doi.org/10.3389/fpsyg.2012.00322

O'Donnell, M. L., Schaefer, I., Varker, T., Kartal, D., Forbes, D., Bryant, R. A. A., Silove, D., Creamer, M., McFarlane, A., Malhi, G., Felmingham, K., Van Hoof, M., Hadzi-Pavlovic, D., Nickerson,

A., & Steel, Z. (2017). A systematic review of person-centered approaches to investigating patterns of trauma exposure. *Clinical Psychology Review*, *57*, 208–225. https://doi.org/10.1016/j.cpr.2017.08.009

Rasmussen, A., Romero, S., Leon, M., Verkuilen, J., Morales, P., Martinez-Maganalles, S., & García-Sosa, I. (2020). Measuring trauma exposure: Count versus variety of potentially traumatic events in a binational sample. *Journal of Traumatic Stress*, *33*(6), 973–983. https://doi.org/10.1002/jts.22563

Raudenbush, S. W., Johnson, C., & Sampson, R. J. (2003). A multivariate, multilevel Rasch model with application to self-reported criminal behavior. *Sociological Methodology*, *33*(1), 169–211. https://doi.org/10.1111/j.0081-1750.2003.t01-1-00130.x

Robjant, K., Koebach, A., Schmitt, S., Chibashimba, A., Carleial, S., & Elbert, T. (2019). The treatment of posttraumatic stress symptoms and aggression in female former child soldiers using adapted narrative exposure therapy—an RCT in eastern Democratic Republic of Congo. *Behaviour Research and Therapy*, *123*, Article 103482. https://doi.org/10.1016/j.brat.2019.103482

Robjant, K., Schmitt, S., Chibashimba, A., Carleial, S., Elbert, T., & Koebach, A. (2020). Trauma, aggression, and post conflict perpetration of community violence in female former child soldiers—A study in eastern DR Congo. *Frontiers in Psychiatry*, *11*, 533357. https://doi.org/10.3389/fpsyt.2020.533357

Saile, R., Ertl, V., Neuner, F., & Catani, C. (2016). Children of the postwar years: A two-generational multilevel risk assessment of child psychopathology in northern Uganda. *Development and Psychopathology*, *28*(2), 607–620. https://doi.org/10.1017/S0954579415001066

Save the Children. (2020). *Killed and maimed: A generation of violations against children in conflict*. https://www.savethechildren.org.au/getmedia/7a75bb97-d18f-45e5-8b3e-9f5c89231afa/killed-and-maimed-a-generation-of-violations.pdf.aspx

Sengoelge, M., Johnson-Singh, C. M., Mittendorfer-Rutz, E., Vaez, M., & Saboonchi, F. (2019). Identifying subgroups of refugees from Syria resettled in Sweden based on multiple trauma exposures: A latent class analysis of trauma history and mental health outcomes. *Journal of Psychosomatic Research*, *125*, 109814. https://doi.org/10.1016/j.jpsychores.2019.109814

Su, S., Frounfelker, R. L., Desrosiers, A., Brennan, R. T., Farrar, J., & Betancourt, T. S. (2021). Classifying childhood war trauma exposure: latent profile analyses of Sierra Leone's former child soldiers. *Journal of Child Psychology and Psychiatry*, *62*(6), 751–761. https://doi.org/10.1111/jcpp.13312

United Nations. (2021). *Children and armed conflict—Report of the Secretary-General*. https://childrenandarmedconflict.un.org/document-type/annual-reports/

Vindevogel, S., Schryver, M. de, Broekaert, E., & Derluyn, I. (2013). War-related experiences of former child soldiers in northern Uganda: Comparison with non-recruited youths. *Paediatrics and International Child Health*, *33*(4), 281–291. https://doi.org/10.1179/2046905513Y.0000000084

How to cite this article: Dumke, L., Haer, R., Zawadka, A., Salmen, C., & Hecker, T. (2022). The role of violence perpetration in driving externalizing problems and offending behavior among youth from eastern Democratic Republic of Congo. *Journal of Traumatic Stress*, *35,* 1696–1708. https://doi.org/10.1002/jts.22871