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The influence of types of war experiences on conduct problems in war-affected youth in Northern Ugandan: Findings from the WAYS study

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ABSTRACT

Exposure to war is associated with poor psychosocial outcomes. Yet the effects of different types of war events on various psychosocial outcomes such as conduct problems remain unknown. This study aims to assess whether various war events differ in predicting conduct problems. Using data from an on-going longitudinal research project, the WAYS study, the current article examined the relationship between specific war events and conduct problems in war-affected youth in Northern Uganda (N=539, baseline age=22.39; SD=2.03, range 18–25). Regression analyses were conducted to relate each type of war experience to conduct problems. War categories of "witnessing violence", "deaths", "threat to loved ones" and "sexual abuse" were associated with reporting conduct problems. Multivariable models yielded independent effects of "witnessing violence" (β=0.09, 95% CI: 0.01, 0.18) and "Sexual abuse" (β=0.09, 95% CI: 0.02, 0.19) on conduct problems while "duration in captivity" independently and negatively predicted conduct problems (β=−0.14, 95% CI: −0.23, −0.06). Types of war events vary in predicting conduct problems and should be considered when designing interventions to alleviate negative consequences of exposure to war. Moreover, longer duration in captivity appear to protect war-affected youth from conduct problems.

1. Introduction

War experiences are known risk factors for several mental health problems such as posttraumatic stress disorder (PTSD), depression, anxiety, and conduct problems (Al-krenawi et al., 2010; Wessells, 2009; Williams, 2007; Barenbaum et al., 2004). Whether particular types of war experiences are associated with certain mental health problems more than others have not been the focus of many studies. This study will examine the influence of different types of war experiences on conduct problems in war-affected youth in Northern Uganda. Conduct problems are common in post-conflict situations (Betancourt and Williams, 2008; Amone-P'Olak et al., 2014) and are associated with post-conflict violence, insecurity, is an increasing burden to the criminal justice system and inability of war-affected youth to reach their full potential.

The political history of Uganda has been plagued by violent conflicts in which thousands of children were forced to participate. Child soldiers were first used by the National Resistance Army (NRA) guerrillas during the 1981–1986 war in which an estimated 3000 children were used as soldiers constituting about 30% of the NRA army (Schubert, 2006). Another war where child soldiers were used was during the 1986–2006 where by the Lord's Resistance Army (LRA) fought against the government of Uganda. In this war, the LRA abducted and conscripted into its ranks an estimated 30,000 children (Women's Commission report, 2001; Kibanja et al., 2012). About 85 per cent of LRA fighters were child soldiers (Schubert, 2006). The current study will focus on the youths affected by the LRA war where the abducted children were used as combat troops, spies, porters, "wives", and human shields (Ehrenreich, 1997; Amone-P'Olak, 2004, 2005, 2006; Amone-P'Olak et al., 2007).

While in captivity, the children experienced several war-related events such as witnessing and perpetrating violence, deaths, torture, hunger, sexual abuse, and injuries (Amone-P'Olak, 2009; Ehrenreich, 1997). Yet, only a few studies have considered the possibility that different war experiences may vary in their associations with different dimensions of mental health outcomes such as conduct problems. Besides, no studies considered whether the associations between war experiences and mental health problems could be moderated by gender, age, or duration in rebel captivity. Assessment of whether different categories of war events vary in predicting mental health consequences (e.g. conduct problems) may inform interventions to mitigate the devastating consequences of war experiences, post-war

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adjustment, and reintegration of war-affected youth.

The more general literature on trauma indicates differential effects of war experiences on mental health with exposure to specific war experiences such as killing or wounding others associated with hostility and sexual abuse related to anxiety (Betancourt et al., 2010a). While war experiences such as abductions, injuries, and deaths were related to PTSD and depression (Pynoos and Eth, 1986; Betancourt et al., 2010a). A study with formerly abducted youth in Northern Uganda found that deaths, sexual abuse, and witnessing violence were associated with reporting symptoms of depression and anxiety (Amone-P'Olak et al., 2014a). Furthermore, previous research suggests that exposure to deprivations and forced relocation during war is associated with adjustment difficulties in the aftermath of war than experiencing violence (UNICEF, 1996).

Sex differences regarding the number, type, mental health consequences, and post-war experiences have been reported in many previous studies. In Sierra Leone and Northern Uganda studies showed no sex difference in absolute number of war events but differences in types of war events that the survivors were exposed to (Amone-P'Olak et al., 2013; Betancourt et al., 2011). For example, sexual violence were mainly reported by female survivors while combat experiences, injuries, witnessing deaths, killing or perpetrating violence were mainly reported by male survivors (Amone-P'Olak, 2004, 2005; Amone-P'Olak, et al., 2007; Betancourt and Khan, 2008). Regarding mental health consequences, female were more likely than male participants to meet criteria for PTSD (Tolin and Foa, 2006). Particularly in Northern Uganda, an estimated 30% of female abductees (commonly referred to as "child mothers") returned back from rebel captivity with children fathered by rebel commanders (Amone-P'Olak, 2005; Amone-P'Olak et al., 2014a). The "child mothers" have extra burden of child care and suffer stigma and discrimination as a result, all of which may result in additional mental health problems (Amone-P'Olak et al., 2015; Amone-P'Olak et al., 2016). Moreover, sex differences may continue during post-war periods. For example, educational opportunities (returning to formal school or vocational skills training) differ for males and females with women more unlikely to return to school after war than men (Betancourt, 2008). Consequently, it is imperative to study sex differences to eliminate any supposition that both sexes are affected by war events in the same ways.

Findings on age differences in psychopathology as a result of exposure to war experiences have been mixed and vary by context. For instance, following the war in the Balkans, older people who were exposed to traumatic war events experienced more mood and anxiety disorders (Priebe et al., 2010). Conversely, exposure to war events at a young age has been associated with fewer post-war PTSD symptoms, increased internalizing problems and feelings of revenge (Green et al., 1991; Betancourt et al., 2010b; Bayer et al., 2007). Similarly, age at abduction and duration in rebel captivity, both related to age, might affect the associations between war experiences and later mental health problems such as conduct disorder. Subsequently, it might be important to study whether age differences could be considered in designing interventions.

Previous research on the influence of war experiences on psychopathology is limited in many ways. Many studies examined only the relations between overall war experiences and psychopathology without considering the possibility that different types of war experiences such as deaths, witnessing or perpetrating violence, taking part in combat, or sexual violence, may vary in predicting mental health outcome (Betancourt, 2011). In addition, previous studies treated war-affected youth as identical group without considering possible subpopulation difference based on sex, age, and duration of time spent in rebel captivity. Yet, such differences may predispose to adverse mental health outcomes (Singh and Singh, 2010). In addition, subpopulation differences may also conceal possible risks linked to sex, age, and duration of exposure to war events, all of which may have implications for interventions, policy, and research.

In the current study, we examined the influence of different types of war experiences on conduct problems using data from a cohort of 539 war-affected youth participating in an on-going longitudinal ***W***ar-***A***ffected ***Y***outh ***S***urvey (WAYS) study in Northern Uganda. The specific objectives of this study were threefold: (1) to assess the extent to which war experiences individually predicted conduct problems, (2) to investigate the independent contribution of different types of war experiences to predicting conduct problems in univariable and multivariable regression models, and (3) to quantify the extent to which gender, age at abduction, and duration in captivity, would moderate the relation between general war experiences and conduct problems. Based on the literature, it is hypothesized that the youth exposed to different war experiences would vary on levels of conduct problems and that gender, younger age at abduction, and longer duration in captivity are associated with higher risks of conduct problems.

2. Method

2.1. Design

While the WAYS study employed a longitudinal cohort study design, the design for the current analyses was cross-sectional. War experiences were retrospectively assessed while conduct problems were assessed for occurrence in the past six months.

2.2. Participants

Participants in the WAYS study are former child soldiers (referred to as war-affected youth in this study) who were abducted and lived in rebel captivity for significant periods of time. The major aim of the WAYS study is to assess individual, family, and community contextual risk and protective factors that influence the long-term trajectory of mental health problems in war-affected youths in Northern Uganda. The cohort profile of the participants in the study described elsewhere (Amone-P'Olak et al., 2013). Participants in the study were recruited using cluster sampling technique based on a list of eligible former child soldiers compiled by UNICEF for district local governments in the districts most affected by the war. The list was hitherto used to distribute household items such as mattresses, blankets, cooking utensils, basins, clothes, etc. to help the youth resettle in communities after return from rebel captivity. Hence, the list is assumed to be complete, inclusive, and accurate. The following inclusion criteria were applied to recruit the participants: (1) a history of abduction by rebels, (2) having lived in rebel captivity for at least 6 months, and (3) aged between 18 and 25 years. Those who met the above inclusion criteria were invited through their local council leaders to participate in the study. Of the 650 formerly abducted children who were invited to participate, data were collected from 539 (83%). Baseline data were collected between June 2011 and September 2011. The data presented in this article are drawn from the baseline data.

2.3. Data collection

The research assistants who conducted the fieldwork for the WAYS study were university graduates with thorough training in data collection and interviewing skills. Moreover, the research assistants were well briefed on the study background and details of the interview content. All the research assistants were fluent in speaking and writing the native language of the participants (Luo). Data was collected from the participants in their homes, nearby trading centres or community halls. Information sought in the questionnaire included: demographic characteristics, war experiences, and psychosocial outcomes (e.g. conduct problems). The questionnaire took 30–45 min to complete. Wherever the research assistants travelled to collect data, a Clinical Psychiatric Officer was available on site to handle mental health emergencies and or make referrals to the Regional Referral Hospital.

Before participation, written informed consent was sought from the participants in accordance with ethical guidelines and approvals.

2.4. Measures

Assessing psychosocial outcomes is challenging in many non-western settings due to cultural differences and lack of culturally specific and standardised measures. In the current study, both standardized and locally derived measures were used.

2.4.1. War experiences

Items from the UNICEF B & H (Bosnia and Herzegovina) Post-war Screening Survey (UNICEF, 2010) were used to assess individual exposures to different types of war experiences. The UNICEF B & H Post-war Screening Survey was adapted to reflect the context of the war in Northern Uganda. For instance, items on sexual violence such as knowledge of, witnessing, and being sexually assaulted and/or abused were added. Consequently, the adapted instrument included 52 items on a range of different war-related experiences. These war experiences included: direct personal harm (6 items, e.g. serious injuries), witnessing violence (11 items, e.g. massacres or raids on villages), sexual abuse (1 item, sexual assault/and or rape), and involvement in hostilities (2 items, e.g. did you fight in the army or warring faction?). Other war events included: Separation (2 items), Deaths (7 items, e.g. death of parents, siblings, or extended family members), Material loss (4 items), Physical threat to self (5 items), Harm to loved ones (4 items), Physical threat to relatives or loved ones (4 items), and Displacement (5 items). These war events were simply binary coded for occurrence (1) versus absence (0).

2.4.2. Conduct problems

Symptoms of conduct problems were assessed by a subscale of the Acholi Psychosocial Assessment Instrument (APAI), which is a modified version of African Youth Psychosocial Assessment Instrument. APAI is afield-based measure with very good psychometric properties previously developed for use with war-affected youth in Northern Uganda (Betancourt et al., 2009b, 2009a). For this study we used the subscale on conduct problems (10 items). In previous studies, the Cronbach Alpha for the conduct problems was 0.74 (Betancourt et al., 2009b, 2009a). In this study the Cronbach alpha was 0.78. A demographic inventory collected information on sex, age, at abduction, and duration in captivity.

2.5. Statistical analyses

The statistical analyses were conducted as follows: first, the demographic characteristics of the participants and correlations between variables are presented in tables. Second, descriptive statistics on all categories of war events and conduct problems stratified by sex were computed and tabulated. Subpopulation differences were compared using *t*-tests. Third, the associations between different types of war events and conduct problems for the total group and for both male and female participants were computed in univariable regression models (one at a time). Fourth, to explore the extent to which the associations of the different types of war experiences with conduct problems were due to a shared component (co-occurrence) of the domains of war experiences rather than their independent effect, all the types of war experiences were entered simultaneously in one multivariable regression model except the total number of war experiences. To better understand within-group differences we tested a two-way interaction term stratified by sex. For example, in computing differences based on age at abduction, and duration in captivity, we additionally entered, each at a time, their interaction terms with each types of war experiences in univariable analyses separately for each sex. For multivariable analyses, only those types of war experiences that significantly predicted symptoms of conduct problems in the univariable models after adjusting for all other types of war experiences (except total number of war events) were included to avoid multiple testing. In all tables the level of significance is indicated through footnotes. All analyses were conducted using Stata OCLA version 12.

3. Results

3.1. Descriptive characteristics of the study participants

A total of 539 war-affected youth participated in the study out of 650 that were invited representing 83% response rate. Non-participation was mainly due to sickness and farm-related activities. Responders and non-responders were did not differ much with regard to mental health outcomes (a cohort profile of this group was discussed elsewhere in Amone-P'Olak et al., 2013). Overall, 61% (n=329) of participants were male and the sample's mean age at abduction was 14.14 (SD=4.21) and at baseline 22.39 (SD=2.03). Most of the war-affected youths were abducted between 11 and 15 years of age. On average, the war-affected were in rebel captivity for 3.13 years (SD=2.99).

Table 1
Differences in baseline demographic characteristics, war experiences, and conduct problems stratified by gender.

	Total			**Male**			**Female**			**Gender differences**
	Mean	**SD**	**Min-max**	**Mean**	**SD**	**Min-max**	**Mean**	**SD**	**Min-max**	***t*-test**
Age at baseline	22.39	2.03	18–25	21.92	2.14	18–25	22.04	2	18–25	ns
Age at abduction	14.14	4.21	20–23	14.53	3.48	07, 20	11.56	11.3	08, 20	***t*=4.8, *df*=535, *p* < 0.001**
Duration in captivity	3.13	2.99	0.5–17	2.93	2.71	0.5–15	3.49	3.39	0.5–15	***t*=2.16, *df*=537, *p* < 0.05**
Injuries	5.02	1.2	00–06	5.17	1.1	01,06	4.79	1.31	01,06	***t*=3.75, *df*=535, *p* < 0.001**
Witnessing violence	10.38	1	00–11	10.5	0.75	07,11	10.22	1.28	04,11	ns
Physical threat to self	4.73	0.63	00–05	4.75	0.64	01,05	4.71	0.63	01,05	ns
Deaths	3.96	1.37	00–07	3.9	1.34	00–07	4.06	1.42	01,07	ns
Harm to loved ones	3.82	0.54	00–05	3.88	0.39	00–04	3.73	0.71	00–04	***t*=3.07, *df*=529, *p* < 0.01**
Material loss	3.92	0.36	00–05	3.93	0.35	00–04	3.89	0.42	00–04	ns
Threat to loved ones	2.99	1.02	00–04	3.04	0.96	00–04	2.89	1.11	00–04	ns
Separation	1.94	0.29	00–02	1.94	0.4	00–02	1.94	0.28	00–02	ns
Displacement	3.76	0.7	00–05	3.8	0.69	00–05	3.68	0.75	01,05	***t*=2.07, *df*=526, *p* < 0.05**
Involvement in hostilities	1.69	0.62	0.02	1.84	0.45	00–02	1.46	0.76	00–02	***t*=7.19, *df*=309, *p* < 0.001**
Sexual abuse	0.32	0.47	00–01	0.1	0.31	00–01	0.64	0.48	00–01	***t*=−15.75, *df*=522, *p* < 0.001**
Total number of war experiences	42.16	8.01	00–52	42.16	7.3	00–52	41.39	8.89	00–52	ns
Conduct problems	2.11	2.96	00–10	2.04	2.81	00–10	2.23	3.19	00–10	ns

Table 2
Bivariate correlations between demographic characteristics, categories of war experiences, and conduct problem.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Sex	1																
2	Age at baseline	**−0.19***	1															
3	Age at abduction	0.03	**0.14***	1														
4	Duration in captivity	**0.09***	−0.1	0.1	1													
5	Injuries	**−0.15***	0.07	**0.09***	−0.07	1												
6	Witnessing violence	**−0.14***	0.07	**0.10***	−0.04	**0.38****	1											
7	Physical threat to self	−0.03	−0.01	0.04	0.08	**0.22****	**0.16****	1										
8	Deaths	0.06	0.08	0.01	−0.05	**0.25****	**0.27****	**0.19****	1									
9	Harm to loved ones	**−0.13***	0.03	0.02	−0.08	**0.31****	**0.34****	**0.13***	**0.19***	1								
10	Material loss	−0.05	−0.01	0.04	**0.11***	0.08	0.1	0.03	**0.12***	**0.15***	1							
11	Threat to loved ones	−0.07	0.03	0.01	−0.05	**0.33****	**0.36****	**0.13***	**0.42****	**0.28****	0.05	1						
12	Separation	−0.01	0.08	0.01	−0.06	0.08	**0.12***	**0.12***	0.07	**0.14***	**0.14****	**0.18****	1					
13	Displacement	−0.08	−0.03	−0.03	−0.06	**0.10***	**0.10***	0.03	0.09	**0.08***	**0.18****	**0.10***	**0.10***	1				
14	Involvement in hostilities	−0.3	**0.11***	**0.16***	**0.14***	**0.26****	**0.27****	**0.15****	**0.11***	**0.21****	**0.09***	**0.22****	**0.10***	−0.01	1			
15	Sexual abuse	**0.56****	−0.06	0.06	0.08	−0.04	0.04	0.12	**0.16****	−0.03	0.01	0.05	0.05	**−0.13***	−0.05	1		
16	Total number of war experiences	−0.08	**0.14****	0.07	−0.07	**0.53****	**0.53****	**0.29****	**0.62****	**0.39****	**0.19****	**0.62****	**0.20****	**0.27****	**0.31****	**0.10***	1	
17	Conduct problems	0.03	0.06	0.05	**−0.14***	0.04	**0.10***	0.01	0.1	0.01	0.03	**0.12***	−0.01	−0.08	0.01	**0.09***	**0.18****	1

***p < 0.001, all significant associations are in bold.
* p < 0.05.
** p < 0.01.

3.2. Gender differences among variables in the study

Sex differences were observed for age at abduction, duration in captivity, reporting injuries, displacement, involvement in hostilities, and sexual abuse (Table 1). Female participants were younger at abduction, stayed longer in captivity, and reported more sexual abuse and less injuries and were less involved in hostilities or combat than males. There were no sex differences regarding the total number of war events, witnessing violence, and conduct problems reported (Table 1).

3.3. Correlations between variables in the study

Table 2 presents the results of bivariate correlations between variables in the study. Generally, the total number of war events correlated significantly with conduct problems and all other types of war experiences. Among the demographic variables, sex correlate strongly with age at baseline, injuries, witnessing violence, and sexual abuse but not conduct problems (Table 2). On the other hand, conduct problems correlated negatively with duration in captivity indicating that less time spent in rebel captivity was associated with more conduct problems.

3.4. The influence of types of war experiences on conduct problems in univariable analyses

After different categories of war experiences were regressed on conduct problems in univariable regression models, each at a time, (Table 3), "witnessing violence", "deaths", "threat to loved ones", "sexual abuse", and "total number of war events" significantly predicted conduct problems (Table 3).

Table 3
Univariable regression models of the influence of each category of war events on conduct problem.

Categories of war experiences	β	95% (CI)	*p* value
Injuries	0.04	−0.05, 0.12	ns
Witnessing violence	**0.10**	**0.01, 0.19**	***p* < 0.05**
Physical threat to self	0.01	−0.07, 0.10	ns
Deaths	**0.10**	**0.02, 0.19**	***p* < 0.05**
Harm to loved ones	0.01	−0.09, 0.09	ns
Material loss	0.03	−0.05, 0.12	ns
Threat to loved ones	**0.12**	**0.04, 0.21**	***p* < 0.05**
Separation	0.01	−0.09, 0.08	ns
Displacement	−0.08	−0.16, 0.01	ns
Involvement in hostilities	0.02	−0.08, 0.10	ns
Sexual abuse	**0.09**	**0.01, 0.18**	***p* < 0.05**
Total number of war experiences	**0.18**	**(0.09, 0.29)**	***p* < 0.001**

Key: **β**= Beta, CI=confidence interval, ns= not significant.

3.5. Independent effects of types of war experiences on conduct problems in multivariable analyses

In multivariable regression models, "duration in captivity", "witnessing violence", and "sexual abuse" were the only categories of war experiences that independently predicted conduct problems (Table 4).

Table 4
Multivariable regression models of the influence of categories of war experiences on conduct problem.

Predictors	β	95% (CI)	*p* value
Duration in captivity	**−0.14**	**−0.23, −0.06**	***p* < 0.01**
Witnessing violence	**0.09**	**0.01, 0.18**	***p* < 0.05**
Sexual abuse	**0.09**	**0.01, 0.18**	***p* < 0.05**

Key: **β**= Beta, CI=confidence interval, ns= not significant.

3.6. Interaction effects of "duration in captivity", "sex", and "age" and types of war experiences and conduct problems

After entering the interaction terms of "duration in captivity", "sex",

and "age" separately with categories of war events that independently predicted conduct problems in multivariable analyses, none of the interaction terms yielded a significant coefficient.

4. Discussion

Only a few studies have examined the associations between different categories of war events and psychosocial outcomes such as conduct problems in war-affected youth. In a previous study with the same population, different types of war experiences varied in their prediction of depression and anxiety (Amone-P'Olak et al., 2014a). In the current study, the influence of different categories of war events on conduct problem was assessed. The findings indicate that witnessing violence and sexual abuse were the most toxic predictors of conduct problems after correcting for all the other categories of war events.

The current study has many strong points. First, the war-affected youth were assessed six year after the end of the war unlike other studies which were carried out during the war and risked being contaminated with incidents of an on-going war. (Amone-P'Olak et al., 2007; Bayer et al., 2007). Second, the sample in this study was larger compared to studies carried out in less resource settings (Betancourt et al., 2010b; Shanahan, 2008; Annan et al., 2006), thus making our findings more reliable. Last, the measures of war experiences and mental health outcomes were adapted and validated in similar populations before, thus making the results of our study more credible (Betancourt et al., 2009b).

Nonetheless, the findings in this study should be taken cautiously for a number of reasons. First, the conduct problems assessed in this study are not psychiatric disorders as classified in clinical diagnosis. The conduct problems are merely symptoms indicative of probable psychiatric disorder. Second, current unemployment, environmental stressors, poverty, and post-war conflicts could influence existing conduct problems. For instance, a previous study with the same population found that the direct relations between war experiences and conduct problems were no longer significant after accounting for post-war environmental stressors such as unemployment and poverty (Amone-P'Olak et al., 2014b). However, existing poverty or unemployment may be associated with previous war experiences, for example injuries during the war may prevent someone from getting a job (Amone-P'Olak et al., 2014b). It is also possible that war-affected youth are discriminated against by employers and society in general (Amone-P'Olak et al., 2016). Third, the cross-sectional design of the current study limits causal inferences, thus it is not possible to conclude that war experiences causes conduct problems. Finally, the use of retrospective report of war experiences may be prone to recall bias. Particularly, people who suffer from mental health problems have been found to over-report severity life stressors (Grant et al., 2006). To counter the reporting bias only the number (counts) of war experiences and not their perceived severity were included in the analyses of this study. Overall, it is unlikely that these limitations affected the findings of the current study in any significant way.

Our findings are consistent with previous reports on war-affected populations in other settings. For example, previous studies associated war experiences to conduct problems in Bosnia (Ehntholt and Yule, 2006). Unlike in this study, previous studies from the Balkans showed an association between older age and experience of traumatic events (Priebe et al., 2010). In this study, sex and age did not predict conduct problems in any significant way.

Regarding duration in captivity, the findings of this study a statistically significant negative correlation with conduct disorder but the interaction terms with categories of war events were not significant. This indicated that war-affected youth who were in rebel captivity for a shorter duration were more vulnerable to conduct problems than those who spent a long period in captivity. It is difficult to explain this finding but it is possible that the longer the war-affected youth stayed in captivity the more they "got used" to war events due to continuous exposure which eventually becomes "ordinary events" in their lives. Eventually, they develop adaptive capacity to cope with experiences associated with the war. Those who stayed in captivity for long were also considered to be loyal and were rewarded by promotion, "wives" and given first priority in food distribution for males and for females, they were allocated young girls as helpers. In addition, this may be due to a small number that stayed in captivity for a long time and a larger number who stayed (≈70% stayed for less than 3 years). Furthermore, it is not easy to compare the findings of this study to other previous studies due to different types of war experiences and varying outcome dimensions used. Similarly, no other study tried to examine the independent effects of different types of war experiences, specifically conduct problems. Consequently, the use of different measure of mental health outcomes and different indices of war experiences limit comparison with other studies.

The horror and callous nature of the war in Northern Uganda limits comparison with previous studies. In rebel captivity, the cruelty and torture meted out to abductees included: forcing abductees to harm one another, raid their own villages, kill and mutilate their own people (Amone-P'Olak, 2004, 2009, 2005; Amone-P'Olak et al., 2007). Most former abductees underwent several rituals to instil courage in them (Amone-P'Olak et al., 2007). Consequently, it is possible that the horrific nature of the war might explains the persistent noxious effect of "witnessing violence", "deaths", "threats to love ones", and "sexual abuse" on conduct problems. In captivity, abductees, particularly boys, were warned that if they try to escape from captivity, their villages would be raided and their parents and relatives killed. Female abductees were forcefully allocated by senior rebel commanders as "wives" to loyal, hardworking, and courageous rebel soldiers as a token of appreciation. About 30% of the female abductees (also known as child mothers) returned from rebel captivity with children sired by rebel soldiers and commanders, often much older than the abducted girls (Amone-P'Olak, 2004, 2005). In addition to child care, the child mothers suffered from discrimination, stigma, and an array of psychosocial problems in the villages to which they have been integrated (Amone-P'Olak et al., 2015; Amone-P'Olak et al., 2016). This may be a possible explanation of the long-lasting and persistently noxious effect of "sexual abuse" on conduct problems. Although rape and sexual abuse also affect men's mental health, girls were specifically targeted for sexual abuse with cases of reported sexual abuse far lower among male than in female participants, that is, 10% in males compared to over 60% for females (Amone-P'Olak et al., 2015). It is possible to generalise the findings of the current study to other conflict zones outside Northern Uganda. For example, in DR Congo, Central African Republic, and South Sudan, where the Lord' Resistance Army (LRA) has been active; abducting children, causing deaths, and sexually abusing young girls and women. Indeed, Eastern DR Congo dubbed as the "rape capital of the world" (Brown, 2012; Kalisya et al., 2011; Mukwege, and Nangini, 2009).

The results of this study can inform interventions to mitigate the adverse effects of the war. For example, reducing post-war environmental stressors has been shown to reduce conduct problems (Amone-P'Olak et al., 2014b). Moreover, these findings have implications for both research and policy. Research activities should focus on unravelling the causal paths through which different categories of war experiences might be linked to conduct problems in war-affected youth. Factors such as post-war stressors, family functioning, stigma and discrimination, social support network, and coping mechanisms that explain long-term conduct problems should be considered in future studies. Policy makers should target youth with a history of witnessing extreme violence, death of family members, and sexual abuse.

5. Conclusion

Witnessing violence, deaths, threats to loved ones, and sexual abuse

have enduring adverse effects on conduct problems in war-affected youths. Duration in captivity had a statistically significant and inverse relationship with conduct problems. Interventions to mitigate the effects of war experiences on conduct problems should target these war experiences and duration in captivity.

Conflict of interest

All authors declare that they have no competing interests.

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