

PTSD as a consequence of past conflict experience, recent exposure to violence and economic marginalization in post-conflict contexts – a study from Nepal, Guatemala and Northern Ireland

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Short title: PTSD due to conflict, violence and marginalization

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Abstract

Exposure to war and conflict increase the risk of mental health problems. Poor living conditions are known to negatively impact mental health. It is hypothesized that exposure to negative events after armed conflict interacts with past negative experiences, socio-economic factors and current mental health problems.

A cross-sectional survey was carried out in three contexts of previous internal armed conflict: Nepal, Guatemala, and Northern Ireland. Three nationally representative samples were drawn, comprising a net sample of 3,229 respondents.

Both recent negative events and past negative events linked to the previous conflicts were found to be associated with elevated risk of Post-Traumatic Stress Syndrome (PTSD). Economic marginalization and urban residency also contributed to current risk of PTSD. The results support the study hypothesis that both past and recent negative events in combination with economic marginalization contribute to explain current risk of PTSD.

It is necessary both to improve living conditions more broadly and to establish and develop health services that have the capacity to screen, prevent and treat mental health problems also in poor contexts, in particular against a background of previous armed conflict.

Key words: mental health, PTSD, conflict exposure, violence, economic marginalization

Introduction

War is one of the world's most serious threats to health (Sing, Orbinski, Mills 2007). While war and mental health is a contested field and often overshadowed by consequences for physical health (Summerfield 2000), the literature is fairly rich on evidence of Post-Traumatic Stress Syndrome (PTSD) and other negative mental health outcomes in populations that have been exposed to conflict. Most often, published studies have not been able to control for other negative events that are not related directly to the past conflict, but potentially influencing mental health negatively in the population under study. The aim of this article is to analyse the relationship between past conflict experience and recent exposure to violence, and PTSD. This will provide a more in-depth knowledge on mental health consequences of war and conflict and how this develops in combination with other and post-conflict negative events. The article will use data from a recent large survey that was undertaken in Nepal, Guatemala and Northern Ireland. There is solid evidence in the literature that refugees and internally displaced people fleeing from war, internal armed conflict, and other forms of organised violence have a higher risk of developing mental health problems compared to people who have not been exposed to such negative events (Fazel, Wheeler and Danesh 2005; Scholte et al. 2004). War veterans have also been shown to have higher risk of developing mental health problems (Laufer et al. 1984, Vukšić-Mihaljević et al. 2000). Moreover, the distinction between combatants and victims may not always be clear-cut, as in the case of former child soldiers and others who were forcibly recruited (García-Godos 2016, Moffett 2016). Taken together, this implies that the whole population in post-conflict contexts may have higher risk of mental health problems, not only particular sub-groups. The elevated risk of mental health problems concerns particularly depression, post-traumatic stress syndrome (PTSD) and anxiety disorders. Studies have shown PTSD to last for a long time and even increase over time (Sareen 2014).¹ The increased vulnerability is due to experiences both before war and resettlement and after. A recent literature review on long-term mental health impact of war (Bogic, Njoku and Priebe 2015) revealed substantial heterogeneity between studies concerning prevalence of depression (range 2.3

¹ A number of studies have also investigated the prevalence of post-traumatic growth in the wake of mass violence (e.g. Rosner et al 2003; Hobfoll et al. 2007, Tedeschi et al. 2003).

– 80 %), PTSD (4.4 – 86 %) and unspecified anxiety disorder (20.3 – 88 %). The large variation is due to both real variation between contexts, clinical and methodological factors. This confirms the results from previous literature reviews (Steel et al. 2002). At the societal level, the consequences of armed conflict range from economic loss and destroyed infrastructure (Collier et al. 2003), to demographic change (Brunborg and Tabeau 2005, Brunborg and Urdal 2005) and the breakdown of basic health care services (Kruk et al. 2010). Notably, the main health consequences of armed conflict are indirect rather than direct (Leaning and Guha-Sapir 2013). Therefore, it should come as no surprise that even low-intensity armed conflict has potentially strong direct and indirect negative health consequences (Pike et al. 2010). What is less well understood is that post-conflict societies also are prone to other phenomena with potentially destructive effects, such as natural disasters, organized crime, and other forms of violence. According to the literature, a range of causal factors for PTSD have been identified (Friedman, Kean and Resick 2010). Notably, many countries emerging from conflict continue to have very high rates of homicide and organized crime (UNODC 2013). One possible explanation for this is that key risk factors for armed conflict, such as inequality (Bartusevičius 2014), population density, poverty, and weak state capacity (Dixon 2009) also make states vulnerable to phenomena like organized crime (Phillips 2016). The implication of this is that populations previously exposed to armed conflict may also be at risk of experiencing other potentially traumatic events, such as the exposure to violence (e.g. Catani et al. 2008). To date, however, the cumulative effect of these types of trauma on different health outcomes remains under-researched.

The high prevalence of mental disorders found among refugees and internally displaced people even many years after war and resettlement may be explained both by the traumatic experiences during the war and events and circumstances after the war ended. It seems logic that with time it is more difficult to distinguish between the impact of the armed conflict and other negative, stressful life events after the war. Bogic, Njoku and Priebe (2015) argue that studies on the impact of war on mental health need to include also negative events and other relevant influencing factors. This way we will be able to single out the effect of war on mental health and at the same time reveal which other

mechanisms are active and that can maintain or further aggravate mental health problems in a war-affected population.

In a study from South Sudan (Ayazi et al. 2012), the researchers demonstrated that a combination of exposure to traumatic events and socioeconomic disadvantage due to internal displacement were significantly associated with having PTSD. This is supported by Bogic, Njoku and Priebe (2015) who ascribe socioeconomic conditions as maintaining and/or aggravating PTSD in previously war affected populations.

Most conflicts today are internal armed conflicts rather than interstate wars, which makes it pertinent to look at cases of previous internal armed conflict rather than interstate war (Gleditsch et al. 2002). While low levels of living including unemployment and lack of opportunities can contribute to aggravate mental health among refugees from war, it is fair to assume that also negative events known to cause PTSD may contribute further to the mental health trajectory of exposed populations. There is some support in the literature for the negative influence of socio-economic suffering on mental health; to date, however, few if any studies have included negative and potentially traumatising events occurring after the armed conflict. The research question of the current study is to what extent negative influence of past conflict-related experience explain negative mental health outcomes in post-conflict populations when controlling for more recent negative events and economic marginalisation. The hypothesis of the current study is that negative events occurring after exposure to war will contribute together with negative socio-economic circumstances and other daily stressors (Miller and Rasmussen 2010) in maintaining and possibly aggravating PTSD over time.

Study and context

A cross-sectional survey was carried out in three contexts of previous internal armed conflict: Nepal, Guatemala and Northern Ireland. The study was designed to describe postwar public opinion and to develop and test a theoretical argument on how peacebuilding strategies influence different attitudes. Built into the survey instrument was also health indicators allowing for analyses of health consequences of exposure to conflict and other negative events specific to each context. The cases were selected to

represent variation in conflict intensity and duration, from low-intensity conflict in Northern Ireland to genocide in Guatemala. They also represent variety in national income and inequality, as well as post-conflict levels of violence. To maximize geographical variation, we selected one case from Asia, Europe and Latin America. While different countries have different peace trajectories, health challenges and contextual circumstances influencing on health, the advantage of the chosen strategy is that similar findings across cases allow for discarding the effect of certain macro level characteristics, implying that the findings may apply to a range of different post-conflict societies. The project was approved by the Norwegian Social Science Data Service (ref. no. 44178). Data used for the analyses in the paper can be obtained from the second author upon request. All data from the study will be made open through the Norwegian Social Science Data Service according to requirements from the Research Council of Norway

Sampling

Three nationally representative samples were drawn, relying on local ‘best sampling practice’. In Guatemala and Nepal, the samples were drawn to include an equal number of men and women, stratified by urban-rural areas. A three-stage sampling design was employed, where the primary sampling unit (PSU) was drawn in the first stage of sampling (120 segments within municipalities in Guatemala; 60 wards, the lowest administrative level, in Nepal), based on a sampling frame (the 2015 electoral roll in Guatemala; the 2011 census in Nepal). Within the PSUs, households were drawn at random. In Guatemala, individuals were selected based on the ‘last birthday’ rule, whereas in Nepal, the Kish grid method was used (Kish 1949). In Northern Ireland, the sample was stratified by age. Households were drawn at random from the sampling frame (the Postcode Address File). Individuals were then selected within the household based on the ‘next birthday’ rule. The net sample contains 3,229 respondents (1,216 respondents in Guatemala, 1,200 in Nepal, and 813 in Northern Ireland).

Questionnaire

The main questionnaire was the same for all three contexts, allowing for cross-case comparisons, but with some minor adjustments according to each context. The questionnaire comprised six core modules: (1) respondent background, (2) social trust and ethnic relations, (3) political participation and political trust, (4) conflict experiences and traumas (5) peace building strategies, and (6) assessment of the present and additional background information. The questionnaire was piloted in each study context. We also conducted a series of expert interviews in order to refine some questions. The questionnaire was developed in English and translated in each country into the relevant languages. In this article, we are mainly interested in past negative conflict-related experiences in combination with recent negative events, and how these together contribute to explain current mental health problems.

Data collection

The survey interviews were carried out face-to-face in the homes of the respondents by trained teams of research assistants who were fluent in the local languages. The survey was fielded in Guatemala in January 2016, in Nepal in March-April 2016, and in Northern Ireland in May-July 2016. The average time to complete the interviews was 40-50 minutes.

Measures

An indicator of socio-economic status (SES) was constructed by means of a question on the sufficiency of the household income. Answer categories were: (1) We do not have enough money even for food, (2) We have enough money only for food, (3) We have enough money to most of the things we need, but the purchase of consumer durables would be a problem, and (4) We can buy everything we need. Reflecting a high-income context, the answer categories were formulated slightly differently in Northern Ireland following the adaptation of questionnaires. Mean value on this indicator was 2.09 in Guatemala, 2.81 in Nepal and 3.40 in Northern Ireland ($F = 567.35, p < .001$), reflecting

known socio-economic differences between the three countries. The SES indicator is used here as a measure of economic marginalization (Philip 2010).

The brief PTSD screener (Han et al. 2016) was used for distinguishing between PTSD risk categories. Respondents were asked to assess whether they had experienced different symptoms in the last month. The symptoms were: (1) Repeated, disturbing memories, thoughts, or images of a stressful experience from the past, (2) Feeling very upset when something reminded you of a stressful event from the past, (3) Avoid activities or situations because they remind you of a stressful experience from the past, (4) Feeling distant or cut off from other people, and (5) Feeling irritable or having angry outbursts, vi) Having difficulty concentrating. Answer categories for each item ranged from (1) Not at all, (2) A little, (3) Moderately, (4) Quite a bit, to (5) Extremely.

The six items were added into a PTSD scale with a range 6 – 24, mean value 9.29, standard deviation 3.53 and skewness 1.12. No difference was found in mean scale value between males and females. However, Figure 1 shows significant variation between countries ($F = 309.93, p < .001$).

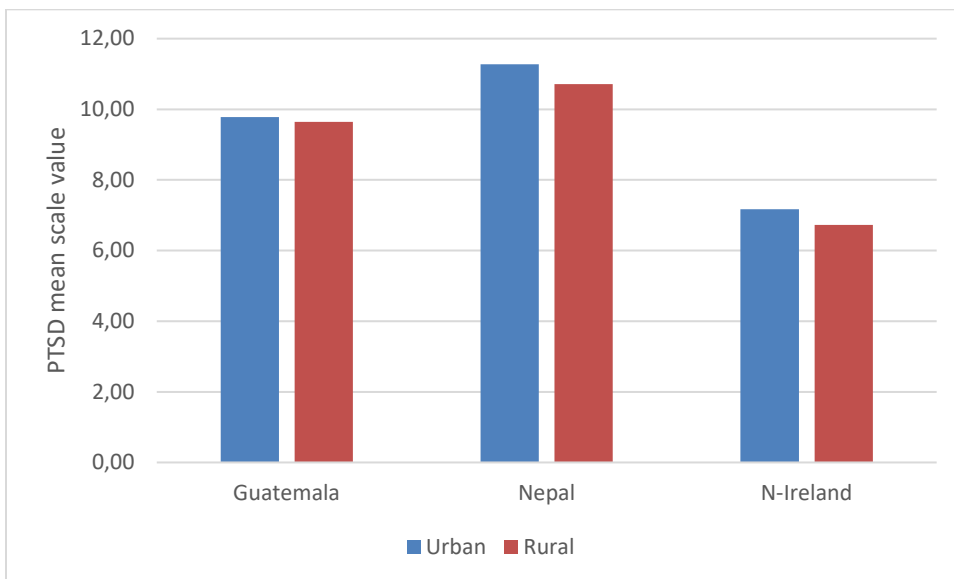


Figure 1. PTSD mean scale values by country and location (N = 2695)

A series of questions on experience of recent (last 12 months) and past negative events were asked. Past negative events were specified to have happened during the years of conflict in the three contexts (Nepal: 1996-2006, Guatemala: 1960 – 1996, Northern Ireland: 1968 – 1998). The questions were drawn from previous relevant studies in Uganda and the Solomon Islands (Pham and Vinck 2010; Brounèus 2019).

Risk categories

Following recommendations (Han et al. 2016), three risk categories were applied. Scale values between 6 – 12 were categorized as "low risk", 13 – 16 "medium risk" and 17 + "high risk". Of those who responded to all scale items, 2226 (82.6 %), had low risk of PTSD, 354 (13.1 %) had medium risk and 115 (4.1 %) had high risk.

Results

The age range for the sample was 18 – 96 years. Total N was 3,229, of which Nepal had 1200 respondents, Guatemala 1216 and Northern Ireland 813. The proportion of males was 0.49 with small variations between the countries. Mean age was 40.5 years and with a 10 year mean age difference between highest (Northern Ireland) and lowest (Guatemala). The proportion of respondents residing in urban areas also varied significantly, from 0.30 in Nepal to 0.68 in Northern Ireland. Most of these differences reflect real differences between the country populations.

Table 1. Sample characteristics by country

Variable	Total	Nepal	Guatemala	Northern Ireland
Male (%)	0.49	0.50	0.52	0.47
Mean age (years)	40.5	41.1	36.1	46.3
Urban (%)	0.51	0.30	0.60	0.68

Mostly, incidence of negative events was low and between 0.5 % and 3.3 %. However, as many as 12.8 % reported having witnessed violence during the last 12 months. The large majority (79.9 %) reported zero events in the last 12 months, 14.3 % reported one event,

2.7 % 2 events, 1.4 % 3 events, 0.6 % 4 events, and 1.1 % 5 events or more. Number of recent events were categorized into five (0, 1, 2, 3, 4 and 5 +) events.

Respondents were also asked about past negative events, specified to have happened during the years of conflict in the three contexts (Nepal: 1996-2006, Guatemala: 1960 – 1996, Northern Ireland: 1968 - 1998). Incidences of past negative events is clearly higher than for recent negative events, again with the most common being having witnessed violence (27.1 %), followed by displaced family member (15.1 %) and being threatened with violence or death (14.0 %). Of the respondents, the majority (57.1 %) reported zero events, 14.3 % reported one event, 8.3 % 2 events, 5.0 % 3 events, 4.2 % 4 events, and 9.0 % 5 events or more. Number of past negative events were categorised into five (0, 1, 2, 3, 4, 5 + events).

Table 2. Recent (N = 3214 – 3227) and past (N = 2706 – 3209) negative events

Type of event	Recent		Past	
	N yes	%	N yes	%
Goods/property stolen	89	2.8	235	8.7
House destroyed	29	0.9	205	7.6
Threatened with violence or death	87	2.7	138	5.1
Arbitrary detained without reason	35	1.1	378	14.0
Attacked, beaten, tortured or otherwise injured	105	3.3	186	6.9
Forced to commit violence	18	0.6	170	6.3
Victim of domestic violence	66	2.0	135	5.0
Victim of sexual violence or violation	18	0.6	18	0.7
Disabled as a consequence of violence or injuries	16	0.5	49	1.8
Witnessed violence	412	12.8	734	27.1
Family member injured	86	2.7	482	15.1
Family member killed	73	2.3	393	12.3
Family member forcibly disappeared	29	0.9	272	8.5
Family member arbitrarily detained	38	1.2	271	1.2

The number of reported past negative events is largely the same in the three countries ($\chi^2 = 17.99, p = .06$), with slightly more respondents in Nepal reporting no events and slightly fewer reporting 3, 4 and 5 + events. The country difference is more pronounced when it comes to recent negative events ($\chi^2 = 269.82, p < .001$). More respondents from Northern Ireland report no recent events and particularly many respondents in Nepal report one event.

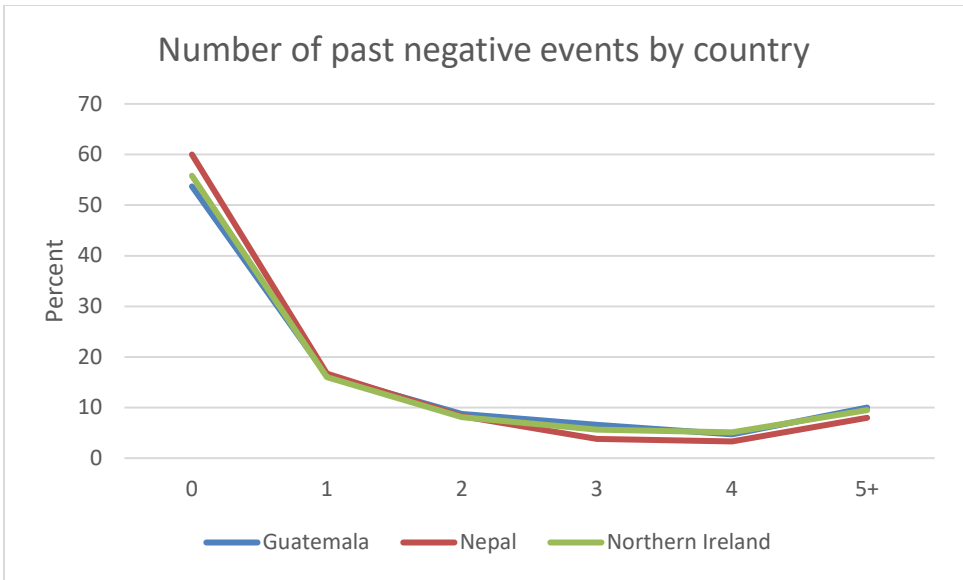


Figure 2. Number of past negative events by country (N = 2643)

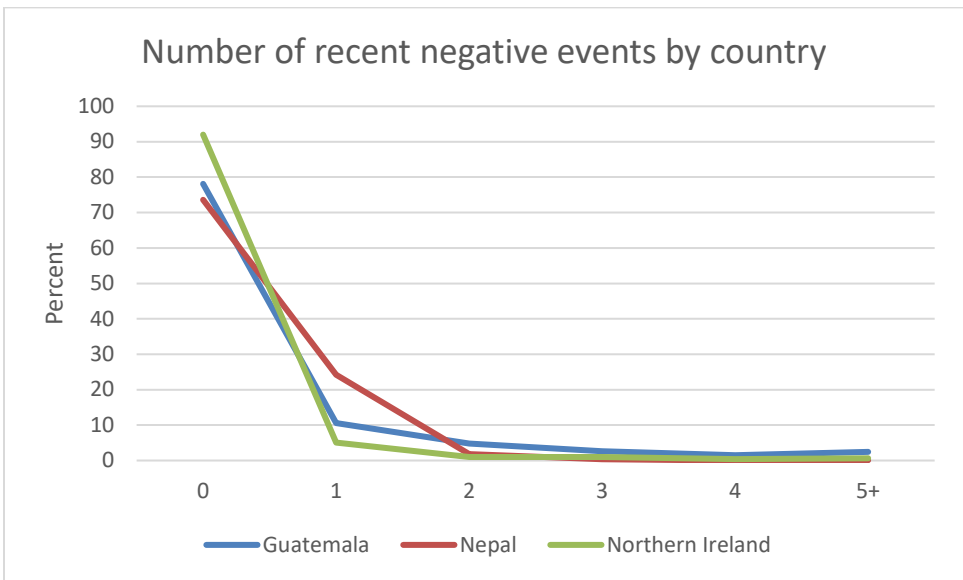


Figure 3. Number of recent negative events by country (N = 3171)

High reported numbers of both past and recent events as well as lower SES were all positively associated with PTSD. Table 3 further shows that there is substantial difference between the three countries in level of PTSD with Nepal producing the highest mean scale value and Northern Ireland the lowest. The risk of PTSD further seemed to be slightly higher in urban than in rural areas, while no significant difference between males and females were identified.

Table 3. PTSD scale by negative events, SES, country, location and sex

Measure	PTSD scale value	F	p
Recent negative events (N = 2644)			58.39 < .001
0	8.79		
1	10.65		
2	12.04		
3	13.00		
4	13.06		
5 +	15.04		
Past negative events (N = 2643)			37.25 < .001
0	8.72		
1	9.17		
2	9.37		
3	10.46		
4	10.48		
5 +	12.00		
SES (N = 2695)			44.39 < .001
High	8.14		
Moderately high	9.57		
Moderately low	9.58		
Low	10.43		
Country (N = 2695)			309.93 < .001
Guatemala	9.73		
Nepal	10.90		
Northern Ireland	7.03		
Location (N = 2695)			9.11 < .01
Urban	9.51		
Rural	9.10		
Sex (N = 2695)			1.84 n.s.
Male	9.19		
Female	9.38		

Low but significant correlations were found between the variables in Table 3, and the correlation (Pearson) between past and recent negative events was the highest at .27 ($p < .001$). Two models were analysed by means of logistic regression, one predicting medium + high risk of PTSD and one predicting high risk only. The results are shown in Table 4, including bi-variate regressions. The number of both past and recent negative events are positively associated with both risk measures, i.e. for medium + high risk and for high risk of PTSD. The number of recent negative events appear to be a stronger predictor in both models. Rural residency reduced odds for high + medium and high risk. Higher SES reduced risk of both measures. Finally, the country differences shown in Table 4 are

confirmed for high + medium risk. OR for high + medium risk of PTSD is highest in Nepal, followed by Guatemala and lowest in Northern Ireland. Analysing high risk of PTSD only produced smaller and non-significant differences between the countries which may be due to low numbers in this category. Comparing the bivariate and the multivariate regressions indicates that some of the impact of recent negative events and location is mediated through SES and country differences. The bivariate analyses with high risk of PTSD as dependent variable produces somewhat different results of the bivariate regressions in that risk is now highest in Guatemala and lowest in Nepal. In the multivariate regression of high risk, only past and recent negative events remain as significant predictors.

Table 4. Logistic regressions of Recent events, Past Events, Location and Country on medium + high risk of PTSD and high risk of PTSD (N = 2112)

	Bivariate regressions		Multivariate regressions	
	OR	95% CI	OR	95% CI
Medium + high risk				
Number of past negative events	1.38	1.29 - 1.46	1.37	1.28 – 1.47
Number of recent negative events	1.80	1.61 – 2.01	1.51	1.30 – 1.75
SES	0.68	0.61 – 0.75	0.78	0.67 – 0.90
Location (Urban = 1)	0.93	0.77 – 1.14	0.60	0.45 – 0.78
Country = Guatemala	1.59	1.30 – 1.94	3.14	2.01 – 4.89
Country = Nepal	1.82	1.48 – 2.24	6.10	4.04 – 9.20
High risk				
Number of past negative events	1.42	1.28 - 1.58	1.29	1.14 – 1.46
Number of recent negative events	1.97	1.72 – 2.25	1.74	1.45 – 2.08
SES	0.66	0.55 – 0.80	0.77	0.58 – 1.02
Location (Urban = 1)	0.56	0.38 – 0.83	0.59	0.35 – 1.00
Country = Guatemala	2.80	1.90 – 4.15	1.32	0.65 – 2.68
Country = Nepal	0.52	0.32 – 0.84	0.98	0.48 – 2.00

Discussion

The study has shown that both recent negative events and negative events during the past conflicts are associated with risk of PTSD. Economic marginalisation and urban residency were also found to contribute to current risk of PTSD. The results thus support

the study hypothesises that both past and recent negative events in combination with economic marginalisation contribute to explain current risk of PTSD.

We found small differences between the countries concerning the magnitude of past negative events, while impact of recent negative events varied more. Bearing in mind large contextual, historical and war related differences between the countries, this may indicate that the impact on mental health of past negative events remains but levels out over time. This interpretation is however mostly supported by the result for medium + high risk of PTSD.

Even though past negative events are more prevalent, recent negative events appeared to be a stronger predictor for current PTSD in particular in the bivariate analyses. The reduced OR for recent events in the multivariate model may indicate that the impact of recent negative events are influenced by past negative experiences, as suggested by Catani et al. (2008). While not representing evidence of a cumulative effect of past and recent exposure to negative events, the current study nevertheless shows that there is some form of interdependence. At the same time, results clearly indicate unique influence of both past and recent negative events on PTSD.

The current study is unique in having analysed aspects of the relationship between past negative events occurring during conflict, recent negative events and other likely predictors of PTSD. The study is further different from most other studies on health consequences of negative events of war and conflict through its large and more representative sample as compared to smaller samples of affected sub-populations. The results from the study must on the other hand be considered in light of the cross-sectional and retrospective character of the study, bringing in uncertainty with regards both to possible recall bias and limitations in drawing conclusions on cause and effect.

Conclusion

The study has contributed to strengthen the empirical basis for long-lasting and potentially disabling impact of exposure to war and conflict. Individual, social and societal costs of this long-lasting and negative impact underline the importance of prevention and treatment of mental health problems following war and conflict. It is

necessary both to improve living conditions more broadly and to establish and develop health services that have the capacity to screen, prevent and treat mental health problems also in poor contexts. This is of importance both in a health equity and a peace-making perspective.

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