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Trauma awareness and preparedness: Their influence on posttraumatic stress disorder development related to armed conflict experience

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This study examined influences of trauma awareness and preparedness on the development of posttraumatic stress disorder (PTSD) in civilian and military personnel with exposure to the civil war. Participants were 302 people with exposure to civil war in the Democratic Republic of Congo (civilians = 68%; females = 47%; age range = 16 to 76 years old, SD = 13.58 years). Participants completed the Posttraumatic Checklist Scale, General Self-Efficacy Scale, and Traumatic Events List. The data were analysed to predict PTSD development from trauma awareness and preparedness, taking exposure to multiple traumas into account as a risk factor. Findings suggest that trauma awareness and preparedness play an important role among military personnel in moderating the risk of developing PTSD, more so than among the civilian population. Mental health professionals working with civil war survivors should seek to explore trauma awareness and preparedness as resources for minimising risk for PTSD in armed conflict situations.

Keywords: armed conflict, awareness mechanisms, feeling of self-efficacy, posttraumatic stress disorder, preparation for trauma

Introduction

Exposure to situations that are likely to result in death, being threatened with death, actual or threats of serious injury, and actual or threats of sexual assault are the main diagnostic criteria for post-traumatic stress disorder (PTSD) (American Psychiatric Association, 2015). People with PTSD experience intrusive thoughts, hyperactivity, avoidance, and persistent negative alterations in cognition and mood (American Psychiatric Association, 2013). The most frequent co-morbidities of the PTSD are insomnia, anxiety, memory problems, depression, addiction to specific substances, and eating disorders (Birmes et al., 2005; Simoneau & Guay, 2008; Dégeilh et al., 2013; Daudin & Rondier, 2014). We investigated the role of adult age trauma awareness and preparedness on risk for PTSD among civilian and military people from civil war-ravaged areas of the Democratic Republic of the Congo.

Perennial civil war causes intentional trauma inflicted by a group (a nation, or a significant part of a population), extreme violence, and wilful deaths (Bilak, 2016). The Democratic Republic of Congo (DRC) – especially in eastern regions of North-Kivu, South-Kivu, and Ituri – have experienced recurrent armed conflicts for more than 20 years (Jacquemot, 2009; Vircoulon, 2005). Studies related to armed conflict in Ituri, North-Kivu and South-Kivu focussed primarily on sexual and physical violence (Moufflet, 2008; Kwakya et al., 2015; Awa, 2012; Duroch, McRae & Grais, 2011). Furthermore, studies in the two Kivu provinces did not include the notions of awareness mechanism or preparation for trauma (Mbombo Banza & Hemedi Bayolo, 2004; Moufflet, 2008; Omba Kalonda, 2008; Rubuye Mer & Flicourt, 2015). This study aimed to clarify what the risks for developing PTSD are among the civilian and military populations based on their trauma awareness and preparedness.

Awareness and preparedness influences on risk for PSTD

Multiple traumas (that are likely to induce the awareness mechanism) indicate an increased risk of PTSD (Breslau et al., 1999; Fossion et al., 2013; Martin et al., 2013; Rousseau et al., 1989). Whatever the difference between the natures of the traumas experienced, its accumulation would sensitise the people who experience it (Coen, 2003; Courtois, 2008; Fossion et al., 2013). In particular, adults who have been exposed to trauma in childhood, often experience problems that expose them to further trauma and cumulative disorders, predisposing them to a high risk of developing PTSD (Clemmons et al., 2007; Courtois, 2008; Josse, 2006, 2014). The frequency and types of childhood trauma has been associated with a complexity of posttraumatic symptoms in university students (Briere, Kaltman, & Green, 2008), in a clinical sample of adults (Cloitre et al., 2009), in military spouses (Zwanziger et al., 2017), among the victims of the civil war in Uganda (Mugisha et al., 2015), in adolescents (Suliman et al., 2009), or in a non-clinical population (Fossion et al., 2013).

Furthermore Foa and colleagues (1992) suggest that the more predictable and controllable a traumatic event is, the less likely it is to lead to the development of a pathology; hence the importance of preparing for potential trauma. People who have received vocational training to deal with dangerous situations would be less

likely to develop psycho-traumatic symptoms in general (Bonanno et al., 2012) and PTSD in particular (Josse, 2006). Soldiers, although frequently exposed to potentially traumatic situations (Dhladhla & Dyk, 2009), benefit from prior physical and psychological preparation. In several countries, a support system for the military is organised for mental health prevention, immediate care, and long-term follow-up (Clervoy & Vautier, 2009; Gallant, 2016; Roullière-Le Lidec, Rouhard, & Crocq, 2016). Preparing for a traumatic event has been recognised as a protective factor against the development of PTSD among British military personnel deployed to Iraq in 2003 (Iversen et al., 2008), soldiers deployed on United Nations peacekeeping missions in the former Republic of Yugoslavia (Deahl et al., 2000), civilians, and military in Japan to cope with the trauma associated with the likely future earthquakes (Heimburger, 2018).

Few studies have focused on preparation for recurrent trauma. We approach this theme in a context where traumatic events related to armed conflict have lasted for more than twenty years and are repeated within one to three months (Scott, 2008; Zewde, 2008). A recurrent trauma implies that the victim must manage the event (Brunet, 1996), has time to develop a certain level of coping strategies (Chabrol & Callahan, 2018), and stays in regular contact with the victim over the course of repeated events. Since victims feel a sense of helplessness during exposure to the traumatic event (David, 2019), we have also chosen to study the role of self-efficacy in mediating between multiple traumas and the development of PTSD. Self-efficacy refers to the trust the subject has in agreeing to perform certain behaviours (Bandura et al., 2003, 2007). We consider the feeling of helplessness cited above in its inverted version would be the feeling of personal efficiency (Lecomte, 2004).

Goals of the study

We aimed to examine awareness and preparedness mechanisms in PTSD risk minimisation among adult civilian and military populations from conflict ridden regions of the DRC. Specifically, we tested three hypotheses:

- The awareness mechanism is likely from experience of multiple trauma in adulthood;
- Preparation (e.g., military training) has protective effects against the development of PTSD symptoms in individuals prepared for exposure to traumatic events; and
- General self-efficacy mediates trauma experience by delaying the deleterious effects of exposure to trauma.

Method

Participants and setting

The total sample included 302 individuals who were between 16 and 76 years of age, comprising 160 men (53%) and 142 women (47%). Table 1 presents the basic demographic characteristics of the sample.

The participants were all adults from the eastern part of the DRC (North Kivu, South Kivu, and Ituri provinces). The participants were mostly civilians (68%) who experienced violence committed between August 2014 and October 2016. Participants were included in the study group provided that:

- they were 16 years of age or older;
- at least five weeks had passed since their direct exposure or involvement as a witness to the latest armed conflict-related trauma or their involvement as a close acquaintance (i.e., family or a friend) of a victim who had been directly affected by the trauma of armed conflict; and
- they had signed the informed consent form.

Measures

Participants completed the Posttraumatic Checklist Scale (PCL-S: Yao et al., 2003), the General Self-Efficacy Scale (GSE: Luszczynska et al., 2005), and the Traumatic Events List (TEL: Blake et al., 1995). They also self-reported their demographic information.

The Posttraumatic Checklist Scale

The PCL-S consists of 17 items ($\alpha = 0.94$) evaluating the intensity of the 17 symptoms of PTSD presented in the Diagnostic and Statistical Manual 4th Edition Revised (DSM-IV-R: Yao et al., 2003), rated by the participants on a scale of 1 to 5 (with 1 = not at all, 2 = a little, 3 = sometimes, 4 = often, and 5 = very often). The range of the score varies from 17 to 85 points. We used the score as a continuous measure of the symptoms (Bouvard & Cottraux, 2010). Sample items include: "I am disturbed by memories, thoughts, or images related to this event" and "I have trouble concentrating."

The General Self-Efficacy Scale

The GSE consists of 10 items ($\alpha = 0.86$) and is scored on a Likert-type scale ranging from 1 = not true at all, to 4 = entirely true. The range of the score varies from 10 to 40

Table 1. Characteristics of the sample ($N = 302$)

Characteristics		Men	Women	Total
		n (%)	*n* (%)	*N* (%)
Level of education	Primary level	73 (45.6)	88 (62.0)	161 (53.3)
	Secondary level	76 (47.5)	37 (26.1)	113 (37.4)
	University level	11(6.9)	17 (12.0)	28 (9.3)
Ethnicity	Indigenous tribes	105 (65.6)	99 (69.7)	204 (67.5)
	Non-indigenous tribes	55 (34.4)	43 (30.3)	98 (32.5)
Type of trauma experienced	Indirect victims	84 (52.5)	77 (54.2)	161 (53.3)
	Physically attacked	64 (40.0)	44 (31.0)	108 (35.8)
	Rape	12 (7.5)	21 (14.8)	33 (10.9)

points (Luszczynska et al., 2005). Sample items include: "I can solve most of my problems if I make enough of an effort" and "It is easy for me to stay focused on my goals and to accomplish my goals."

The Traumatic Events List

The TEL it is part of the Clinical-administered Posttraumatic Stress Disorder Scale for DSM-IV (CAPS1). The TEL includes a series of potentially traumatic events (Blake et al., 1995). The participant indicates whether this had happened to him or her, or if he or she witnessed it. For this study we have only selected traumatic events related to armed conflict:

- physical assault (being attacked, beaten, stabbed, stabbed, kicked, etc.);
- armed assault (being wounded by a firearm or sharp weapon, being threatened with a knife, firearm or bomb, etc.);
- sexual assault (rape, attempted rape, being forced to perform any sexual act by force or under threat);
- captivity (being kidnapped, abducted, taken hostage, incarcerated as a prisoner of war, etc.); and
- any other highly stressful situation or experience related to armed conflict.

Subsequently, we considered physical aggression and armed robbery in only one type of traumatic event, which we called physical aggression.In the section on sexual assault, only rape was included in this study because rape is a major problem in the area compared to sexual violence, which includes psychological violence, forced marriage, etc.

Demographics

Participants reported on their socio-demographic variables (e.g., age, level of education, ethnicity, occupation, and gender). They also described the trauma(s) that occurred prior to the current armed conflicts (e.g., the presence or absence of one or more previous trauma(s); including the time of the onset of the trauma such as during childhood, adolescence, or adulthood).

Procedure

The human ethics committee of the Faculty of Psychological Sciences and Education of the Université Libre de Bruxelles and from the School of Public Health of the Université de Kinshasa approved of the study. The identification of participants and the delivery of the survey itself were carried out by a team of investigators who were trained and supervised by the principal investigator in each province. These investigators were mainly medical staff and/or non-governmental organisation (NGO) agents working in the field of psychosocial support of victims of violence related to armed conflict. The survey was conducted in French. Participants consented for study either by returning the signed and completed consent form, or by verbal consent if they were unable to complete or sign the form due to literacy constraints. Research assistants helped 26.5 % of the participants who were not literate to complete the surveys. In order to ensure anonymity, each questionnaire was given a unique identification number.

Data analysis

The data were analysed with Statistical Package for Social Science version 24 (Wager, 2019). The statistical significance level was set at 0.05. Nominal variables were described as frequencies and percentages, and continuous variables were described using means, standard deviations, and maximum and minimum values. A factorial two-way ANOVA (Soldiers vs. Civilians) x 2 (Single Trauma vs. Multiple Traumas) was performed with the dependent variable of risk to develop PTSD as measured by the PCL-S (total score and each of the sub-dimensions). Additionally, we explored the relationships of interest and for general self-efficacy. Specifically, we tested for the mediating effect of self-efficacy on PSTD symptom development applying both simple mediation and mediated moderation approach (Muller, Judd, & Yzerbyt, 2005).

Results

Table 2 and 3 present the results for the analysis to test the research hypotheses. The first hypothesis would be true if the presence of multiple traumas induced greater PTSD symptomatology than a single trauma. This was the case for the avoidance dimension of PTSD ($\eta p2 = 0.02$) only, and not for intrusion symptoms and hyperactivity. Thus, we did not observe an awareness mechanism effect on other dimensions of PTSD development.

The second hypothesis postulates that there is a protective effect of preparation (e.g., military training) on the symptoms of PTSD. This hypothesis was supported by the present findings. Although it is often not sensitisation, there was a very strong main effect for all of the dimensions of PTSD symptomatology: Both the total score ($\eta p2 = 0.12$) and the intrusion symptoms ($\eta p2 = 0.12$), avoidance ($\eta p2 = 0.13$), and hyperactivity ($\eta p2 = 0.05$) were less present for the military group than the civilian group.

The third hypothesis on general self-efficacy mediation was not supported. Although, we observed a partial mediation effect for the total PTSD score, general self-efficacy did not predict the severity of intrusion symptoms ($\beta = -0.07$, $p = 0.33$) or those of hyperactivity ($\beta = -0.07$, $p = 0.39$). Similarly, the mediated moderation test of the interaction effect between the trauma exposure and participant coping did not reveal significance ($p > 0.05$).

Discussion

The purpose of this study was to examine the specific effects of trauma accumulation around intentional trauma related to armed conflict, as well as to determine the potential role of preparation for being in contact with traumatic events in the field in terms of the development of PTSD symptomatology. Additionally, we aimed to test the mediating role of self-efficacy on the relationship between multiple trauma exposures and PTSD symptomatology development.

We observed the sensitisation mechanism for the PTSD sub-dimension of avoidance only. This finding is consistent with those by Mari-Bouzid (2011). Avoidance behaviours play a major role in the genesis of PTSD (Mari-Bouzid, 2011), but also of depression (Ferster, 1973); which explains why depression is the foremost comorbid disorder

Table 2. Descriptive statistics

	Soldiers		Civilians		Total
	Single trauma	Multiple traumas	Single trauma	Multiple traumas	
	n = 49	*n* = 46	*n* = 52	*n* = 155	*N* = 302
PCL-S Total M(SD)	33.29 (15.06)	34.98 (15.48)	52.08 (15.05)	52.62 (17.73)	46.70 (18.56)
PCL-S Intrusion M(SD)	13.20 (5.31)	11.76 (6.45)	17,77 (6.28)	17.08 (5.92)	15.76 (6.36)
PCL-S Avoidance M(SD)	15.76 (6,58)	12.80 (6.86)	21.44 (8.37)	19.75 (6.97)	18.34 (7.69)
PCL-S Hyperactivity M(SD)	11.55 (5.21)	9.50 (5.97)	13.62 (6.96)	13.53 (5.98)	12.61(6.20)
GSE M(SD)	30.06 (5.60)	26.28 (6.72)	21.29 (7.37)	21.54 (7.28)	24.47 (7.68)
Missing values for GSE	0	0	14	74	88
Age M(SD)	38.71 (8.50)	39.59 (8.98)	39.02 (16.14)	41.30 (15.02)	40.23 (13.58)
Number of women	14	10	22	96	142

Note. GSE = General Self-Efficacy Scale; PCL-S = Posttraumatic Checklist Scale; M = mean; SD = Standard deviation

Table 3. Factorial ANOVAs on dependent variables

	PCL-S Total	PCL-S Intrusion	PCL-S Avoidance	PCL-S Hyperactivity	GSE Total
	F (1, 298)	*F* (1, 298)	*F* (1, 298)	*F* (1, 298)	*F* (1, 210)
Trauma	$.27^{ns}$	1.87^{ns}	6.19^{**}	1.85^{ns}	3.29^{ns}
Profession	71.45^{***}	40.43^{***}	45.99^{***}	14.99^{***}	48.43^{***}
Trauma x profession	0.07^{ns}	0.24^{ns}	0.46^{ns}	1.56^{ns}	4.31^{*}

Note. Profession = military vs civilian; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.00$; $^{ns}p > 0.05$

in the world (Thurin, 2002). We speculate that avoidance symptoms may be related to, or closely associated with, memories, thoughts, or feelings about the trauma, painful feelings and a sense of distress (American Psychiatric Association, 2013); while symptoms of intrusion and hyperactivity could get "normalised", as time goes on in victims of violence related to armed conflict (Brunet, 1996; Duagani et al., 2016).

Preparation (e.g., military training) was protective of developing PTSD symptomatology across the dimensions of intrusion, avoidance, and hyperactivity. This might be, in part, because preparation reduces the effect of surprise that feeds PTSD symptoms (Tomassela, 2016 ; Kac Ohana, 2016). Psychological preparation for dealing with trauma has proven to be a protective factor in the development of PTSD among victims of torture (Başoğlu et al., 1997) and in nurses engaged in humanitarian missions (Chatelain, Pastore, & Addor, 2014). However, both military and civilian survivors of the Rwandese genocide showed similar levels of PTSD symptoms (Sydor & Philippot, 1996).

We observed a partial mediation effect of general self-efficacy for the total PTSD score. But the mediating effect of the sense of self-efficacy through mediated moderation between avoidance syndrome and the interaction of multiple trauma and preparation (e.g., military training) was not observed. This effect may need replication in a study with a larger sample. Self-efficacy has been associated with less psychological distress and fewer posttraumatic symptoms among victims of natural disasters (Benight & Harper, 2002) and among fire-fighters (Regehr et al., 2000).

Limitations of the study

Limitations of the study include use of a convenience sample and cross-sectional study. These limitations contain generalisability of findings (Corroyer & Wolff, 2003). In addition, the fact that the trauma experienced before the armed conflict (which was considered in our study as the main trauma) was not sufficiently described (nature and/or intentionality) did not allow us to assess potential links to this effect. Data on cumulative trauma could make it possible to establish more specific links between the types of trauma experienced prior to armed conflicts and the current trauma according to their nature.

Conclusion

Study findings show the protective role of preparation in dealing with trauma and the role of the awareness mechanism on the severity of the avoidance aspect of PTSD. Mental health professionals in conflict zones should prioritise to offer psychological preparation to civilian and military populations living in areas where the potential for armed conflict is high.

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