

Exploring the Potential Distinction Between Continuous Traumatic Stress and Posttraumatic Stress in an East African Refugee Sample

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Abstract

Posttraumatic stress (PTS) indicates a continuous stress response that persists though threats to life had been experienced in the *past*. However, threats to life are frequently *ongoing*. For these contexts, the concept of continuous traumatic stress (CTS) has been put forward. Based on structured clinical interviews with Congolese refugees ($N = 226$), this study investigated the CTS concept and whether it can be distinguished from PTS. We found that current exposure to violence correlated positively with concerns about its recurrence in the CTS group ($r = .46$). An ANCOVA indicated that higher intrusion symptom severity in the PTS group (no symptom reduction under safe conditions) was explained by higher lifetime trauma exposure ($\eta^2 = .125$). In contexts of continuous trauma exposure, symptom-like responses may be regarded as appropriate responses to realistic danger. In these contexts, the possibility that symptom changes are a response to real threats should be considered to avoid overestimation of PTSD prevalences.

Keywords

continuous traumatic stress, posttraumatic stress, trauma, refugees, PTSD

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The latest edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM–5)* (American Psychiatric Association, 2013) defines posttraumatic stress disorder (PTSD) as a potential reaction to one or more traumatic experiences, which is accompanied by symptoms of intrusions (e.g., intrusive images, nightmares, flashbacks), avoidance (e.g., avoiding thoughts or people related to the trauma), cognitive and emotional disturbances (e.g., emotional numbing, negative self-concept), and hyperarousal (e.g., being very alert or easily startled). PTSD is the most frequently researched consequence of exposure to life-threatening experiences (Olff et al., 2015). However, the PTSD concept may not apply to psychopathological responses to traumatic stressors in all contexts (Eagle & Kaminer, 2013; Kaysen, Resick, & Wise, 2003; Kilpatrick, 2005), especially when recorded under conditions of *current* and *ongoing* life threats. The concept of continuous traumatic stress

(CTS; Eagle & Kaminer, 2013) was developed to account for the maladaptive responses resulting from exposure to continuous traumatic stressors, which are experienced by many individuals living under unsafe conditions (Stevens, Eagle, Kaminer, & Higson-Smith, 2013).

Its conceptualization came about through studies of political violence and state oppression in South Africa in the 1980s (Eagle & Kaminer, 2013). During this time, many people were exposed to life-threatening events on a daily basis (Turton, Straker, & Moosa, 1990), and CTS was introduced to acknowledge these adverse and often life-threatening circumstances and to categorize the psychological response to these. The high crime and

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violence rates in many parts of the world suggest that the concept of CTS should be further developed. Higson-Smith (2013) defines CTS as “emotional or behavioral responses to actual or current danger that the narrator describes as resulting from living under conditions of ongoing danger” (p. 169). This definition fits well with the idea that CTS could be defined both by *context* and *individual responses* to this context (Straker, 2013). For example, in Israel, where many people feel continuously threatened by war and terrorist attacks, the individual responses to CTS have been intensively researched (Diamond, Lipsitz, Fajerman, & Rozenblat, 2010).

The difference between CTS and posttraumatic stress (PTS) seems intuitively comprehensible but the distinction is not trivial to operationalize. For example, a rape survivor, a car accident survivor, and an earthquake survivor are still under the threat of the same event happening again wherever and whenever they live. The actual event may be in the past, but the probability that it will happen again is never zero. Indeed, PTS is often attributed to an ongoing sense of threat to safety (Ehlers & Clark, 2000), and evidence from studies involving survivors of mass trauma (e.g., earthquake, war, torture, etc.) suggests that such threat anticipation and associated fear and helplessness responses are the strongest predictors for PTSD (Basoglu & Salcioglu, 2011).

Yet, CTS describes contexts in which the probability of a traumatic event is very high and continues to be high for an undefined period of time. Thus the context serves as an important function in the definition of CTS. Studies that empirically tested the concept have, however, remained scarce. At this point in time, besides theoretical treatments, there are only a few studies examining the validity of the CTS concept. These were mainly conducted in Israel, where many people feel continuously threatened by war and terrorist attacks (Diamond et al., 2010). Due to the limited evidence, it remains unclear whether CTS can be regarded as resulting in a set of symptoms that differ from those related to PTS.

Distinctiveness of CTS and PTS: Context-related factors

In CTS, the context refers to *continuous* exposure to traumatic events that have no foreseeable end. In contrast, PTS relates to distinct traumatic experiences that have happened in the *past* (Diamond, Lipsitz, & Hoffman, 2013). Diamond et al. (2010) examined the research question of what would happen if the context were to become less dangerous. Results indicated that symptoms shown in response to missile attacks in Israel tended to decrease or completely abate when the attacks became less frequent. Diamond et al. (2013)

also found a decrease in symptoms as a consequence of leaving the traumatic context and moving to a less dangerous area. Therefore, CTS is often regarded as a normal and adaptive response to extreme and dangerous conditions (Diamond et al., 2013; Nuttman-Shwartz & Shoval-Zuckerman, 2016), whereas PTS responses continue after moving to a safer environment. If CTS constitutes a nonpathological reaction to a dangerous context, it would be of clinical relevance: A distinction between CTS and PTS could provide a helpful way of avoiding the overestimation of the prevalence of PTSD in contexts of continuous trauma (Hoffman, Diamond, & Lipsitz, 2011).

Another aspect that is linked to the context of CTS is that people subject to it are preoccupied with present and future safety as well as with the fear that traumatic events could possibly reoccur (Straker, 2013). These considerations are in line with the results of Diamond et al. (2010), who found that the symptoms reported by CTS-exposed Israelis were related to the recurrent and ongoing stress, which was in turn associated with the fear that the traumatic and stressful events would happen again. This concern regarding the future may represent a contrast to PTSD-related cognitions (Hoffman et al., 2011). The concerns of people living in contexts of CTS that traumatic events could happen again could be regarded as a reality-based, rational reaction due to their current exposure to traumatic events. In contrast, the concern of people experiencing PTS could instead be seen as detached from reality and as the processing of past traumatic experiences (van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005).

Yet, even in the context of CTS, people may suffer from PTS symptoms. Traumatic experiences from the past may become indistinguishable from current traumatic experiences, as repeated exposure to traumatic experiences may form a fear network of related sensory, cognitive, emotional, and interoceptive memory components that are detached from contextual cues such as time and location of the danger (Elbert & Schauer, 2002). This maladaptive and overgeneralized fear network is held to explain the development of most of the symptoms of the spectrum of trauma-related disorders (Elbert & Schauer, 2002).

Distinctiveness of CTS and PTS: Symptom characteristics

Thus far, there is little theoretical or empirical research examining the ways in which the psychological responses to contexts of *continuous* exposure to traumatic events may differ from PTS resulting from trauma exposure in the *past*. However, it has been frequently noted that these CTS responses may be appropriate

behaviors to perceived danger, in contrast to the dysfunctional and often exaggerated symptoms of PTS, which are also present in a relatively safe environment (Hoffman et al., 2011; Shalev, Tuval, Frenkiel-Fishman, Hadar, & Eth, 2006). According to Somer and Ataria (2015), “the psychological outcomes of severe CTS resemble but do not correspond exactly with the criteria of PTSD listed in DSM-5” (p. 297). Consistently, Eagle and Kaminer (2013) suggested that CTS might be distinct from PTS in having fewer intrusive symptoms. This is in line with the finding that people who were exposed to continuous bombardments showed increased arousal rather than intrusions (Lahad & Leykin, 2010). In addition, Somer and Ataria (2015) found that intrusions were the least reported responses to CTS when directly asked for PTSD symptoms. Furthermore, Brewin, Lanius, Novac, Schnyder, and Galea (2009) stated that it might be the intrusive symptoms, such as flashbacks and nightmares, that make PTSD distinct from other psychiatric conditions.

Increased arousal is considered as a dominant element of CTS (Lahad & Leykin, 2010). For example, Diamond and colleagues (2010) reported that people living under continuous threat were more burdened with hyperarousal (e.g., insomnia and exaggerated startle response). Furthermore, people who experience CTS may live with ongoing fear of potential future traumatic events, resulting in a constant state of vigilance and arousal (Eagle & Kaminer, 2013). Besser and Neria (2009) found that arousal was the most dominant element of responses in an area of ongoing exposure. The hyperarousal symptoms may be maintained and strengthened in the continuous traumatic context as traumatic events could happen at any time (Kaysen et al., 2003). Thus, the elevated level of arousal may have the adaptive function to reduce the likelihood of experiencing further traumatic events.

Objectives

People living in countries affected by war and conflict are often forced to leave their home countries. In 2015, the worldwide number of refugees and internally displaced persons exceeded 60 million, which is the first time since World War II that such figures have been recorded, and this number is continuously rising (United Nations High Commissioner for Refugees, 2015). Refugees are especially vulnerable to suffering from trauma- and other stress-related disorders (Fazel, Wheeler, & Danesh, 2005; Neuner et al., 2004). Not all host countries shield refugees from the war and persecution that made them flee from their home country (e.g., Lebanon and Turkey for Syrian refugees and

Uganda for refugees from the Democratic Republic of the Congo). Furthermore, the majority of refugees worldwide live in precarious and volatile circumstances (Sundquist, 2001). Many refugees in Europe are currently threatened by violence and maltreatment.

The present study was conducted with refugees from the Democratic Republic of the Congo (DRC) currently living in the neighboring country of Uganda. In recent years, Uganda has received a high influx of refugees, especially from the DRC. For more than two decades the DRC has been affected by war and violence. Civilians suffer from wide-ranging consequences of violence (Elbert et al., 2013). The precarious living conditions in Ugandan refugee settlements often lead to violence (Hecker, Fetz, Ainamani, & Elbert, 2015). For example, in 2009 Ugandan police and military forces attacked the refugee settlement to violently end ongoing riots. Severe violence and arbitrary arrests created an atmosphere of fear and uncertainty. Furthermore, armed groups from the DRC were—at least partly forcibly—recruiting combatants in the refugee settlement. The context of the Nakivale refugee settlement can thus be described as a context of continuous (traumatic) stress. We therefore drew on this sample to examine the concept of CTS and to test whether it is distinct from PTS. Based on the participants’ report of whether or not they experienced a symptom reduction in less dangerous contexts, we formed one CTS group (symptom reduction) and a PTS group (no symptom reduction).

Based on the aforementioned findings, we predicted that participants in the CTS group would report a reality-based, rational reaction due to their current exposure to traumatic events, whereas the concern of people experiencing PTS would be detached from present reality and better explained as the processing of past traumatic experiences. In other words, independent of the current situation, individuals suffering from PTS would show fear responses that are triggered by anything that reminds the affected individual of the traumatic experience in the past. We thus hypothesized that (a) in the CTS group there would be an accumulation of participants who would report either high current exposure to violence-related events with high concerns about their recurrence, or low current exposure to violence-related events with low concerns about their recurrence; and (b) exposure and concerns would be positively related in the CTS group, whereas in the PTS group no such pattern would be identifiable, and the PTS group would report concerns about the recurrence of exposure to violence regardless of current exposure.

The full range of CTS responses remains to be researched; for instance, the contribution of depressive

and anxiety-related symptoms as well as drug abuse remains to be investigated. Moreover, it is possible that the set of symptoms varies with the specifics of the scenario. For this particular setting, we operationalized the concept of CTS by means of PTSD symptoms, as PTSD arises and persists consistently in scenarios with cumulative exposure to life-threatening conditions (Kolassa et al., 2010) and is the most frequently researched consequence of life-threatening experiences (Olf et al., 2015). We predicted different symptom characteristics in the CTS group compared to the PTS group and hypothesized that (c) the PTS group would show higher intrusion symptom severity than the CTS group and that (d) in the CTS group hyperarousal severity would be stronger than intrusion severity.

Method

Participants

A sample of 309 refugees was interviewed in Nakivale refugee settlement in western Uganda between March and June 2013. In the present study only refugees from the DRC who had arrived in the settlement after January 2012 were included. This ensured that only refugees who had fled from the most recent wave of conflict in the DRC were included. This inclusion criterion was validated at the beginning of each interview.

Out of the total sample, two groups were selected depending on whether the participants reported a decrease of PTS symptoms under less dangerous conditions (CTS) or not (PTS). After we assessed PTS symptoms using a structured interview (the PSS-I; described later), we asked two questions that would allow us to gauge a substantial change in PTS symptoms. According to Hoffman et al. (2011), adding such questions at the end of standard PTS assessment tools would increase their validity in the context of continuous trauma. We used the questions suggested by Hoffman et al. (2011) and adapted them to fit the context of the Nakivale refugee settlement: (a) "During weeks or months when war/attacks were less frequent have you noticed a marked decrease in your symptoms?" (b) "Since you arrived in Nakivale refugee settlement have you noticed a marked decrease in symptoms?"

A marked decrease in symptoms was defined as a decrease in severity and frequency of PTS symptoms that resulted in a noticeable decline of suffering and improvement of functioning in everyday life. If the participant did not respond with a clear answer, the interviewers inquired further until interviewers were confident that they could give an accurate rating. The interviewers rated the participants' answers as 0 (*no*) or 1 (*yes*), or as not applicable in the case where no

PTS symptoms were reported at any time. Participants who reported never having experienced any of these symptoms were not included. Furthermore, participants who indicated that they suffer simultaneously from both PTS and CTS responses, indicated for example by a negative response to one of the questions, were also excluded.

This ensured the selection of two distinct groups: the PTS group, who reported no decline in symptoms (negative response to both questions), and the CTS group, who reported a reduction whenever they were not under current threat. The group assignment resulted in sample sizes of 183 for the CTS group and 43 for the PTS group; 83 answered yes to one question and no to the other, or did not answer one of the questions. The groups did not differ significantly in gender or age (see Table 1). All participants had arrived in Nakivale refugee settlement between January 2012 and December 2013. All of them reported having fled from the DRC because of the conflict-related threats they were facing. Many of the people were living in precarious conditions. Some had not yet been registered officially in the settlement, which is important because registration was necessary to receive food rations and other basic items like soap and oil.

Procedure

We conducted this study in Nakivale refugee settlement in western Uganda. The population of the settlement was 60,992 persons, of whom 32,455 were Congolese (United Nations High Commissioner for Refugees, 2014). Smaller numbers of refugees originated from other countries, such as Rwanda, Burundi, or Somalia. The refugee settlement is divided into subdivisions, where refugees are generally separated according to their country of origin. The recently arrived refugees from the DRC were staying in subdivisions for Congolese refugees. However, they were mixed with other Congolese refugees who had already been living in Nakivale refugee settlement for many years. This fact prevented us from making a random selection of households in selected subdivisions as initially planned. Therefore, the interviews took place in all subdivisions of the refugee settlement, in which we expected a substantial number of newly arrived refugees from the DRC. In each subdivision we first contacted the subdivisions' chairperson. After giving their consent, they announced our arrival, informed all refugees in their communities who had arrived recently about the study, and gathered suitable people. Furthermore, we asked all participants to spread the information to other refugees that had recently arrived from the DRC. Using this snowball sampling approach we returned to the respective places until no

Table 1. Descriptive Statistics for CTS Group ($n = 183$) and PTS Group ($n = 43$)

Variable	CTS group		PTS group		T or χ^2 ^a
	M	SD	M	SD	
Age (years)	31.32	9.43	30.37	8.37	0.61
Education (years)	5.73	4.63	6.86	5.02	1.41
Gender (n , %)					0.42
Female	107	59	28	65	
Male	76	41	15	35	
Lifetime exposure to traumatic events	34.61	8.14	39.88	6.16	4.73***
War events	18.54	4.00	20.84	3.27	3.97***
Non-war events	4.55	1.07	5.19	1.08	3.50***
Community violence	10.54	4.61	12.91	3.73	3.13**
Current exposure to violence events ^b	2.93	2.85	4.21	3.13	2.59**
Concern about recurrence ^c	7.46	5.79	10.51	3.11	3.10**
PSS-I severity scores					
Sum score	34.35	13.09	38.95	7.24	3.14**
Intrusions	10.77	4.24	12.42	2.33	3.48***
Hyperarousal	10.64	3.93	12.35	2.35	3.70***
Avoidance	12.96	5.66	14.21	3.39	1.88

Note: CTS = continuous traumatic stress; PTS = posttraumatic stress; PSS-I = PTSD Symptom Scale-Interview.

^a $T = t$ test or Welch test statistics; $\chi^2 =$ chi-square test statistic.

^bRefers to family- and community-violence-related events.

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

more people fulfilling the inclusion criteria appeared. After that we went on to the next subdivision where recent arrivals were living.

Three psychologists and a social scientist conducted the semistructured interviews. All interviewers were extensively trained in psychological assessment. All interviews were conducted in Swahili, which is the lingua franca both in the eastern DRC and in the Nakivale refugee settlement. To ensure high interrater reliability, the interviewers practiced the assessment in joint interviews. Two English-speaking interpreters facilitated communication. To ensure comprehension and full awareness of the content, oral and written informed consent was collected from the participants; illiterate participants gave their fingerprints instead of a signature. Each participant was interviewed in a calm and discreet setting. At the end of the interview, each participant received a bar of soap and a package of salt as compensation. The Institutional Review Board of the Mbarara University of Science and Technology as well as the Ugandan National Council for Science and Technology approved the study. Other results from this extensive data assessment are presented by Hecker et al. (2015) and by Ainamani, Elbert, Olema, and Hecker (2017).

Measures

All assessment instruments were applied as semistructured interviews. After informed consent, we assessed

sociodemographic information (e.g., age, gender, educational background).

Exposure to traumatic and other stressful events.

Lifetime exposure to potentially traumatizing events was assessed using a checklist of 53 war and non-war event types (e.g., natural catastrophes, physical assault, sexual assault). The checklist was an adapted version of a checklist by Neuner and colleagues (2004), developed for conflict settings in the Great Lakes Region in Central Africa. It included events from the Posttraumatic Stress Diagnostic Scale (Foa, Cashman, Jaycox, & Perry, 1997) and has shown high test-retest reliability ($r = .73$, $p < .001$) as well as high accordance with the event list of the Composite International Diagnostic Interview in a study in Uganda (Ertl et al., 2010). It has also been successfully used in studies in the DRC (Hermenau, Hecker, Schaal, Maedl, & Elbert, 2013). When assessing past traumatic events, measuring event types provides an accurate and practical measure of traumatic experiences (Wilker et al., 2015). For example, lifetime PTS was accurately predicted by the number of different traumatic event types experienced, and the inclusion of event frequencies only slightly improved the prediction of current PTS. Therefore, the number of times a specific event had been experienced was not assessed.

To capture ongoing experiences of threat and danger, we also assessed current exposure to family and community violence in the past month with 20 violence-related event types (e.g., physical assault, sexual

assault). One item assessing poverty and one asking for any event not mentioned so far was added to capture all possible current stressors. Concerns or worries about the recurrence of the violence-related events were assessed by asking whether the person was concerned during the last month that the event could happen again in the future. Each event for which participants reported concerns about recurrence was rated with a 1, and if no concern was reported, then it was rated with a 0. For the analysis, a sum score of lifetime exposure was calculated by summing up all items (range = 0–53), as well as a sum score of current exposure to family and community violence (range = 0–22) and concerns about the recurrence of these current violence-related events (range = 0–22).

Posttraumatic stress disorder symptom severity. The PTSD Symptom Scale–Interview (PSS-I; Foa, Riggs, Dancu, & Rothbaum, 1993) was utilized to determine PTSD symptom severity. The 17 *DSM-IV* symptom criteria for PTSD were assessed with one question for each symptom and referred to the previous 2 weeks. The answers were coded on a 4-point scale ranging from *not at all* (0) to *five or more times per week/very much* (3). The PSS-I has been shown to have good psychometric properties (e.g., Cronbach's $\alpha = .86$, interrater reliability = .93; Foa & Tolin, 2000). The instrument has been validated for use in Uganda (Ertl et al., 2010) and has been successfully used in the DRC (Hecker et al., 2013). We computed dimensional PTSD severity scores by adding the scores of each question, resulting in a sum score ranging from 0 to 51. In the current sample Cronbach's alpha was .93. For analyses, cluster severity scores were computed. The intrusion severity score (Items 1–5) and the hyperarousal severity (Items 13–17) have a possible range from 0 to 15 and the avoidance severity score (Items 6–12) has a possible range from 0 to 21. The Cronbach's alpha coefficients for the symptom clusters proved to be good (intrusions $\alpha = .90$, hyperarousal $\alpha = .85$, avoidance $\alpha = .86$).

Data analysis

Our hypothesis was that the CTS group would primarily report concerns appropriate to the current danger, and conversely, that people in the PTS group would report concerns independently of the context. To measure this, we formed categories for low versus high *current exposure to violence-related events* and *concerns about their recurrence*. We used the median of the sum score of *current exposure types* to split the sample into equal subgroups (low vs. high current exposure). We used the same procedure for the variable *concerns about their recurrence* (low vs. high recurrent concerns). Contingency tables for both groups were analyzed using a

2 (current exposure) \times 2 (concerns about recurrence) chi-square test for each group. Spearman correlations were performed to specify the strength of possible associations.

Differences in intrusion symptom severity between the CTS and PTS group were examined with an independent samples *t* test. To control for possible differences in lifetime exposure to traumatic events, an analysis of covariance (ANCOVA) was conducted. The model consisted of group as the fixed factor (CTS, PTS), lifetime exposure to traumatic events as covariate, and intrusion severity as dependent variable. The distributions of the residuals did not deviate significantly from normal distributions. A Levene test revealed a significant difference between the variances of the two groups. The *t* test and ANCOVA were conducted based on their robustness to heteroscedasticity (McDonald, 2009; Olejnik & Algina, 2003). Differences in hyperarousal and intrusion symptom severity within the CTS group were examined with a *t* test for dependent measures. The distributions of the residuals did not deviate significantly from the normal distribution. All analyses used a two-tailed $\alpha = .05$. Our metric for a small effect size was $d \geq .20$, $q \geq .10$, or $\eta^2 \geq .01$, for a medium effect $d \geq .50$, $q \geq .30$, or $\eta^2 \geq .06$, and for a large effect $d \geq .80$, $q \geq .50$, or $\eta^2 \geq .13$. Data were analyzed with IBM SPSS Statistics 21.

Results

Context-related differences between CTS and PTS

Descriptive statistics are presented in Table 1. The observed frequencies for the distribution of the PTS and the CTS group across the 2 (current exposure) \times 2 (concerns about recurrence) contingency table are displayed in Table 2. In the CTS group there was an accumulation of people reporting high current exposure to violence-related event types and reporting high concerns about their recurrence (31%). Accordingly, 41% reported low current exposure to the violence-related event types together with low concerns about their recurrence. The chi-square test showed that there was a significant relationship between current exposure and concern about the recurrence of the events, $\chi^2(1, n = 183) = 35.83, p < .001$. Furthermore, performing a Spearman correlation revealed a moderate positive relationship ($r = .46, p < .001$). Thus, low current exposure to violence-related events was related to low concerns about their recurrence, whereas high current exposure was associated with high concerns about recurrence.

In the PTS group no such pattern was found. In total, almost two thirds reported high concerns that the

Table 2. Relationship Between Current Exposure to Family and Community Violence Event Types and Concerns About Their Recurrence in the CTS and PTS Groups (Observed Frequencies in Percentages)

Group	Current exposure ^b	Concerns about recurrence ^a		
		Low (%)	High (%)	Total (%)
CTS	Low	41	17	58
	High	11	31	42
	Total	52	48	100
PTS	Low	19	16	35
	High	16	49	65
	Total	35	65	100

Note: CTS = continuous traumatic stress, $n = 183$; PTS = posttraumatic stress, $n = 43$.

^{a,b}Categorization into Low and High was performed by split-half using the median of both groups ($Mdn_{\text{Exposure}} = 3.37$, $Mdn_{\text{Concern}} = 8.57$).

violence-related events would reoccur. The majority of the participants who reported high current exposure to violence-related events also reported high concerns about their recurrence. The remaining people were distributed equally across the other cells. The chi-square test revealed no significant relationship between exposure and concerns about recurrence, $\chi^2(1, n = 43) = 3.45, p = .095$. Also the Spearman correlation showed no significant relationship between the two variables ($r = .27, p = .066$). The correlation coefficients indicated a difference in this relation between the CTS and the PTS group, displaying a small effect ($q = .16$).

Symptom-related differences between CTS and PTS

The PTS group reported significantly higher intrusion severity than the CTS group, $t(116.47) = 3.48, p = .001, d_{\text{Cohen}} = .48$. However, after controlling for lifetime exposure to traumatic events, this difference was no longer significant, $F(1, 222) = 0.06, p = .815, \eta^2 < .001$. There was a significant influence of lifetime exposure to traumatic events on intrusion severity, $F(1, 222) = 31.80, p < .001, \eta^2 = .125$, and the PTS group reported significantly higher lifetime exposure than the CTS group, $t(80.38) = 4.73, p < .001$. Thus, the higher intrusion severity in the PTS group was explained by the people's higher lifetime exposure to traumatic events. The total model explained 28% of the total variance in intrusion symptom severity. Furthermore, in contrast to our hypothesis, within the CTS group there was no significant difference between hyperarousal severity and intrusion severity, $t(182) = -0.07, p = .496$.

Discussion

Context-related differences between CTS and PTS

The aim of the present study was to examine the concept of CTS and to explore potential differences between CTS and PTS in a Congolese refugee sample. We divided the sample into a CTS group and a PTS group, based on the participant's self-report. Specifically, we assessed whether their traumatic stress symptoms showed a decrease either when leaving the life-threatening context of war or during periods of decreased threat to life. With 43 participants, the PTS group was much smaller than the CTS group. The groups did not differ regarding age, gender, or education. However, the PTS group reported significantly more lifetime exposure to traumatic experiences than the CTS group. Consistent with our hypothesis, we found that the majority of the CTS group that reported high current exposure to violence also described stronger concerns that these violence-related events might reoccur in the future. Accordingly, the majority of participants reporting low current exposure also reported low concerns about recurrence. In contrast, in the PTS group, no such pattern was found. We consistently found a positive relationship between current exposure and concerns about recurrence only in the CTS group. The results partially support the context-related definition of CTS (Straker, 2013) and its distinctiveness from PTS. We suggest that the concerns reported by people living in the context of ongoing violence could—at least partly—be regarded as an appropriate response to threats in the current environment. These appropriate responses to the dangerous environment constitute a difference to the concerns of people suffering from PTS who are said to show these concerns independently of the danger in a particular context (van der Kolk et al., 2005). Our findings are in line with prior research showing that responses to CTS may also be related to the current stressful and traumatic context (Diamond et al., 2013; Hoffman et al., 2011).

Future research is needed to develop measures that are able to differentiate between concerns that are an appropriate response to the current danger in an unstable environment and those that are overgeneralized fear responses as a result of traumatic stress induced memory dysfunction. Such a distinction could provide a helpful way of avoiding the overestimation of the PTSD prevalence in contexts of continuous trauma.

As this article is a first step toward operationalizing the concept of CTS, it may be too early to suggest specific implications for interventions and treatment. Yet, for people living in contexts of ongoing violence and

trauma exposure there is probably no other solution than leaving the danger zone. If there are possibilities to reduce a real threat (e.g., participation in peace building in a war scenario), it may also be helpful to point out those to the survivors, leaving them in a less helpless condition. Also in CTS contexts it may be possible that people suffer from PTS. As for the development of trauma-related symptoms, the way people perceive current danger plays an important role, irrespective of the real danger. If leaving the dangerous context is not an option, then cognitive interventions may also be helpful in CTS contexts to focus on a realistic estimate of risk and danger.

Symptom-related differences between CTS and PTS

Our results did not reveal any differences in intrusion symptom severity between the two groups. Although the PTS group reported higher intrusion severity than the CTS group, this difference was explained only by the reported lifetime exposure to traumatic events. The positive association between lifetime exposure and intrusion severity results from the *building block effect* (Kolassa et al., 2010; Neuner et al., 2004), which states that the cumulative exposure to traumatic events increases the risk of developing PTSD symptoms and reduces the chance of a spontaneous remission. Consequently, those in the PTS group who experienced higher lifetime exposure to traumatic events also reported higher intrusion and overall symptom severity. The finding that high levels of intrusion symptom severity were also found in the CTS group is not consistent with previous studies reporting few or even no intrusive symptoms for people experiencing CTS (Sommer & Ataria, 2015). Yet, it has been suggested that in CTS the function of the intrusions may differ from those in PTS. In PTS, intrusive thoughts, flashbacks, or physiological reactions are triggered by stimuli that are linked to a past traumatic event (Ehlers & Clark, 2000). By contrast, in CTS the relationship between triggers and a past traumatic event might be protective (Hoffman et al., 2011). In a dangerous environment such a trigger might be lifesaving if it signals realistic danger, and therefore intrusions in response to triggers may represent an adaptive impulse for avoiding danger and escaping to safety. In line with this, Nuttman-Shwartz and Shoval-Zuckerman (2016) proposed that the motivation behind avoidant behavior symptoms might also differ between CTS and PTS: people suffering from PTS would try to avoid symptom triggers, whereas people experiencing CTS would try to avoid realistic danger. These theoretical considerations would need to be empirically tested in future studies.

Our findings did not support the hypothesis that hyperarousal severity is higher in the CTS group than intrusion severity. Hence, our results are not in accord with findings in Israeli samples exposed to ongoing danger, which revealed hyperarousal as the most intensive symptom cluster (Lahad & Leykin, 2010). All in all, our findings did not support the idea of a similar but clearly distinct cluster of symptoms corresponding to the theory of CTS, as both groups reported symptoms of all main symptom clusters. Together with the fact that the PTS group reported more lifetime trauma exposure and overall symptom severity, our findings may be interpreted as describing one group that showed a non-pathological trauma response (CTS group) and one group that reported pathological trauma response (PTS group) in a context of ongoing violence and trauma exposure.

Limitations

The following limitations of the study should be noted: First, the cross-sectional study design does not allow for the establishment of causality. It thus remains unclear whether in the CTS group current exposure to violence-related events leads to the concern that those might happen again. The present convenience sample may have resulted in a selection bias, which limits the generalizability of our findings. Our study was conducted in a refugee camp with limited safety, that is, in one of many potentially threatening scenarios. Besides past and ongoing threats to life and fitness, there are also other postmigration living difficulties in the host country that may be a significant stressor for the refugees. As a first step toward operationalizing the concept of CTS, we focused solely on PTS symptoms; however, CTS responses are likely to go beyond this. Moreover, for grouping we relied on the participants' subjective report as to whether or not they have experienced decrease of PTS symptoms in a "safer context."

Conclusions

The present study aimed to take a first step toward operationalizing the concept of CTS, and it supported the hypothesis that in contexts of continuous and ongoing trauma exposure, symptom-like responses could also be regarded as an appropriate response to realistic danger. If CTS constitutes a nonpathological and appropriate reaction to a dangerous context, a distinction between CTS and PTS could provide a helpful way of avoiding an overestimation of the PTSD prevalence in contexts of continuous trauma. On the other hand, the idea of a distinct symptom characteristic of CTS and PTS could not be supported. Nevertheless, under

circumstances in which traumatic events may occur at any time, the *post* in posttraumatic stress disorder may need to be reconsidered (Straker, 2013). Future research is essential to test whether such symptom-like responses can indeed be regarded as an appropriate or adaptive context-related behavior. If our suggestion holds, they should then be rated as distinct from the commonly known psychopathological suffering of PTSD.

Author Contributions

T. Hecker participated in the conception and design of the study, collected data, performed the statistical analyses and interpretation of findings, and drafted the manuscript. H. E. Ainamani participated in the conception and design of the study and collected data. K. Hermenau participated in the conception and design of the study, made substantial contributions to the interpretation of findings, and revised the manuscript. E. Haeefe performed the statistical analyses, made substantial contributions to the interpretation of findings, and helped to draft the manuscript. T. Elbert participated in the conception and design of the study, made substantial contributions to the statistical analyses and interpretation of findings, and revised the manuscript. All authors read and approved the final manuscript.

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Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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References

- Ainamani, H., Elbert, T., Olema, D., & Hecker, T. (2017). PTSD symptom severity relates to cognitive and psychosocial dysfunctioning—A study with Congolese refugees in Uganda. *European Journal of Psychotraumatology*, *8*, 1283086. <http://doi.org/10.1080/20008198.2017.1283086>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Basoglu, M., & Salcioglu, E. (2011). *A mental healthcare model for mass trauma survivors: Control-focused behavioral treatment of earthquake, war and torture trauma*. Cambridge, England: Cambridge University Press.
- Besser, A., & Neria, Y. (2009). PTSD symptoms, satisfaction with life, and prejudicial attitudes toward the adversary among Israeli civilians exposed to ongoing missile attacks. *Journal of Traumatic Stress*, *22*, 268–275. <http://doi.org/10.1002/jts.20420>
- Brewin, C. R., Lanius, R. A., Novac, A., Schnyder, U., & Galea, S. (2009). Reformulating PTSD for DSM-V: Life after Criterion A. *Journal of Traumatic Stress*, *22*, 366–373. <http://doi.org/10.1002/jts.20443>
- Diamond, G. M., Lipsitz, J. D., Fajerman, Z., & Rozenblat, O. (2010). Ongoing traumatic stress response (OTSR) in Sderot, Israel. *Professional Psychology: Research and Practice*, *41*, 19–25. <http://doi.org/10.1037/a0017098>
- Diamond, G. M., Lipsitz, J. D., & Hoffman, Y. (2013). Nonpathological response to ongoing traumatic stress. *Peace and Conflict: Journal of Peace Psychology*, *19*, 100–111. <http://doi.org/10.1037/a0032486>
- Eagle, G., & Kaminer, D. (2013). Continuous traumatic stress: Expanding the lexicon of traumatic stress. *Peace and Conflict: Journal of Peace Psychology*, *19*, 85–99. <http://doi.org/10.1037/a0032485>
- Ehlers, A., & Clark, D. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, *38*, 319–345. [http://doi.org/10.1016/S0005-7967\(99\)00123-0](http://doi.org/10.1016/S0005-7967(99)00123-0)
- Elbert, T., Hinkel, H., Maedl, A., Hermenau, K., Hecker, T., Schauer, M., . . . Lancaster, P. (2013). *Sexual and gender-based violence in the Kivu provinces of the Democratic Republic of Congo: Insights from former combatants*. Washington, DC: World Bank. Retrieved from http://www.logica-wb.org/PDFs/LOGICA_SGBV_DRC_Kivu.pdf
- Elbert, T., & Schauer, M. (2002). Burnt into memory. *Nature*, *419*(6910), 883. <http://doi.org/10.1038/419883a>
- 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*, 318–324. <http://doi.org/10.1037/a0018810>
- Fazel, M., Wheeler, J., & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in Western countries: A systematic review. *Lancet*, *365*(9467), 1309–1314. [http://doi.org/10.1016/S0140-6736\(05\)61027-6](http://doi.org/10.1016/S0140-6736(05)61027-6)
- Foa, E. B., Cashman, L., Jaycox, L., & Perry, K. (1997). The validation of a self-report measure of posttraumatic stress disorder: The Posttraumatic Diagnostic Scale. *Psychological Assessment*, *9*, 445–451. <http://doi.org/10.1037//1040-3590.9.4.445>
- Foa, E. B., Riggs, D. S., Dancu, C. V., & Rothbaum, B. O. (1993). Reliability and validity of a brief instrument for assessing posttraumatic stress disorder. *Journal of Traumatic Stress*, *6*, 459–473. <http://doi.org/10.1007/BF00974317>
- Foa, E. B., & Tolin, D. F. (2000). Comparison of the PTSD Symptom Scale—interview version and the clinician-administered PTSD scale. *Journal of Traumatic Stress*, *13*, 181–191. <http://doi.org/10.1023/A:1007781909213>
- Hecker, T., Fetz, S., Ainamani, H., & Elbert, T. (2015). The “cycle of violence”: Associations between exposure to violence, trauma-related symptoms and aggression—Findings from Congolese refugees in Uganda. *Journal of Traumatic Stress*, *28*, 448–455. http://doi.org/10.1002_jts.22046

- 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*, 142–148. <http://doi.org/10.1002/jts.21770>
- Hermenau, K., Hecker, T., Schaal, S., Maedl, A., & Elbert, T. (2013). Addressing post-traumatic stress and aggression by means of narrative exposure—A randomized controlled trial with ex-combatants in the eastern DRC. *Journal for Maltreatment, Aggression and Trauma, 22*, 916–934. <http://doi.org/10.1080/10926771.2013.824057>
- Higson-Smith, C. (2013). Counseling torture survivors in contexts of ongoing threat: Narratives from sub-Saharan Africa. *Peace and Conflict: Journal of Peace Psychology, 19*, 164–179. <http://doi.org/10.1037/a0032531>
- Hoffman, Y. S. G., Diamond, G. M., & Lipsitz, J. D. (2011). The challenge of estimating PTSD prevalence in the context of ongoing trauma: The example of Israel during the Second Intifada. *Journal of Anxiety Disorders, 25*, 788–793. <http://doi.org/10.1016/j.janxdis.2011.03.016>
- Kaysen, D., Resick, P. A., & Wise, D. (2003). Living in danger: The impact of chronic traumatization and the traumatic context on posttraumatic stress disorder. *Trauma, Violence, & Abuse, 4*, 247–264. <http://doi.org/10.1177/1524838003004003004>
- Kilpatrick, D. G. (2005). A special section on complex trauma and a few thoughts about the need for more rigorous research on treatment efficacy, effectiveness, and safety. *Journal of Traumatic Stress, 18*, 379–384. <http://doi.org/10.1002/jts.20045>
- Kolassa, I.-T., Ertl, V., Eckart, C., Kolassa, S., Onyut, L. P., & Elbert, T. (2010). Spontaneous remission from PTSD depends on the number of traumatic event types experienced. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*, 169–174. <http://doi.org/10.1037/a0019362>
- Lahad, M., & Leykin, D. (2010). Ongoing exposure versus intense periodic exposure to military conflict and terror attacks in Israel. *Journal of Traumatic Stress, 23*, 691–698. <http://doi.org/10.1002/jts.20583>
- McDonald, J. H. (2009). *Handbook of biological statistics*. Baltimore, MD: Sparky House.
- Neuner, F., Schauer, M., Karunakara, U., Klaschik, C., Robert, C., & Elbert, T. (2004). Psychological trauma and evidence for enhanced vulnerability for posttraumatic stress disorder through previous trauma among West Nile refugees. *BMC Psychiatry, 4*, 34. <http://doi.org/10.1186/1471-244X-4-34>
- Nuttman-Shwartz, O., & Shoval-Zuckerman, Y. (2016). Continuous traumatic situations in the face of ongoing political violence: The relationship between CTS and PTSD. *Trauma, Violence, & Abuse, 17*, 562–570. <http://doi.org/10.1177/1524838015585316>
- Olejnik, S., & Algina, J. (2003). Generalized eta and omega squared statistics: Measures of effect size for some common research designs. *Psychological Methods, 8*, 434–447. <http://doi.org/10.1037/1082-989x.8.4.434>
- Olf, M., Armour, C., Brewin, C., Cloitre, M., Ford, J., Herlihy, J., . . . Turner, S. (2015). Trauma and PTSD: Setting the research agenda. *European Journal of Psychotraumatology, 6*, 28092. <http://doi.org/10.3402/ejpt.v6.28092>
- Shalev, A. Y., Tuval, R., Frenkiel-Fishman, S., Hadar, H., & Eth, S. (2006). Psychological responses to continuous terror: A study of two communities in Israel. *American Journal of Psychiatry, 163*, 667–673. <http://doi.org/10.1176/ajp.2006.163.4.667>
- Somer, E., & Ataria, Y. (2015). Adverse outcome of continuous traumatic stress: A qualitative inquiry. *International Journal of Stress Management, 22*, 287–305. <http://doi.org/10.1037/a0038300>
- Stevens, G., Eagle, G., Kaminer, D., & Higson-Smith, C. (2013). Continuous traumatic stress: Conceptual conversations in contexts of global conflict, violence and trauma. *Peace and Conflict: Journal of Peace Psychology, 19*, 75–84. <http://doi.org/10.1037/a0032484>
- Straker, G. (2013). Continuous traumatic stress: Personal reflections 25 years on. *Peace and Conflict: Journal of Peace Psychology, 19*, 209–217. <http://doi.org/10.1037/a0032532>
- Sundquist, J. (2001). Migration, equality and access to health care services. *Journal of Epidemiology and Community Health, 55*, 691–692. <http://doi.org/10.1136/jech.55.10.691>
- Turton, R. W., Straker, G., & Moosa, F. (1990). Experiences of violence in the lives of township youths in “unrest” and “normal” conditions. *South African Journal of Psychology, 21*, 77–84. <http://doi.org/10.1177/008124639102100201>
- United Nations High Commissioner for Refugees. (2014). *Nakivale fact sheet 2014*. Retrieved from <http://data.unhcr.org/drc/download.php?id=1048>
- United Nations High Commissioner for Refugees. (2015). *UNHCR global appeal 2016–2017—Populations of concern to UNHCR*. Retrieved from <http://www.unhcr.org/564da0e3b.html>
- van der Kolk, B. A., Roth, S., Pelcovitz, D., Sunday, S., & Spinazzola, J. (2005). Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of Traumatic Stress, 18*, 389–399. <http://doi.org/10.1002/jts.20047>
- Wilker, S., Pfeiffer, A., Kolassa, S., Koslowski, D., Elbert, T., & Kolassa, I.-T. (2015). How to quantify exposure to traumatic stress? Reliability and validity of measures for cumulative trauma exposure in a post-conflict population. *European Journal of Psychotraumatology, 6*, 28306. <http://doi.org/10.3402/ejpt.v6.28306>