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Ten Years After the Genocide: Trauma Confrontation and Posttraumatic Stress in Rwandan Adolescents*

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A decade after the 1994 Rwandan genocide, we interviewed a total of 68 Rwandan orphans about their war experiences and posttraumatic stress disorder (PTSD) symptoms. The two samples comprised youth living either in a child-headed household (CHH) or in an orphanage. All had been exposed to extreme levels of violence and 41% had witnessed the murder of their own mother or father. Of the sample, 44% had PTSD. PTSD vulnerability was greater for youth who at the time of the study lived in CHH than those in an orphanage; it was also higher in those aged 8 to 13 during the outbreak of the genocide than those aged 3 to 7 at the time. Furthermore, a significant relationship was found between the number of traumatic experiences and subsequent stress responses.

The proportion of civilian victims of war has risen dramatically in recent decades and is now reported as falling within a range of 5% to 90% of the population in conflict regions (UN, 1996), leaving many children as innocent victims. According to the United Nations Children's Fund (UNICEF) (1995), during the 1980s alone 2 million children were killed during war; 4 to 5 million were left crippled; more than 1 million were orphaned; and 10 million were psychologically traumatized. The confrontation with organized violence is notably horrific, given that the damage and pain are inflicted with the clear intent of traumatizing victims and leaving them helpless and vulnerable (Elbert & Schauer, 2002). Furthermore, the shame and loss of self-confidence associated with such events may enhance the vulnerability to posttraumatic stress disorder (PTSD) and depression (Karunakara et al., 2004). PTSD after war experiences has also been shown to be related to feelings of hatred and revenge (Cardozo, Kaiser, Gotway, & Agani, 2003).

The study of the psychological impact of war on children is a relatively recent phenomenon. Some studies have shown high rates of posttraumatic stress responses in children and adolescents exposed to organized violence and war. Almqvist and Brandell-Forsberg (1997) interviewed Iranian children and documented a PTSD rate of 11% to 38%, depending on the level of exposure; Thabet and

Vostanis (1999) showed that 41% of Palestinian children from Gaza reported moderate to severe PTSD reactions; and Smith, Perrin, Yule, Hacam, and Stuvland (2002) found that 52% of children aged 9 to 14 years reported symptoms that would justify a PTSD diagnosis after the war in the former Yugoslavia.

Investigations of children's posttraumatic stress reactions have been limited to data that rely solely on parental report. As a result psychopathology in children may be underestimated. Yule and Canterbury (1994) demonstrated a minimal concordance between parents and children concerning child psychopathology, and Almqvist and Brandell-Forsberg (1997) also found evidence that parents consistently underestimate the PTSD symptoms in their children. In our study in the Sri Lankan provinces affected by the civil war (before the tsunami disaster), we found that about one-fourth of the interviewed children suffer from severe and chronic PTSD (Elbert et al., 2004). Whereas the children's self-report could be well validated through clinical interviews, the ratings of the parents could not be satisfactorily validated. These results demonstrate the importance of personally interviewing children about their traumatic experiences, posttraumatic stress symptoms, and problems in functioning.

THE RWANDAN GENOCIDE IN 1994 AND ITS CONSEQUENCES

Within a period of 100 days between April and July 1994, approximately 800,000 to 1 million Rwandese lost their lives to genocide. Fighting erupted between two artificially divided "ethnic" groups, the Hutu majority and the Tutsi minority. Neighbors killed neighbors, children murdered children, teachers killed their students, and husbands murdered their wives—if they were Tutsi.

After the Rwandan genocide, many children lost most, if not all, of their family members. The phenomenon of numerous child-headed households (CHHs) is among the tragic results of these disruptions. The genocide has left the country with a significant number of children who have no relatives. Some surviving children decided to resettle on their own as a family without parents, mostly in the house of the deceased parents. The oldest became the head of the household and took over care of the younger siblings. A study that was conducted in cooperation with UNICEF in 1998 concluded that more than 300,000 children were living in a CHH (Ntete, 2000). In addition, thousands of children and adolescents have to cope with serious physical disabilities as well as memories of war traumas.

There have been few epidemiological studies published on the mental health effects of the Rwandan genocide. Dyregrov, Gupta, Gjestad, and Mukanoheli (2000) interviewed children and adolescents approximately 1 year after the fighting and concluded that 79% of the survivors showed moderate to severe posttraumatic stress reactions. Posttraumatic stress reactions of children were associated with parental loss, violence exposure, and, most importantly, the feeling that their life was perpetually in danger. According to Bolton (2001), Rwandan adults reported many mental and emotional problems that correspond to *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV), criteria of PTSD and depression. Five years after the genocide 15.5% of the interviewed sample met the DSM-IV criteria for depression (Bolton, Neugebauer, & Ndogoni, 2002). However, little is known of the rate of PTSD a decade after major trauma. The present study was designed as a community screening. One goal of this research was to examine the rate of PTSD in orphans a decade after the genocide.

In addition to the rate of PTSD, the present study investigated risk factors for PTSD and the relationship of PTSD symptoms to the number of trauma events. Several studies have reported a relationship between the number of traumatic experiences and symptoms (Almqvist & Brandell-Forsberg, 1997; Koenen, Stellman, Stellman & Sommer, 2003; Kuterovac-Jagodic, 2003; Neuner et al., 2004; Schauer et al., 2003; Smith et al., 2002; Thabet & Vostanis, 1999). There is emerging evidence that perceived direct life threat (e.g., Smith et al., 2002) and number of previous traumatic experiences (Neuner et al., 2004; Schauer et al., 2003) are especially important for the development of posttraumatic stress reactions. In terms of demographic variables, gender is a commonly reported risk

factor in the development of PTSD, and females are more vulnerable (Kilpatrick et al., 2003; Smith et al., 2002). Our own research indicates, however, that this finding is mainly a consequence of a gender bias regarding the type of traumatic events experienced by females (e.g., rape, other sexual assault). For war experiences (bombing, shelling, combat, witnessing of shootings, etc.), the gender imbalance actually may be reversed (Elbert et al., 2004).

Finally, research regarding age as a risk factor for the development of PTSD in children after traumatic events has offered differing conclusions: Some show that younger children are more affected (Pynoos, 1994; Smith et al., 2002); others argue that older children are more vulnerable (Keppel-Benson & Ollendick, 1993; Kilpatrick et al., 2003); yet others have found no clear age effects (Dyregrov et al., 2000; Pynoos et al., 1987). Pynoos (1994) argues that younger children are more vulnerable to the development of PTSD after trauma confrontation because of the disruption in their natural development; the earlier this disruption, the more severe the consequences for the developmental process. In contrast, according to Keppel-Benson and Ollendick (1993), younger children may be protected from posttraumatic stress reactions by their less developed cognitive abilities. Children's developmental stage influences the capability to understand the meaning and consequences of traumatic events and thus the interpretation of the traumatic events. For example, Smith and associates (2002) underscored the importance of perceived direct life threat for PTSD development. In addition, it is possible that recall failure in younger trauma victims may lead to an underestimation of the PTSD rate.

This study was conducted approximately 10 years after the end of the conflict, with the goals of investigating (1) the nature and magnitude of exposure to traumatic events in Rwandan survivors currently aged 13 to 23 years and (2) the rate of posttraumatic stress reactions in Rwandan adolescents; and (3) whether living situation (CHH vs. orphanage), age, gender, and amount and type of trauma were significantly related to posttraumatic stress reactions in this sample of young survivors. We hypothesized significantly higher levels of trauma exposure, greater rates of PTSD, as well as an increased PTSD vulnerability in the following groups: (1) youth who, at the time of the study, lived in a CHH compared to youth who lived in an orphanage, (2) female adolescents compared to male adolescents, and (3) older youth compared to younger youth. Furthermore, we expected to find a significant, positive relationship between the number of traumatic experiences and endorsement of PTSD symptoms.

METHOD

Participants

Participants were orphans who live in Kigali, Rwanda, and experienced the Rwandan genocide in 1994. Nearly all of the respondents were sure that they had lost both parents. The sample comprised youth between the ages of 13 and 23 years ($N = 68$; $M = 17.72$, $SD = 2.72$) at the time of the interview. Thirty-three (48.5%) were boys and 35 (51.5%) were girls. For analysis, respondents were divided into two groups by using a median split: younger youth (13 to 17 years) and older youth (18 to 23 years). Thirty-four youth who lived in a CHH and 34 youth who lived in an orphanage were interviewed. A balanced data collection of approximately 50% for each gender occurred in the CHH as well as in the orphanage. Everyone who was asked to participate in the study agreed and completed the full procedure.

The majority of the interviewed youth were Tutsi (88%); the remaining 12% were Hutu, had another ethnicity, or refused to give information about their ethnic background. Most of those interviewed were Catholic (41%) or Protestant (52%). The remainder were Islamic or were not practicing any religion. Education level attained varied widely among those interviewed with a range of 0 to 13 years of school completed ($M = 7.9$, $SD = 3.02$).

The three major grouping variables (age, household status, and gender) were examined for possible associations with the demographic variables of ethnic and religious background and education. Older youth ($M = 9.51$, $SD = 2.77$) had more years of schooling than younger youth ($M = 6.18$, $SD = 2.26$) , $t(68) = -5.42$, $p < .01$. Participants from the orphanage ($M = 8.79$, $SD = 2.37$)

had attained higher education levels than those who were living in a CHH ($M = 7.0$, $SD = 3.36$), $U = 391.5$, $p < .05$. More youth from the orphanage were Catholic than Protestant (62% vs. 38%), whereas more participants from CHHs were Protestant than Catholic (65% vs. Catholic 21%; Islam 9%; no religion 6%), $\chi^2(1, N = 63) = 8.97$, $p < .001$. No other significant associations among the demographic variables of age, gender, and household status were found.

Procedure

The study was conducted in Kigali, the capital of Rwanda, between December 2003 and January 2004, approximately 10 years after the Rwandan genocide. It was approved by the University of Konstanz Ethical Review Board. The nongovernmental organization (NGO) African Evangelistic Enterprise (AEE) in Kigali (in the district of Kabeza) referred youth who lived in a CHH. The sample whom we contacted were selected conveniently, and although they were typical of those CHHs that are monitored or receive some support by aid organizations, we do not know to what extent the sample was representative of all CHHs in Kigali. The United Nations Children's Fund facilitated contact with the Gisimba Memorial Centre orphanage in Kigali (district of Nyamirambo), which was selected as characteristic of such institutions, according to representatives of UNICEF. The adolescents in the present study, including those in CHHs, all received some kind of support (financial support, employment, housing, animals, seeds, etc.). All respondents were adequately nourished and were attending school. The aid organizations paid school fees if the children were attending secondary school. (There are no school fees in Rwanda for primary schools.)

All adolescents were interviewed by a psychologist (S.S.) individually at their home or in a private room at the orphanage. Each interview lasted approximately 2 hours and was conducted in French, and, with the help of a well-trained interpreter, in Kinyarwanda, the national language and the native language of most Rwandans. The interviewer was fluent in French, and the interviewees were all fluent in Kinyarwanda and spoke French to varying degrees. An interpreter (male) fluent in both languages attended all interviews and assisted the interviewer (female) and interviewees as needed. The interpreter was a long-term resident of the region and was a university student at an upper semester level at the time of the interviews. Extensive training of the interpreter included instructions about the major concepts related to the interview, empathic responding, and rules of confidentiality and neutrality. The possibility of interpreter bias was diminished by the thorough training, by the interviewer's careful monitoring of the translation, and by the fact that some children knew basic French. It was also ascertained that the interpreter had no personal interest in the outcome of the study and that he did not know any of the children who participated in it.

Instruments

After providing informed consent, each child was interviewed about his or her individual experiences during the Rwandan genocide in 1994 by using the following instruments.

Demographic questionnaire. Information regarding age, sex, living situation, ethnicity, religion, and education was obtained on this self-report instrument. In addition to demographic data, this questionnaire contained questions about support received at any time during the 10 years since the genocide, e.g., who delivered the aid and what kind of support (emotional, social, material) the youth received.

Event-Scale. The Event-Scale, adopted from Dyregrov and colleagues (2000), is a 15-item scale designed to assess the nature and extent of exposure to various war events (see Table 1). The answers reflect whether the event occurred before, during, or after the genocide (multiple answers possible) and whether the respondent witnessed or personally experienced the event.

Composite International Diagnostic Interview. The Composite International Diagnostic Interview (CIDI;

Table 1. Rwandese Youth's Exposure to War Scenes ($N = 68$)

Event 1–15	Event has been experienced			
	Ever (%)	Before the genocide (%)	During the genocide (%)	After the genocide (%)
1. Have you been injured with a weapon?	17.6	1.5	17.6	0.0
2. Have you been raped?	8.8	0.0	5.9	2.9
3. Have you been victim of an attack or looting?	88.2	22.1	83.8	7.4
4. Have you seen dead or mutilated bodies?	97.1	13.2	97.1	30.9
5. Have you witnessed a person being beaten or tortured?	73.5	7.4	72.1	5.9
6. Have you witnessed a person being injured with a weapon?	86.8	7.4	85.3	14.7
7. Have you witnessed a person being killed?	76.5	2.9	76.5	1.5
8. Have you witnessed a massacre?	57.4	1.5	52.9	4.4
9. Have you witnessed the murder of your mother or father?	41.2	2.9	39.7	0.0
10. Did you believe that you yourself would die?	88.2	13.2	88.2	38.2
11. Did you have to hide?	91.2	13.2	91.2	17.6
12. Did you have to hide under dead bodies?	35.3	0.0	35.3	0.0
13. Did you lose your mother?	100.0	5.9	88.2	5.9
14. Did you lose your father?	100.0	13.2	83.8	2.9
15. Did you lose any brothers or sisters?	73.5	7.4	66.2	26.5

World Health Organization, 1997) is a structured diagnostic interview based on the DSM-IV criteria. The PTSD diagnosis and severity were assessed by using the PTSD portion of the CIDI. This scale measures three primary groups of symptoms: intrusion, avoidance/numbing, and arousal. The youth were asked about 17 symptoms, all of which correspond to the DSM-IV criteria: 5 items refer to intrusive images, 7 items to avoidance of reminders and emotional numbing, and 5 items to arousal signs and associated posttraumatic stress reaction items. The answers reflect whether the symptoms occurred directly after the trauma or within the last 12 months. Here we examined last 12-month PTSD rate. The youth were instructed to "keep in mind the worst event that occurred to you during the fighting in 1994." In order to evaluate the intensity of posttraumatic stress reactions, a total number of PTSD symptoms, representing the sum of the 17 DSM-IV symptoms, was calculated. Note that the number of PTSD symptoms is simply the sum of symptoms endorsed, with no reference to severity of symptoms.

RESULTS

Trauma Exposure

As expected, self-reported exposure to traumatic events was very high. Table 1 shows the proportion of positive endorsements on the 15 questions of the Event-Scale. All participants had experienced some kind of violence, had been exposed to threatening events, or had lost both of their parents during the genocide. A majority had seen dead or mutilated bodies (97%) or had been the victim of an attack or looting (88%). Many respondents had witnessed someone's being brutally killed (77%) or witnessed the death of their own parents (41%). Table 1 shows that most of the traumatic events were experienced during the genocide. However, a smaller number of youth also reported having experienced such events before and after the genocide. The mean total score on the Event-Scale for the whole sample was 10.4 of a possible 15 ($SD = 2.5$, $Mdn = 11$, range = 5–15).

The events experienced varied according to the participants' living situation at the time of the study

Table 2. Intercorrelations Among the Risk Factors Age, Gender, and Household Status; Number of Traumas; and Number of Posttraumatic Stress Disorder Symptoms ($N = 68$)

	Age	Gender	Household status	Number of traumas	Number of posttraumatic stress disorder symptoms
Age	—	$-.05^{a}$	$-.05^{a}$	$.40^{b***}$	$.31^{b**}$
Gender		—	$-.03^{c}$	$-.07^{a}$	$-.30^{a*}$
Household status			—	$.09^{a}$	$-.36^{a**}$
Number of traumas				—	$.54^{b***}$
Number of posttraumatic stress disorder symptoms					—

Note. Gender was coded 1 = female, 2 = male; household status was coded 1 = child-headed household (CHH), 2 = orphanage.
[a]Point biserial. [b]Pearson. [c]phi.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

(orphanage vs. CHH), age (younger vs. older), and gender (female vs. male). Youth living in an orphanage experienced more attacks or lootings, $\chi^2(1, N = 68) = 5.1$, $p < .05$, and reported having witnessed the killing of a person more often than youth living in a CHH, $\chi^2(1, N = 68) = 5.2$, $p < .05$. Older youth (18–23 years) reported having witnessed a massacre more frequently than younger children, $\chi^2(1, N = 68) = 8.5$, $p < .01$. Older children also were more likely to believe that they themselves would die, $\chi^2(1, N = 68) = 9.6$, $p < .01$. Finally, more boys were victims of attacks or looting than girls, $\chi^2(1, N = 68) = 4.7$, $p < .05$, and more female than male respondents had hidden under a dead body in order to survive, $\chi^2(1, N = 68) = 5.6$, $p < .05$.

Level of Distress

All 68 respondents had experienced traumatic events (criterion A of DSM-IV PTSD), and all reported reexperiencing at least one symptom (criterion B). Fifty-seven percent exhibited at least three avoidance/numbing symptoms (criterion C) and 62% had at least two arousal symptoms (criterion D). A considerable portion of participants (44%; 30 of the 68 youth) met full DSM-IV criteria for PTSD at some point in the year before the interview. The mean number of PTSD symptoms endorsed was 8.8 ($SD = 3.5$, range = 3–17).

Two-thirds of the youth reported that this was the first time that they had ever talked to anyone about their problems or experiences during the genocide.

Correlates of PTSD Development

Household status at the time of the interview. Rate of PTSD diagnosis was higher among youth living in a CHH than in those living in an orphanage (56% vs. 32%), $\chi^2(1, N = 68) = 3.8$, $p < .05$. The analysis of variance supported this finding. CHH youth showed an average of 10.03 ($SD = 3.32$) of the 17 DSM-IV symptoms compared to 7.66 ($SD = 3.36$) symptoms for orphanage youth, $F(1,66) = 10.1$, $p < .01$. As shown in Table 2, household status and number of PTSD symptoms were negatively associated (point biserial $r = -.36$, $p < .01$).

Age. Fifty-four percent of the participants between the ages of 18 and 23 years met criteria for a diagnosis of PTSD compared to 33% of the 13- to 17-year-olds, $\chi^2(1, N = 68) = 3.0$, *ns*. The older group ($M = 9.71$, $SD = 3.34$) reported more PTSD symptoms than the younger group ($M = 7.88$, $SD = 3.53$), $F(1,66) = 5.4$, $p < .05$. Age was positively correlated with number of PTSD symptoms (Pearson $r = .31$, $p < .01$) and number of traumatic events (Pearson $r = .40$, $p < .001$).

Gender. Roughly twice as many girls as boys met criteria for a PTSD diagnosis (60% vs. 27%), $\chi^2(1, N = 68) = 7.4$, $p < .01$. Girls ($M = 9.86$, $SD = 3.70$) also reported more PTSD symptoms than boys ($M = 7.73$, $SD = 3.01$), $F(1,66) = 8.2$, $p < .01$. A correlation of gender and number of PTSD symptoms supported this finding (point biserial $r = -.30$, $p < .05$).

Exposure. The total number of experienced traumas (lifetime) was positively correlated with the number of PTSD symptoms (Pearson $r = .54$, $p < .001$). Among the traumatic events, the number of PTSD symptoms was most strongly associated with the respondent's having witnessed the murder of a parent (point biserial $r = .44$, $p < .001$) or having believed that he or she would die (point biserial $r = .41$, $p < .001$). Orphans who witnessed the murder of their mother or father suffered from more PTSD symptoms than those who had not witnessed their parent's dying, $U = 302.0$, $p < .001$; they were also more likely to meet criteria for PTSD diagnosis, $\chi^2(1, N = 68) = 5.32$, $p < .05$. Those who had the belief that they would die reported more symptoms, $U = 64.5$, $p < .001$, and more frequently had PTSD than those who had not reported these events, $\chi^2(1, N = 68) = 7.16$, $p < .01$. Sixty-one percent of the participants who witnessed the murder of their mother or father fulfilled the PTSD criteria for a diagnosis compared to 33% of those who were not exposed to that event. Furthermore, 50% of the youth who experienced the belief that they would die met the diagnosis of PTSD, whereas current PTSD was not diagnosed if this event had never been experienced. The correlation matrix shown in Table 2 summarizes the intercorrelations of the risk factors age, gender, and household status; number of traumas; and number of PTSD symptoms.

The impact of risk factors on the likelihood of PTSD diagnosis was further supported by the results of a binary logistic regression analysis. Gender, household status, and number of experienced events all had significant effects on the probability of PTSD diagnosis, $B = -1.8$, $SE = .64$, $p < .01$, $B = -1.6$, $SE = .65$, $p < .05$, $B = .37$, $SE = .14$, $p < .01$, respectively. More girls than boys and more youth living in a CHH, compared to those from the orphanage, met the criteria for a PTSD diagnosis. The total number of experienced traumatic events was positively associated with a PTSD diagnosis. The effect of age on the PTSD diagnosis did not reach significance, $B = .70$, $SE = .61$. R^2 of Nagelkerkes was .40.

DISCUSSION

This study examined the rate of traumatic event exposure and PTSD in a sample of orphaned Rwandan adolescents aged 13–23 years, 10 years after the genocide. Generally, findings indicated that most orphans were exposed to multiple serious traumatic events and displayed high rates of PTSD and posttraumatic stress symptoms. In addition, more posttraumatic stress symptoms were reported by (1) youth living in a CHH compared to living in an orphanage, (2) females compared to males, and (3) older children compared to younger children. The reported rates of exposure are in agreement with the findings of Dyregrov and coworkers (2000), who interviewed youth in Rwanda approximately 1 year after the genocide.

A number of studies have investigated posttraumatic stress reactions in children after war and found PTSD rates ranging from 11% (Almqvist & Brandell-Forsberg, 1997) to 52% (Smith et al., 2002). In this study, 44% of orphans at the time of the interview, i.e., 10 years after the genocide and after the major traumatic events, met full DSM-IV criteria for a PTSD. However, all survivors of the genocide reported notable levels of posttraumatic stress responses, with at least 3 of the 17-DSM-IV symptoms and an average of approximately 9 symptoms present during the 12-month period before the interview. The most frequently reported symptoms included upsetting thoughts or images about the traumatic event (87%) and avoidance of thinking or talking about the event (87%). Such high levels of distress are consistent with the extensive exposure of these children.

Some studies have investigated the long-term aftereffects of war on the mental health of civilians (Amir & Lev-Wiesel, 2003; Hermansson, Timpka, & Thyberg, 2002; Teegen & Meister, 2000). These studies consistently show that the psychological impact on civilians who have

suffered war-related traumatic events may linger for many years. Trappler, Braunstein, Moskowitz, and Friedman (2002) found that, even 50 years after World War II, most survivors (74%) still suffered from psychological distress symptoms. According to these findings, a large proportion of the Rwandan population is likely to experience long-lasting mental health problems.

The influences of living situation, age, sex, and trauma exposure on the severity of symptomatic responses were also examined in the present study. Youth living in a CHH at the time of the interview suffered considerably more from posttraumatic stress. These findings are in agreement with those of Dyregrov and associates (2000), who also documented a higher rate of PTSD among children who lived in a community setting compared to children who resided in an orphanage. It should be noted that there was no significant difference in traumatic exposure between children in the two living settings. There are a number of factors that may have contributed to the finding of less posttraumatic symptoms among those living in an orphanage. For example, they may feel accepted and safe knowing that they are not alone with their pain and sorrow. It also might be argued that the psychosocial environment may have a healing effect on traumatic reactions. Additionally, basic needs of food, shelter, and medical service are better met in an orphanage than in a CHH.

The loss of the parents was one of the most severe events for the respondents. In the orphanage, the staff may eventually take a parenting role and give the youth a feeling of warmth and protection. On the other hand, children in a CHH face the adult responsibilities of supporting themselves and maintaining a household at an age when the care and protection of an adult are needed. This daily strain is possibly a contributing factor to the higher rate of PTSD in the CHH group. In addition many of the children are living in the very home in which their parents were killed. Quite possibly, the daily reminder of the death of their parents or the symptoms associated with these memories contribute to the maintenance of PTSD. Given that these findings are only correlational in nature, it is also possible that children who have fewer PTSD symptoms may more actively seek the shelter of an orphanage, whereas more affected children may be more afraid to leave home.

There is a controversy regarding age as a risk factor for PTSD in the literature. Whereas some authors argue that younger children are at greater risk for development of posttraumatic stress reactions after exposure to trauma (Pynoos, 1994; Smith et al., 2002), others found greater PTSD vulnerability among older children (Keppel-Benson & Ollendick, 1993; Kilpatrick et al., 2003) or did not find any age differences (Dyregrov et al., 2000; Pynoos et al., 1987). The present study found a higher level of posttraumatic stress responses in the older group. It seems possible that younger children may be protected from posttraumatic stress by their less developed cognitive abilities. The developmental stage influences the capability to understand the meaning and consequences of traumatic events and thus whether an alarm response is triggered. The alarm response seems a necessary precondition for PTSD development (Elbert & Schauer, 2002), and the younger youth may possibly not have become fully aware of the realistic threat of harm to them. For example, significantly fewer of the younger children believed at some point during the genocide that they would die (75.8% vs. 100%). Smith and colleagues (2002) also underlined the importance of perceived direct life threat for PTSD development. An additional reason for the higher PTSD rate in older youth could be differences in trauma exposure. Consistently with the studies of Kuterovac-Jagodic (2003) and Thabet and Vostanis (1999), the present investigation revealed a significant, positive correlation between the number of experienced traumas and age. It could also be possible that a recall failure in younger respondents' reports led to an underestimation of the rate of both traumatic experiences and PTSD.

Girls were more likely than boys to meet a current PTSD diagnosis and reported more PTSD symptoms than boys. This finding is consistent with several epidemiological studies that have reported higher rates of posttraumatic stress reactions in girls (Kilpatrick et al., 2003; Smith et al., 2002). Other results, however, differ from those previously reported. Some previous studies did not identify gender

as a significant risk factor for development of posttraumatic stress in children (Dyregrov et al., 2000; Pynoos et al., 1987; Thabet & Vostanis, 1999). In a Sri Lankan sample of children who had been exposed to combat and war, we found that the relationship was actually reversed (Elbert et al., 2004). Under all these conditions as well as in the present study, the pattern of exposure seems to have at least some gender-specific elements. Specifically, gender differences in exposure to trauma, type, and frequency may produce gender differences.

Significant associations between the intensity of traumas expressed as the cumulative number of war experiences and the number of PTSD symptoms were found. This result is in line with previous findings (Almqvist & Brandell-Forsberg, 1997; Koenen et al., 2003; Kuterovac-Jagodic, 2003; Neuner et al., 2004; Schauer et al., 2003; Smith et al., 2002; Thabet & Vostanis, 1999), which have consistently demonstrated a significant relationship between exposure and posttraumatic stress reactions. Witnessing of the murder of mother or father and the belief that the youth themselves would die were the two traumatic events most strongly related to posttraumatic stress symptoms. This finding confirms the relevance of subjective threat appraisal.

The current study has a number of limitations. All interviewees received some kind of support from an aid organization and represented a special risk group, in that all were orphans. Rates of exposures to potentially traumatic events should not be generalized to all Rwandan youth, nor even to all orphans, as the extent of the genocide varied greatly by region. The district of Kigali was less affected than many other Rwandan areas (for example, Kibungo, Gikongoro, Butare, and Kibuye; E. Nkunzumwami, 1996, quoted in Turindwanamungu, 2000). Finally, the findings are based on a small, not necessarily representative sample. Generalizations to other groups and to other settings may not be valid.

Ten years after the genocide, many survivors were significantly distressed and had received little or no psychotherapeutic support. Two-thirds of these adolescents reported that this was the first time that they had ever talked to anyone about their problems or experiences during the genocide. Nevertheless, all survivors were very willing and open about discussing their feelings and past experiences. Many, wanting to detail their traumatic experiences, asked whether we could return for another interview. This openness is in line with Keppel-Benson, Ollendick, and Benson's (2002) experiences, in which traumatized children consider talking about their experiences to be of the most help.

A large number of studies of trauma victims who live in industrialized countries have demonstrated that cognitive-behavioral therapy (reviewed in Harvey, Bryant, & Tarrier, 2003) and stress management techniques (Foa et al., 1999; Foa, Rothbaum, Riggs, & Murdock, 1991) are effective methods of treating PTSD. Unfortunately, knowledge about effective treatment of PTSD in populations who have been affected by war, especially children and adolescents, is still scarce. Recently, Narrative Exposure Therapy (NET; Schauer, Neuner, & Elbert, 2005) was developed for the treatment of PTSD that resulted from organized violence, and its effectiveness has been demonstrated in various settings (Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004; Schauer et al., 2004; Onyut et al., 2005).

In addition to additional research on determinants of PTSD in youth subjected to systematic terror, the present data indicate that the development and delivery of effective interventions are needed.

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