Psychological Disturbances of War-traumatized Children from Different Foster and Family Settings in Bosnia and Herzegovina

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Aim To assess the psychological health of war-traumatized children in different foster settings and compare them with children living with one or both parents, 7 years after the 1992-1995 war in Bosnia and Herzegovina.

Method The study was carried out in Tuzla, Bosnia and Herzegovina, in March 2002. We assessed 186 (93 girls and 93 boys) elementary school children aged 12.7 ± 1.8 years for war trauma, presence of posttraumatic stress disorder (PTSD), and depression. There were 38 (14 girls) children from the government orphanage, 48 (24 girls) children from the non-governmental organization (NGO) SOS Children's Village, 50 (24 girls) children who lost a parent in the war but lived with the surviving parent, and 50 (31 girls) children who lived with both parents. For data collection, we used Children's Posttraumatic Stress Reaction Index and Children's Depression Inventory. Basic sociodemographic data were also collected.

Results Of 186 children, 90 (48.4%) had been forced into refuge because of the war. Loss of a family member was most frequent among children in the SOS Children's Village, who also experienced the highest number of other types of trauma. PTSD was present in 51.6% of 186 children, with the highest prevalence among children in the SOS Children's Village (39/48). PTSD prevalence was higher among children who lost a parent but lived with the surviving parent (29/50) then among children in the orphanage (15/38) or children living with both parents (13/50) ($\chi^2_3 = 33.075$, $P<0.001$). Depression was present in 42 of 186 (22.6%) children, but with no statistical difference among the groups ($\chi^2_3 = 6.337$, $P = 0.096$). The prevalence of PTSD and depression was similar in boys and girls. Loss of a parent was associated with higher frequency of PTSD and depression. The loss of both parents was associated with high prevalence of PTSD, but not depression. Prevalence of PTSD was positively correlated with the prevalence of depression (Spearman's $\rho = 0.188$; $P = 0.01$).

Conclusions All children experienced war trauma and many had psychological consequences. The highest prevalence of PTSD, often comorbid with depression, was found among children who lost one or both parents. The children with the lowest rate of psychological disturbances were those living with both parents.

During the 1992-1995 war in Bosnia and Herzegovina, the whole social structure in the country was destroyed, many families were shattered, and an individual was often left without adequate family and social system support (1). Children were the most vulnerable. It is known that massive exposure to wartime trauma overwhelms most psychological defense mechanisms in children, and that children may mitigate war effects in low-to-moderately intense wartime settings, which allows effective functioning after acclimatization (2). Most children develop strong attachments to their parents (3), which become even stronger in adverse situations. Children without parents, ie, the unaccompanied children placed in institutional settings at a young age and for long time are at increased risk of serious psychopathology in later life (4). Separation and loss increase the likelihood of various difficulties in children's psychological development. It is known that profound loss in childhood is a precipitant for symptoms of posttraumatic stress disorder (PTSD) (5). Such children need to receive adequate care from their caregivers (6).

Because of the implicit generalization that extended institutional care cannot meet these children's needs, there is an agreement that it should be avoided if any other options are available (4). This generalization is irrelevant in war-torn countries like Bosnia and Herzegovina today, where the number of unaccompanied children and orphans is great (2) and where adoption and foster care are not culturally very acceptable. Fostering for these children is also logistically difficult. Nearly all orphanages in developed countries have been closed down and replaced by adoption and foster care (4). Before the recent war in Bosnia and Herzegovina, institutional care was the only option for children deprived of parents by death or desertion. After the war, nongovernmental organizations also became engaged in providing childcare. SOS Children's Villages were established as an alternative viable means of survival for hundreds of orphans.

After the massacre in Srebrenica on July 11, 1995, 1219 children who lost both parents arrived to the city of Tuzla (7), where they were taken care of by the Tuzla Cantonal Center for Orphans, which was established in 1993 and closed down in 2001. These children were reunited with their relatives who were able to accept an additional child despite the economic restraints. The exact number of children who lost only one parent is not known. Some of these children were accommodated either in the government orphanage or in SOS Children's Villages. During this process, children were exposed to another stress of dislocation and process of acclimatization (1).

According to the official records of Ministry of Labor and Social Welfare in Tuzla Canton for 2004, 327 children aged <14 years who had lost both parents have been fostered out to families. The Ministry pays €155 per month as a financial support to a foster family. Orphanages accommodate 124 orphaned children aged 1-18 years, of whom 23 aged 1-3 years are unwanted newborns born after the war. The Ministry of Labor and Social Welfare of Tuzla Canton pays annual financial support of €585 000 for complete logistics of orphanages. There are also 3 non-governmental organization (NGO) institutions, fostering 367 orphans in the Canton and the Ministry supports them by paying their utilities (7).

Governmental orphanages and SOS Children's Villages implement completely different types of childcare (4). Relationship between the child's psychological health and type of institutional care has been investigated (4-6,8-15), but not in Bosnia and Herzegovina. Therefore, to provide the basis for future follow up, we assessed the psychological status of children in two types of institutional child care organized according to qualitatively different styles of child management (4) and compared them with the children who lost a parent in the war and those who were exposed to war but did not loose their parents and lived with their primary families.

Methods

The study was conducted in the region of Tuzla Canton (population 600 000), in the northeastern part of postwar Bosnia and Herzegovina. Data on children were collected in the government orphanage, SOS Children's Village, and a public elementary school in March 2002.

Childcare institutions

The government orphanage located in the city of Tuzla accommodated 140 children aged 1-18 years. The youngest children (aged 1-4 years) slept and lived in a single large room under 24-hour care by two nurses. Older children lived in so-called families consisting of 19-21 members in 6 separate apartments in the same building. Each apartment had four bedrooms (separate for boys and girls), a bathroom, and a living room with a TV. There was a single kitchen in the building, a dining room, and a library. Administration and the director also had their premises in the building. The orphanage employed a social worker, psychologist-pedagogue, and 6 teachers. Caregivers spent their working hours with children and then went home. As children could not be left unattended over night, one of the caregivers would stay in the orphanage. All of caregivers were married and had their own children, who would come to orphanage to meet and play with orphans. One-third of the children in the orphanage had lived there throughout the war, while the others arrived after the massacre in Srebrenica. The children attended nearby public schools, where they mixed freely with other children, who sometimes invited them to their homes after school or during vacations. After the age of 18, all children have to leave orphanage and become independent, without any institutional support.

SOS Children's Village, located in a rural setting near a small town, fostered 142 children aged 5-18 years who were either fostered out of their primary families or came from other orphanages after the war. In SOS Children's Villages, all caregivers are women. The SOS mother takes care of 6-8 children, with the help of an assistant, the so-called SOS aunt. Each SOS family has their own apartment. SOS mothers live with children and spend six days a week in the Village. They have one day a week off, when the SOS aunt takes over the care for the children in the family. If the women get married, they had to quit their job as SOS mothers. SOS mothers and aunts in the SOS Children's Village near Tuzla were recruited from war widows who have their own child or single women who wanted to work with orphans. The ages of the children in each family were deliberately mixed, so that the older children could help the younger ones with daily chores and schoolwork. The children attended public school in the nearby town and mixed freely with town children. The only men in the Village are the director and the driver. After the age of 18, all children have to leave the SOS Village and become independent, but some connections with SOS institution remain.

During the war, the major factor determining whether orphans would be assigned to an orphanage or relative's family was the actual situation at the battlefronts. After the war, the children were assigned to orphanages, SOS Children's Villages, or families on a space-available basis.

Children

The study participants were elementary school children aged 9-15 who experienced war trauma. The study groups consisted of children in childcare institutions, the orphanage or SOS Children's Village, who either lost their parents in the war or were separated from them due to dire family conditions. The control group consisted of children from a local public elementary school who lived with both of their parents or had lost one parent and remained living with the other parent. All procedures and aims of the study were discussed with the directors of the

two childcare institutions and the administration of the elementary school, which agreed to participate voluntarily. Caregivers in the orphanage, SOS mothers, and parents gave verbal informed consent for the children to participate in the study. All of the potential participants were informed that participation was voluntary and that they could withdraw from the study at any moment.

We tested 206 children and obtained a total of 186 (90.3%) valid questionnaires from 38 (14 girls) children in the orphanage, 48 (24 girls) children in the SOS Children's Village; 50 (24 girls) children who lost a parent (either the mother or the father) in the war but lived with the surviving parent, and 50 (31 girls) children who lived with both of their parents.

The mean age (±standard deviation) of children was 12.7 ± 1.81 years, with no difference among the four groups (children in the orphanage, 13.3 ± 2.4 years; in the SOS Children's Village, 12.5 ± 2.3 years; children who lost a parent, 12.7 ± 1.6 years; and children living with both parents, 12.5 ± 0.8 years; $P = 0.157$, one-way ANOVA).

Measuring instruments

During data collection, care workers, SOS mothers, or teachers were present in the room. The questionnaire used to collect basic personal and socio-demographic information on age, sex, loss of family members, displacement, and perceived needs, also contained 20 questions about the child's experiences during the war (16). Although all children were able to read questions and answer them without a substantial supervision, interviews were performed to decrease the risk of repeated stress and non-identified exposure to trauma. Every child was explained that they did not have to answer any question or provide any information about trauma experience in the interview if they did not want to.

Children's Posttraumatic Stress Reaction Index (17) was used to assess PTSD symptoms, including intrusive images, poor concentration, and bad dreams. The questionnaire has 16 items; score 7 is the cut-off point for the diagnosis of PTSD (17).

Child Depression Inventory (CDI) consists of 27 items that measure current level of depression in children aged 7-17 years (18). A child can choose one of the three possible answers to each question (eg, "I do not think about killing myself," "I think about killing myself, but I would not do it," and "I want to kill myself"). Answers to each question are scored on a 0-2 scale (18) as follows: 0 – absence of symptom; 1 – mild symptom; and 2 – definite symptoms. The checklist is divided into 5-factor scales: A – negative mood (6 items), B – interpersonal problems (4 items), C – ineffectiveness (4 items), D – anhedonia (8 items), and E – negative self-esteem (5 items). Children were asked to rate their own feelings in the previous two weeks, using the offered statements. The prevalence of depressive symptoms and depression among children was determined on the basis of the CDI cut-off T-score of 55.5 (19) and factor-scales criteria.

Statistical analysis

Statistical tests included ANOVA, and Spearman's ρ coefficient of correlation. Differences in the frequency of trauma experiences and socio-demographic data, prevalence of PTSD, depression, 5-depression factor scales, and suicidal thoughts were tested with χ^2 test. The level of statistical significance was set at $P<0.05$. The data were statistically analyzed with Statistical Package for Social Sciences, version 10.0 (SPSS Inc., Chicago, IL, USA).

Results

Sociodemographic data and exposure to traumatic events

Of 186 children participating in the study, 50 (26.9%) had both parents, 73 (39.2%) of them lost only the father, 21 (11.8%) lost only the

Table 1. Types of trauma experienced by 186 elementary school children from different foster and family settings in Bosnia and Herzegovina, 7 years after the 1992-1995 war

	No (%) of children					
Trauma	orphanage (n = 38)	SOS Children's Village (n = 48)	lost one parent (n = 50)	had both parents (n = 50)	total (n = 186)	*P**
We left our home because of war.	25 (65.8)†‡§	43 (89.6)†‡	18 (36.0)†	4 (8.0)	90 (48.4)	<0.001
I lost a family member/s in war.	29 (76.3)†‡	47 (97.9)†‡	50 (100.0)†	11 (22.0)	137 (73.7)	<0.001
My mother was killed.	22 (57.9)†‡	25 (52.1)†‡	3 (6.0)	0 (0.0)	50 (26.9)	<0.001
My father was killed.	20 (52.6)†‡§	43 (89.6)†	47 (94.0)†	0 (0.0)	110 (59.1)	<0.001
My grandfather was killed.	10 (26.3)†§	23 (47.9)†‡	7 (14.0)	5 (10.0)	45 (24.2)	<0.001
My cousin was killed.	7 (18.4)§	25 (52.1)†‡	5 (10.0)	3 (6.0)	40 (21.5)	<0.001
My close friend was killed in the war.	9 (23.7)†‡§	22 (45.8)†‡	1 (2.0)	2 (4.0)	34 (18.3)	<0.001
A family member was wounded.	22 (57.9)†	31 (64.6)†	25 (50.0)†	10 (20.0)	88 (47.3)	<0.001
I was afraid of sniper shots.	7 (18.4)	13 (27.8)	9 (18.0)	9 (18.0)	38 (20.4)	0.623
I was afraid of air bombarding.	10 (26.3)	25 (52.1)	17 (34.0)	17 (34.0)	69 (37.1)	0.079
I was afraid of shelling.	25 (65.8)	30 (62.5)	33 (66.0)	26 (52.0)	114 (61.3)	0.450
I was afraid of possible rape.	1 (2.6)	5 (10.4)	4 (8.0)	7 (14.0)	17 (9.1)	0.287
I was afraid of starving.	4 (10.5)†§	18 (37.5)‡	8 (16.0)	15 (30.0)	45 (24.2)	0.011
I was afraid of coldness and freezing.	1 (2.6)†§	21 (43.8)†‡	1 (2.0)†	9 (18.0)	32 (17.2)	<0.001
I was afraid of loosing my family.	2 (5.3)	6 (12.5)	10 (20.0)	10 (20.0)	28 (15.1)	0.103
I personally experienced:						
shooting and firing near me	22 (57.9)	28 (58.3)	33 (66.0)	20 (40.0)	103 (55.4)	0.103
sniper shots	5 (13.2)	12 (25.0)	6 (12.0)	2 (4.0)	25 (13.4)	0.024
wounding of other/s near me	14 (36.8)†‡	26 (54.2)†‡	9 (18.0)	4 (8.0)	53 (28.5)	<0.001
killing of other/s in the war	7 (18.4)	15 (48.0)†‡	4 (8.0)	4 (8.0)	30 (16.1)	0.003
situation I could be killed in	11 (28.9)	13 (27.1)	5 (10.0)	8 (16.0)	37 (19.9)	0.070
lack of food and water	11 (28.9)‡	17 (35.4)†‡	5 (10.0)	7 (14.0)	40 (21.5)	0.006

*χ^2 test.
†$P \leq 0.05$ for children with both parents vs other three groups.
‡$P \leq 0.05$ for children who lost one parent vs children from the orphanage and children from the SOS Children's Village.
§$P \leq 0.05$ for children from the orphanage vs children from the SOS Children's Village.

mother, while 41 (22.3%) of them lost both parents in the war (Table 1).

Almost half of the children in the study left their home because of the war. The largest proportion of such children, those who lost a parent, or had the highest number of other types of trauma was found among children from the SOS Children's Village (Table 1). All 186 children experienced the same fears during the war (Table 1).

Prevalence of PTSD

Of 186 children, 96 (51.6%) reported symptoms that met PTSD criteria. There was no difference in the prevalence of PTSD between boys and girls (45 vs 51, respectively; $P = 0.379$). The prevalence of PTSD was highest among children from the SOS Children's Village (39/48), followed by children who lost one parent (29/50), and children from the orphanage (15/38). Thirteen of 50 children living with both parents had PTSD. The prevalence of PTSD among children from the SOS Children's Village was significantly higher than that among children from orphanage ($P<0.001$), children who lost a parent ($P = 0.013$), and children living with both parents ($P<0.001$). Children from the orphanage did not have significantly different PTSD prevalence from children who lost one ($P = 0.083$) or neither ($P = 0.179$) parent, but children who lost a parent had a significantly higher PTSD prevalence than children who did not loose either parent ($P = 0.001$).

There was no significant difference among the four groups of children in the frequency of "avoidance of reminders," "intrusive thoughts," and "sleep disturbances" (Table 2). However, the groups significantly differed in the frequency of other PTSD symptoms (Table 2).

Prevalence of depression

Forty-two of 186 children reported symptoms that met CDI criteria for depression. There was no difference between boys and girls in the

frequency of depression (20 vs 22, respectively; $P = 0.726$). Depression was most frequent among children from the SOS Children's Village (15/48), followed by children from the orphanage (11/38), and children who lost a parent (10/50), but without significant differences between the groups ($P = 0.817$, $P = 0.202$, and $P = 0.329$, respectively). Children living with both parents (6/50) had the lowest prevalence of depression, significantly lower than children from the SOS Children's Village ($P = 0.020$) or orphanage ($P = 0.046$).

Although the four groups of children did not significantly differ in the overall prevalence of depression, they differed in the prevalence of particular depressive symptoms (Table 3). Negative mood prevalence was significantly higher in the SOS Children's Village group than in children who lived with one or both parents ($P = 0.046$ for both). High number of children in all four groups reported having interpersonal problems, but there was no significant difference among the groups (Table 3). However, girls reported significantly more interpersonal problems than boys (41/93 girls vs 23/93 boys; $\chi^2_1 = 7.718$, $P = 0.005$). Also, girls who lost a parent and girls who had both parents had significantly more interpersonal problems than boys in the respective groups (10/24 girls vs 4/26 boys with one parent; $\chi^2_1 = 4.276$, $P = 0.039$; and 14/31 girls vs 2/19 boys with both parents; $\chi^2_1 = 6.494$, $P = 0.011$). Children from the orphanage reported inef-

Table 2. Frequency of posttraumatic stress disorder (PTSD) symptoms in 186 elementary school children from different foster and family settings in Bosnia and Herzegovina, 7 years after the 1992-1995 war

	No. (%) of children				
PTSD symptoms	orphanage (n = 38)	SOS Children's Village (n = 48)	lost one parent (n = 50)	had both parents (n = 50)	*P**
Identification of events as extremely stressful	14 (36.8)	24 (50.0)†‡§	22 (44.0)	13 (26.0)	<0.001
Disturbing to think about traumatic events	24 (63.2)	44 (91.7)†‡§	28 (56.0)	23 (46.0)	<0.001
Fear of repeating of trauma	20 (52.6)	39 (81.3)†‡§	30 (60.0)	29 (58.0)	0.015
Fear when thinking about the events	13 (34.2)‡	38 (79.2)†§	32 (64.0)	24 (48.0)	<0.001
Avoidance of reminders	13 (34.2)	30 (62.5)	25 (50.0)	29 (58.0)	0.052
Being easily startled	17 (44.7)†	26 (54.2)†	27 (54.0)†	11 (22.0)	0.004
Avoidance of feelings	16 (42.1)†‡§	36 (75.0)	40 (80.0)	41 (82.0)	<0.001
Intrusive thoughts	6 (15.8)§	19 (39.6)	16 (32.0)	15 (30.0)	0.120
Bad dreams	12 (31.6)†	28 (58.3)†‡§	12 (24.0)	7 (14.0)	<0.001
Sleeping disturbances	9 (23.7)	16 (33.3)	10 (20.0)	6 (12.0)	0.083
Intrusive images and sounds	9 (23.7)†	18 (37.5)†	12 (24.0)†	3 (6.0)	0.006
Loss of interest in meaningful activities	5 (13.2)	10 (20.8)	14 (28.0)	3 (6.0)	0.040
Concentration difficulties	13 (34.2)†§	27 (56.3)†	33 (66.0)†	5 (10.0)	<0.001
Alienation (interpersonal distance)	0 (0.0)‡	3 (6.3)	8 (16.0)†	2 (4.0)	0.020
Learning ability influenced by thoughts and experienced events	20 (52.6)†	31 (64.6)†	28 (56.0)†	5 (10.0)	<0.001
Feeling of guilt	10 (26.3)‡	16 (33.3)†‡	4 (8.0)	6 (12.0)	0.005

*χ^2 test.
†$P \leq 0.05$ for children living with both parents vs other three groups.
‡$P \leq 0.05$ for children who lost one parent vs children from the orphanage and children from the SOS Children's Village.
§$P \leq 0.05$ for children from the orphanage vs children from the SOS Children's Village.

Table 3. Prevalence of depressive symptoms in 186 elementary school children from different foster and family settings in Bosnia and Herzegovina, 7 years after the 1992-1995 war

	No (%) of children				
Depressive symptoms	orphanage (n = 38)	SOS Children's Village (n = 48)	lost one parent (n = 50)	had both parents (n = 50)	*P*
Negative mood	11 (28.9)	16 (33.3)†‡	8 (16.0)	8 (16.0)	0.094
Interpersonal problems	16 (42.1)	18 (37.5)	14 (28.0)	16 (32.0)	0.524
Ineffectiveness	18 (47.4)†	13 (27.1)	14 (28.0)	9 (18.0)	0.026
Anhedonia	10 (26.3)†	17 (35.4)†‡	6 (12.0)	5 (10.0)	0.002
Negative self-esteem	15 (39.5)†	22 (45.8)†	15 (30.0)	7 (14.0)	0.005
Depression prevalence	11 (28.9)	15 (31.3)	10 (20.0)	6 (12.0)	0.096

*χ^2 test.
†$P<0.05$ for prevalence of factor scales of depressive symptoms and depression in children living with both parents' vs other three groups.
‡$P<0.05$ for prevalence of factor scales of depressive symptoms and depression in children who lost one parent vs children from the orphanage vs children from the SOS Children's Village.

Table 4. Non-parametric correlation of suicidal thoughts, factor scales of depressive symptoms, prevalence of depression, and prevalence of posttraumatic stress disorder (PTSD) among 186 elementary school children from different foster and family settings in Bosnia and Herzegovina, 7 years after the 1992-1995 war

	Spearman's correlation coefficient (ρ)*						
Prevalence of	suicidal thoughts	negative mood	interpersonal problems	ineffectiveness	anhedonia	negative self-esteem	depression
Negative mood	0.402						
Interpersonal problems	0.310	0.462					
Ineffectiveness	0.235	0.295	0.260				
Anhedonia	0.322	0.513	0.363	0.381			
Negative self-esteem	0.652	0.448	0.430	0.251	0.486		
Depression	0.313	0.588	0.529	0.448	0.683	0.599	
PTSD	0.247	0.199	0.090	0.145	0.224	0.244	0.188

*P<0.001 for all, except for PTSD and negative mood (P = 0.006), interpersonal problems (P = 0.223), ineffectiveness (P = 0.048), and anhedonia (P = 0.002).

fectiveness significantly more often than other children, especially when compared with children who lived with both parents (χ^2_3 = 8.756, P = 0.003). Children from the SOS Children's Village reported anhedonia and negative self-esteem significantly more often than other children (Table 3). The prevalence of anhedonia among children with both parents was significantly lower than among children from SOS Children's Village (χ^2_1 = 9.087, P = 0.003) and orphanage (χ^2_1 = 4.065, P = 0.044). Also, the prevalence of anhedonia in children from SOS Children's Village was significantly higher than in children who lost a parent (χ^2_1 = 7.477, P = 0.006).

There were no differences between boys and girls in the prevalence of ineffectiveness, anhedonia, negative self-esteem, and depression.

Prevalence of negative self-esteem significantly differed among the groups (Table 3). Children from the SOS Children's Village and orphanage had a significantly higher prevalence of negative self-esteem than children living with both parents (χ^2_1 = 11.911, P = 0.001; and χ^2_1 = 7.472, P = 0.006, respectively).

Loss of one or both parents had no influence on the prevalence of depression, but it significantly increased the prevalence of negative self-esteem (χ^2_1 = 10.367, P = 0.006). The highest prevalence of negative self-esteem was reported by children who lost only one parent (38/95), followed by those who lost both parents (14/41) and those who had both parents (7/50). Of 110 participants whose father was killed in the war, 41 (37.3%) reported negative self-esteem (χ^2_1 = 3.832, P = 0.050).

The number of children who reported suicidal thoughts but would not commit a suicide was the highest in the SOS Children's Village group (16/48). Five of them reported they wanted to kill themselves. Children from the SOS Children's Village and orphanage had significantly higher prevalence of suicidal thoughts than children who lived with both parents (P = 0.002 and P = 0.047, respectively).

Co-morbidity and correlation of PTSD and depression

PTSD and depression co-morbidity was found in 29 (15.6%) of 186 children, only depression in 13 (7.0%), and only PTSD in 67 (36.0%). Seventy-seven (41.4%) children had neither PTSD nor depression (χ^2_1 = 6.603, P = 0.010). Suicidal thoughts, depressive symptoms, prevalence of depression, and prevalence of PTSD were highly correlated (Table 4). Only the prevalence of interpersonal problems and PTSD did not show any association.

Discussion

We found a high level of co-morbidity between PTSD and depression among children exposed to war trauma who lost one or both parents. There was also highly positive correlation between PTSD, depression, and suicidal thoughts. The prevalence of PTSD and depres-

sion was highest among children from the SOS Children's Village, because they were the most traumatized children in our study sample. They had the highest rate of loss of one or both parents and forced leaving of family setting with no ability to return. These children and those in the orphanage also had the highest rates of suicidal thoughts. Children who lost a parent had a very high rate of PTSD, whereas children who experienced no parent loss had the lowest rate of PTSD, depression, and suicidal thoughts. All children had many traumatic experiences during the war, as described elsewhere (1). Children in institutional care (orphans) were under greater risk of depression and PTSD than other children who lived with their parents. Furthermore, orphans had significantly higher scores on individual CDI items regarded as particularly "sensitive" to the possible presence of a depressive disorder, ie, suicidal ideation (20).

Between 25%-30% of Bosnian refugee children have lost their fathers in the 1992-1995 war in Bosnia and Herzegovina (1,21). Husain et al (16) reported that two-thirds of 521 Sarajevo children had lost a member of the family, similar to 61.9% of children in our previous study (1). In our study, more than half of children experienced loss of a parent, mostly children from the SOS Children's Village. This trauma, in addition to various other types of trauma, explains such a high frequency of serious psychological disorders among these children. However, the prevalence of PTSD in children from the orphanage and those living with one or both parents did not differ. There are two possible explanations. It could be that children in the orphanage had more interpersonal relations and more male figures among their caregivers, all of which can play a protective role for prevention of psychopathological consequences after severe trauma (4). Also, family members may be traumatized themselves and unable to provide adequate support for a child.

In the group of children who lived with one parent, we found very high PTSD prevalence. It is possible that these children continued to live in vulnerable families whose members suffered because of the loss of some other family member and had not yet finished the mourning process. The surviving parent and other family members can also have war-related PTSD and depression and are unable to create a protective atmosphere for the child's development. It is known that the children of depressed parents are at higher risk of psychopathology and other difficulties (22). Also, the continually difficult socio-economic situation and interrupted stability and cohesiveness of emotional relations in such families aggravate the problem, especially in refugee families who cannot return to their life before war without a family member they lost. Positive parent-child relationship, which plays an important protective role that favors resilient outcomes in a child, is interrupted (23). It is suggested that severe loss and the absence of care may be as predictive of psychological distress in children as exposure to natural disasters or physical or sexual abuse (5).

In our study, depression was most frequent among the children in the SOS Children's Village, which can also be related to the severity of their traumatic experience in war, but it was not different between children who experienced the loss of a parent and those who did not. It seems that the presence of even one parent makes important difference for the child. Also, there may be a degree of stigmatization of children in institutional care system, where they spend the most important formative years, compared with their peers who have their own families and homes.

Loss of one or both parents had a significant impact on the prevalence of negative self-esteem. Children who lost only one parent, those who lost both parents, as well as those whose father was killed in the war, reported high and similar prevalence of negative self-esteem.

We found high rate of PTSD and depression co-morbidity. Similar findings were reported pre-

viously (20,24). It seems that social isolation and history of personal injury may be associated with PTSD (25) and that high levels of psychological distress found in orphans suggest that material support alone is not sufficient for these children (20). Children with traumatic symptoms have characteristics that may distinguish them from their peers and inform future resettlement services for unaccompanied minors in the Bosnia and Herzegovina (24).

The loss of one or both parents during early childhood can have serious long-term psychological consequences. It seems that it is not the traumatic event as such but the disruptions and chronic stresses surrounding the traumatic event that are responsible for adverse long-term outcomes, whereas the continuity of warm personal relationships with an adult or a coherent community of adults can often ameliorate such adverse effects (1,6,20). One of the few studies into the long-term outcome of growing up in an orphanage suggests that adult orphans make remarkably good long-term life adaptations (6,26).

Our study had a few limitations. The unstable social conditions during the postwar period in Bosnia and Herzegovina were not the optimal setting for carrying out any rigorously controlled comparison studies. We looked for PTSD and depression prevalence rates among orphans more than 6 years after the war. PTSD and depressive symptoms can increase over the years for some reasons and decrease for others. Because we had no baseline data, we could not say whether PTSD and depressive symptoms in children improved or worsened after the war. Also, very little was known about the social experiences of these children before they were institutionalized. Differences in social experience during early childhood may have contributed to individual differences in mental health of children in our study.

In Bosnia and Herzegovina today, there are governmental activities to reorganize current orphans' care. According to the new comprehensive social program of fostering orphans, existing orphanages will be deconstructed and unaccompanied children will be fostered in socially deprived families, who will receive €165 from the government per month for fostering an orphan. The families are socially deprived because none of the family members are employed. However, such a social environment may not provide an adequate developmental atmosphere for these highly vulnerable children. There is also a new, more flexible regulation on the adoption, which aims at creating more suitable environments for the long-term care of the neediest children who had lost both parents and allows the adoption of orphans aged >5 years. The findings in this study may be used as recommendations for restructuring and improving institutional childcare in Bosnia and Herzegovina to meet the needs of war orphans most effectively. Awareness of the traumatic nature of severe losses in childhood could help caregivers and mental health professionals to deal more effectively with such children. At a more general level, the findings may also be useful for social service agencies in other post-war countries, which must face the daunting task of providing decent care for large numbers of parentless children (6).

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