

## PSYCHOSOCIAL ASSISTANCE TO STUDENTS WITH POSTTRAUMATIC STRESS DISORDER IN PRIMARY AND SECONDARY SCHOOLS IN POST-WAR BOSNIA HERZEGOVINA

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### SUMMARY

**Background:** The 1992-1995 war in Bosnia and Herzegovina (BH) has had a tremendous impact on civilians; thousands of inhabitants were left with numerous traumatic experiences. Many children suffered or witnessed horrifying acts of violence and aggression. Although young trauma victims are often resilient, many experience mental health difficulties, including PTSD. The aim of the study was to estimate whether psychosocial support given by the School Project of Humanitarian Association of "Prijateljice" reduced posttraumatic consequences in students in primary and secondary schools in Bosnia and Herzegovina after 1992-1995 war.

**Subjects and methods:** A stratified sample of 336 students in primary and secondary schools located in two entities of North-East Bosnia and Herzegovina, involved in psychosocial support, was compared with 72 voluntarily selected same-age students from the same schools who were not involved in this project. Data were collected on two occasions, beginning of December 2005 and end of May 2006, by using a self-evaluation survey method for measuring symptoms of posttraumatic stress disorder (PTSD) according to DSM IV. The Index of Children Post-traumatic reactions were used.

**Results:** The severity of PTSD symptoms among students involved in the School Project decreased from (mean±standard deviation=35.3±10.2 to 26.7±8.7) ( $t=13.1$ ,  $P<0.001$ , Paired sample test), whereas in the group with no psychosocial assistance this reduction was from (29.7±10.9 to 28.1±11.8) ( $t=0.9$ ,  $P=0.396$ , Paired sample test).

**Conclusion:** This study suggests that work with students by giving them psychosocial support within the School Project resulted in significant reduction of PTSD symptoms' severity.

**Key words:** students – PTSD - school project - psychosocial assistance - humanitarian association of "Prijateljice" - Bosnia and Herzegovina

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### INTRODUCTION

The literature indicates that there can be serious and long-lasting psychiatric consequences among children and adolescents after natural and man-made disasters (Goenjian et al. 1997). War-related trauma in children, which may be of diverse origin, cumulates over time and can endanger social, moral, and healthy personality development of the child in many ways (Barath 1996). The 1992-1995 war in Bosnia and Herzegovina (BH) has had a tremendous impact on

civilians. In the aftermath of this war, thousands of inhabitants were left with numerous traumatic experiences (Hasanović et al. 2005, Hasanović & Herenda 2008, Goldstein et al. 1997). Amongst the most affected groups were soldiers from the front line, prisoners of war, refugees, and displaced persons (Hasanović et al. 2005). Many children suffered or witnessed horrifying acts of violence and aggression. Young war victims, moved forcibly out of their homes are frequently subjected to multiple traumatic events and severe losses, as well as ongoing stressors within the host

country. Although young refugees and displaced persons are often resilient, many experience mental health difficulties, including PTSD, depression, anxiety, and grief (Jensen & Shaw 1993, Hasanović et al. 2006, Ehntholt & Yule 2006, Smith et al. 2002). Additive effects of violence and deprivations during war may overwhelm the coping skills of children and leave them vulnerable to externalizing and internalizing adjustment difficulties and symptoms of PTSD and depression (Hasanović et al. 2006, Allwood, Bell-Dolan & Husain 2002). Profound loss in childhood as a precipitant for symptoms of PTSD and depression has been a largely neglected subject (Hasanović et al. 2006, Cournois 2002). The war in BH has left psychological consequences in the developing population, primarily in quantitative terms, i.e. in the increase of prevalence of psychological disorders by approximately 15% compared to the pre-war circumstances (Daneš & Horvat 2005). Teachers and parents were the first who started recognizing the symptoms of post-traumatic disorder and depression in an alarmingly high number of children (Barath 1995, Ringdal, Ringdal & Simkus, 2008). Wartime stressors which impacted on family functioning only added to the detrimental effects of the children's exposure to stressful life events (Dybdahl 2001). As a consequence, the children who lived in frontline settlements during the war in BH were in urgent need of professional help (Barath 2002). Research has shown that the effects of war experiences may be present many years after the exposure to traumatic events (Ringdal, Ringdal & Simkus 2008). La Greca et al. (1996) investigated symptoms of posttraumatic stress in children after Hurricane Andrew using a conceptual model of the effects of traumatic events, with respect to (a) their exposure to traumatic events during and after the disaster, (b) their preexisting demographic characteristics, (c) the occurrence of major life stressors, (d) the availability of social support, and (e) the type of coping strategies used to cope with disaster-related distress. They found that although symptoms of PTSD declined over time, a substantial level of symptomatology was observed up to 10 months after the disaster. All 5 factors in the conceptual model were predictive of children's PTSD symptoms 7 and 10 months post disaster. They discussed their findings in terms of the potential utility of the model for organizing

thinking about factors that predict the emergence and persistence of PTSD symptoms in children.

After the Armenian earthquake of 1988, Pynoos et al. (1993) in their research found that their findings indicate that after catastrophic natural disaster, post-traumatic reactions in children may reach epidemic proportions, remain high for a prolonged period, and jeopardize the well-being of the child population of a large region. They also found that analyses controlling for exposure revealed that girls reported more persistent fears than boys. Furthermore, they concluded that systematic screening of children for PTSD can provide critical information for a rational public mental health program after such a disaster.

The post war situation, regarding child and adolescent mental health care, in BH can be described as follows: 1. lack of appropriate professional institutions, 2. insufficient number of trained professionals, 3. absence of epidemiological record of needs concerning the organization of mental health care for the young population. Although child psychiatry in BH has been established in 1961, it has never developed transversally to be capable to provide institutional cover for the present whole territory of the Bosnia and Herzegovina (Daneš 2005a, 2005b). To assist victims of the war catastrophe in BH together with the existing institutions of medical character, non-government organizations (NGOs) played an important role by systematically developing and conducting a number of projects for psychosocial assistance to the persons in need (Dybdahl 2001).

The first assistance of the international organization "Amica e.V" Freiburg, Germany, was provided by shipping food, clothing and hygiene to Bosnia and Herzegovina and Croatia. In 1994, this organization established its permanent mission in the Tuzla Canton, and the group "Priateljice" undertook and continued with the activities as a local non-governmental organization in 1996. In 1997, the "Priateljice" started a project in schools located in the Tuzla Canton to assist children returned from abroad to follow-up local curricula. This assistance consisted of providing extra classes for children who started their education in other European countries, and had problems adapting to the local courses, specifically the mother language and mathematics.

After the political situation in post-war Bosnia-Herzegovina became more stabilized a

two-way direction of return process of BH population to their pre-war places of residence has intensified. Students started to return to their pre-war places in both entities where the school program was designed on predominantly national perspectives. Because of this returnees had a problem in receiving lessons from the programs which did not meet their national needs. Therefore, the project has been modified in accordance to beneficiaries' needs. As late as 2000, the project got new content in order to support an idea of forming a unique school system in Bosnia-Herzegovina, regardless of the ethnicity of the students.

The general aim is to influence the implementation of the unique school system in Bosnia-Herzegovina. Besides this general aim there are three specific aims: 1) reduction of prejudices, acceptance of differences, and reduction of aggressive characteristics among children; 2) linking of children, parents, teachers and school management in both entities, and 3) formation of students' clubs as official organization in schools.

The research plan for this study had the following goals: 1) to identify war and after war stressors amongst students involved in the assistance program; 2) to assess the level of PTSD symptoms amongst students; and 3) to identify the effects of the "School Project" on the level of PTSD amongst the involved students after five months of psychosocial work with the students.

## **SUBJECTS AND METHODS**

### **School project**

The project: "Supporting returning students to integrate into the school system in post war Bosnia and Herzegovina" had the objective to provide education on the reconciliation of students, parents, teachers and school managers and support to the BH reform in education.

The target groups were students, survivors of war trauma and exile aged 12-15 years, and belonging to three different nationalities (Bosniaks, Serbs and Croats) in primary and secondary schools. The parents of the involved students, teachers and professors of involved students, and school managements of the schools were involved in the project.

The project involved 450 students in ten schools, paired according to the partnership of schools in the Republic of Serbska (RS) and the Federation of Bosnia and Herzegovina (FBH). Every elementary school in FBH has its related partner in RS, including the secondary schools.

The project team included four university educated professionals (one man and three women) in the field of pedagogy, who had regular monthly supervisions with a certified supervisor.

The selection of the primary and secondary schools depended from the concentration of displaced students in particular places in FBH and RS. In FBH we choose five schools (four elementary and one secondary) with the highest number of internally displaced students, who originally belonged to places in RS but had not returned to their native places despite the end of the war. On the other hand in RS we choose five schools too (four elementary and one secondary), with the highest number of returnees from foreign countries and from FBH to their pre-war places of living.

In the situation that the returning process had not been completed, the relationships between the students of different nationalities in both entities were worsened, so upon recommendation of Organization for Security and Co-operation in Europe - Mission to Bosnia and Herzegovina (OSCE) the "School Project" team applied the project activities to these partners' schools.

The main objectives of this School Project were to support the transition period for students moving from one entity to another, so that they may freely continue with their schooling, not dropping a school year or passing additional exams in certain subjects who differ from one entity to another.

### **Selection of students included in the project**

In every school (eight elementary and two secondary) one teacher was engaged who has a coordinating role. The teachers formed student groups in the schools using the selection criteria in both Federation BH and RS: a) experiences of war atrocities and experience of being a refugee or internally displaced person, during the war in Bosnia and Herzegovina, b) obstructions and prevention of return to original homes despite the end of war, and c) returning to reconstructed homes after the war finished in December 1995,

with their parents in no safe milieu. Exclusion criterion was lack of war experiences because they left Bosnia and Herzegovina with their families before the war started, and spent the whole war period in some foreign country.

As the project activities were considered as elective activities, the recruitment was voluntary.

Activities in Project intervention were adjusted according to the ages of the students:

1. Students' free time activities, during five months 20 lessons (every week) were realized in all schools. The issues that were elaborated: (Emotions, Non-violent communication, Peer mediation, Cooperation and tolerance, Stereotypes and prejudices, Children's rights and Humanization of inter-gender relations).
2. Workshops with students (mutual meetings of students from partners schools from both entities, once in one school then in another), during the observed period twenty workshops were realized (half day, meetings of students) during those meetings the next group of topics were discussed: (Emotions, Non-violent communication and topics about education reform in BH: „The school as I desire it“).
3. Trainings for leaders (five students from each of the ten schools, ie a total 50 leaders) and trainings for school coordinators, from each of the school one teacher were chosen; ten coordinators in total. During the observed period the two sessions (15 hours) were realized about issues that contribute to the development of Student's school clubs: (Team work, The role of Student's school clubs in the development of democratic processes in the schools, The role of leaders in the Student's school club work and Running of initiatives from Student's school clubs).
4. Trainings for school coordinators (school teachers), during the observing period three sessions were realized (15 hours) with topics related on „The development of human democratic school“
5. Work with parents:
  - a) Workshops for parents, in every school one workshop with the students' parents was realized with the aim of preventing home violence „Parent-child communication“
  - b) Support to School boards and parents – four workshops were realized in two

schools (14 hours). The aim of these workshops was to involve parents and students in school management.

6. Work with school management, the training was realized (five hours) for ten school directors and ten pedagogues with topics about the school reforms of education in BH.

All activities with students, teachers, school managers and parents were in interactive forms what lead to a convenient work environment.

## Subjects

The stratified sample of 336 students in primary and secondary schools located in two entities of North-East Bosnia and Herzegovina, involved in psychosocial support, was compared with 72 voluntarily selected same-age students from the same schools that were not involved in this project. To avoid ethical conflict for students in the control group, they were asked and they accepted to participate in this project during the following year. This „School Project“ was approved from both Ministries for Education, Culture and Sport of Tuzla Canton and from the Ministry of Education and Culture of Republic of Serbska. All procedures and aims of the project were discussed with the directors of the elementary and secondary schools involved in the project. Parents gave written informed consent for the children to participate in the study. All participants were informed that participation was voluntary and that they could withdraw from the study at any time. The study involved 336 students, who volunteered to participate in this research. Regarding national representation of 336 involved students, we had 53.2% of Bosniaks, 41.2% of Serbs and 5.6% of Croats. This national proportion reflected the actual post war population structure of North-East Bosnia and Herzegovina (Tuzla, Bijeljina and Zvornik municipalities), due to war and post war migrations.

The sample consisted of 336 (74.7%) volunteers from 450 students, who were involved in the „School Project“. Out of 336 students who accepted to participate in this research, 179 (53.3%) were from the Republic of Serbska (RS). There was no statistically significant difference in the number of students on a basis of the entity origin ( $P=0.230$ ), but there were significant differences between FBH and RS entity regarding national representation of students. In FBH there

were 87.3% of Bosniaks among 157 students, 1.9% of Serbs and 10.8% of Croats, while in RS there were 25.1% of Bosniaks amongst 179 participants and 74.9% of Serbs. There were no Croats in the five schools in RS (Chi-square=188.134;  $P<0.001$ ).

In the group of students involved in the School Project there were significantly more girls 230 (68.5%) out of 336 than boys, (Chi-square=45.762;  $P<0.001$ ). The average participants' age was  $13.5\pm 1.6$  years, with no significant differences regarding gender ( $t$ -test=1.777,  $P=0.076$ ), nor entity belongings ( $t$ -test=0.409,  $P=0.683$ ).

### Measuring instruments

During the test period, members of the team "School Project" were present in the classroom. We used a questionnaire for basic personal and socio-demographical data concerning age, sex, loss of family members, displacement from home and home country, needs expressed by students. For assessment of PTSD symptoms we used the Impact of Event Scale (Horowitz, Wilner & Alvarez 1979), which measures the subjective emotional response after stressful life events and elicited information regarding experience of an extreme stressor and symptoms of re-experiencing and avoidance (Husain et al. 1998).

Two testing periods were conducted. The first took place at the beginning of December 2005, whereas the follow up testing took place at the end of May 2006. Testing on both occasions was conducted by the same examiners, at the same place and under the same conditions.

### Statistical analysis

Statistical tests included descriptive statistics, Student's  $t$ -test and chi-square test. Paired sample test was used for analysis of reduction of PTSD symptoms severity after five months of School Project influences. Level of significance of differences was set to  $P<0.05$ . Data were statistically analyzed by using Statistical Package for Social Sciences, version 10.0 (SPSS Inc. Chicago IL USA).

## RESULTS

There was no significant difference in the frequency of traumatic experiences among participants, except for: destroyed houses, surviving shelling and firing close to him/herself

which were more often reported by students involved in the School Project. Also, the students involved in the School Project significantly more often reported fears of: sniper, bombarding, starving, coldness and fear of inability to protect family to be safe and secure. Significantly more of these students survived extreme coldness to the extent that they thought that they would die (Table 1).

Also, students involved in the School Project have experienced, on average, statistically more traumatic experiences (mean±standard deviation) ( $7.4\pm 5.9$ ) compared to those in the control group ( $5.0\pm 4.2$ ) ( $t$ -test=3.260,  $P=0.001$ ).

There was no significant difference in the frequency of the most actual needs among participants, except for overpowering stress (Table 2).

Girls reported significantly more often surviving of: "Uncle and /or aunt was killed in war", "Survived shelling close to myself", "Fear of inability to secure/safeguard my family", "Fear of eventual raping", "Fear of extreme coldness with no heating", than boys, while boys reported significantly more often surviving of: "I witnessed killing of other person/s", "I helped in transportation of wounded person", "I experienced clothes deprivation" than girls. Girls reported significantly more often "I have actual needs for overpowering stress" than boys (Table 3). There were no significant differences in frequency of surviving other traumas, listed in Table 1 and 2, related to gender of students. Also there was no significant deference between girls and boys regarding the average number of trauma experiences ( $P>0.05$ ).

During the first measuring, students involved in the School Project had significantly more severe symptoms of PTSD, compared to the students who were not involved in this project. During the second measuring there was no significant difference between groups in the sample regarding PTSD symptoms severity. Severity of avoidance and re-experience cluster symptoms during the first testing were significantly higher amongst students involved in School Project than among those who were not involved. During the second testing we did not find significant differences in severity of avoidance and re-experience cluster symptoms between group with and without psychosocial assistance in our research (Table 4).

**Table 1.** Trauma experiences reported by 408 adolescents in Bosnia and Herzegovina who on (n=336) and who on no assistance (n=72), ten years after the war 1992-95 in Bosnia and Herzegovina

Reported trauma	No (%) adolescents			Chi-square test	P*
	psychosocial help n =336	no psychosocial help n=72	Total n =408		
Lost family member during the war	150 (44.6)	36 (50)	186 (45.6)	0.686	0.408
Lost someone close to me in the war	149 (44.4)	35 (48.6)	184 (48.1)	0.436	0.506
Forced to leave home during the war	143 (42.6)	24 (33.3)	167 (40.9)	2.088	0.149
Destroyed house in the war	99 (29.5)	9 (12.5)	108 (26.5)	8.767	0.003
Refugee abroad	62 (18.5)	12 (16.7)	74 (18.1)	0.135	0.713
Returning	65 (19.3)	10 (13.9)	75 (18.4)	1.177	0.278
Forced returning	18 (5.4)	5 (6.9)	23 (5.6)	0.281	0.596
Uncle and /or aunt was killed in war	66 (19.6)	12 (15.7)	78 (19.1)	0.340	0.560
Father was killed in the war	27 (8.0)	5 (6.9)	32 (7.8)	0.080	0.777
Mother was killed in the war	5 (1.5)	1 (1.4)	6 (1.5)	0.019	0.890
Close relative was killed in the war	43 (12.8)	7 (9.7)	50 (12.3)	0.522	0.470
Grandfather(s) was killed in the war	40 (11.9)	5 (6.9)	45 (11.0)	1.487	0.223
Good friend was killed in the war	39 (11.6)	6 (8.3)	45 (11.0)	0.648	0.421
Close person was killed in the war	10 (3.0)	5 (6.9)	15 (3.7)	2.637	0.104
Family member was wounded	139 (41.4)	23 (31.9)	162 (39.7)	2.200	0.138
Survived shelling close to myself	126 (37.5)	16 (22.2)	142 (34.8)	6.099	0.014
Survived firing close to myself	123 (36.6)	17 (23.6)	140 (34.3)	4.430	0.034
Survived sniper shooting close to myself	40 (11.9)	4 (5.5)	44 (10.8)	2.484	0.115
The most severe fears during the war were:					
Fear of shelling	175 (52.0)	33 (45.8)	208 (51.0)	0.927	0.336
Fear of bombarding	160 (47.6)	19 (26.4)	179 (43.9)	10.853	0.001
Fear of starving	115 (34.2)	11 (15.3)	126 (30.9)	9.974	0.002
Fear of inability to secure/safeguard my family	88 (26.2)	9 (12.5)	97 (23.8)	6.132	0.013
Fear of extreme coldness with no heating	80 (23.8)	5 (6.9)	85 (20.8)	10.226	0.001
Fear of sniper shooting	68 (20.2)	6 (8.3)	74 n(18.1)	5.560	0.017
Fear of eventual raping	49 (14.6)	6 (8.3)	55 (13.5)	1.986	0.159
I witnessed wounding of other person/s	40 (11.9)	4 (5.6)	44 (10.8)	1.784	0.182
I witnessed killing of other person/s	18 (5.4)	4 (5.6)	22 (5.4)	0.005	0.946
I helped in transportation of wounded person	16 (4.8)	2 (2.8)	18 (4.4)	0.554	0.457
I experienced food and water deprivation	90 (26.8)	13 (18.1)	103 (25.3)	2.395	0.122
I thought I'll die due to severe coldness	59 (17.6)	4 (5.6)	63 (15.4)	6.654	0.011
I was threatened to be killed from someone (enemy)	46 (13.7)	10 (13.9)	56 (13.7)	0.002	0.965

\* $\chi^2$  test

In the first measuring, the severity of PTSD symptoms was significantly higher amongst girls (mean±standard deviation=35.5±9.6) than amongst boys (32.2±11.7) (t- test=2.877, P=0.004). Girls presented significantly more severe cluster symptoms of avoidance and re-experience (mean±standard deviation=20.6±6.0; 14.9±4.9,

respectively) during the first measuring than boys (mean±standard deviation=19.7±7.1; 13.2±5.6, respectively) (t- test=2.189, P=0.029; t- test=3.046, P=0.002, respectively). During the second measuring of PTSD symptoms, there were no significant differences avoidance and re-experiences cluster symptoms regarding gender.

**Table 2.** Assessment of the most actual needs reported by 408 adolescents in Bosnia and Herzegovina who on (n=336) and who on no assistance (n=72), ten years after the war 1992-95 in Bosnia and Herzegovina

	No (%) adolescents			Chi-square test	P*
	psychosocial help n=336	no psychosocial help n=72	Total n=408		
My most actual needs are for					
overpowering the stress	144 (42.9)	6 (1.8)	150 (36.8)	13.399	<0.001
education	84 (25.0)	15 (20.8)	99 (24.3)	0.560	0.454
food	54 (16.1)	13 (18.1)	67 (16.4)	0.170	0.680
water	54 (16.1)	11 (15.3)	65 (15.9)	0.028	0.867
shelter	53 (15.8)	6 (8.3)	59 (14.5)	2.654	0.103
building material	48 (14.3)	7 (9.7)	55 (13.5)	1.059	0.304
cloths	42 (12.5)	7 (9.7)	49 (12.0)	0.454	0.500
productive work	29 (8.6)	4 (5.6)	33 (8.1)	0.754	0.385

\* $\chi^2$  test

**Table 3.** Trauma experiences reported by 408 adolescents in Bosnia and Herzegovina regarding their gender who: girls (n=267) and boys (n=141), ten years after the war 1992-95 in Bosnia and Herzegovina

Reported trauma	No (%) adolescents		Chi-Square test	P*
	girls n=267	boys n=141		
Uncle and /or aunt was killed in war	61 (22.9)	17 (12.1)	6.947	0.008
Survived shelling close to myself	102 (38.2)	40 (28.4)	6.947	0.008
Fear of inability to secure/safeguard my family	76 (28.5)	21 (14.9)	9.377	0.002
Fear of eventual raping	44 (16.5)	11 (7.8)	5.958	0.015
Fear of extreme coldness with no heating	69 (25.8)	16 (11.4)	11.755	0.001
I witnessed killing of other person/s	10 (3.8)	12 (8.5)	4.107	0.043
I helped in transportation of wounded person	6 (2.3)	12 (8.5)	8.584	0.003
I experienced clothes deprivation	25 (9.3)	24 (17.0)	4.992	0.025
I have actual needs for overpowering stress	113 (42.3)	37 (26.2)	10.246	0.001

\* $\chi^2$  test

**Table 4.** Severity of posttraumatic stress disorder (PTSD) symptoms amongst Bosnia and Herzegovina students from both entities, involved (n=336) and not involved (n=72) in psychosocial assistance – School Project UHD “Prijateljice” during the first and the second testing

Severity of symptoms of	Psychosocial help n=336	No psychosocial help n=72	Independent-Samples	
	mean±standard deviation		t-test*	P
PTSD A (IES)	35.3±10.2	30.4±10.6	3.564	<0.001
Re-experience A	14.8±5.1	12.3±5.2	3.611	<0.001
Avoidance A	20.6±6.3	18.1±6.6	2.835	0.005
PTSD B (IES)	26.0±9.0	27.6±11.7	-1.258	0.209
Re-experience B	11.2±4.2	11.5±5.0	-0.465	0.642
Avoidance B	14.6±5.6	16.2±7.5	-1.904	0.058

\*Student's t-test; A-The first testing took place at the beginning of December 2005; B-The second testing took place at the end of May 2006; \*Students t-test; P=the level of significant differences of results between two groups

The severity of PTSD symptoms in the group of students who were involved the School Project significantly decreased after five months of psychosocial help, while there were no significant

changes in severity of PTSD symptoms during the observed period in the group of no psychosocial help (Table 5).

**Table 5.** Changes in severity of posttraumatic stress disorder (PTSD) symptoms amongst Bosnia and Herzegovina students from both entities, five months after involved (n=336) and not involved in psychosocial assistance – School Project UHD “Priateljice” (n=72)

Involvement in the School Project	Symptoms of	Mean±standard deviation	Paired Samples Test		
			Mean±standard deviation	t*	P
Psychosocial help (n=336)	PTSD A	35.3±10.2	8.6±11.1	13.1	<0.001
	PTSD B	26.7±8.7			
No Psychosocial help (n=72)	PTSD A	29.7±10.9	1.6±14.1	0.9	0.392
	PTSD B	28.1±11.8			

\* Paired Samples Test; A-The first testing took place at the beginning of December 2005; B-The second testing took place at the end of May 2006; \* Paired Samples Test; P=the level of significant differences of results between two groups

## DISCUSSION

To our knowledge, this is the first published study to compare outcome among school adolescents who were and were not treated with psycho-social assistance after the catastrophic war in Bosnia-Herzegovina by using pre- and post intervention assessments of posttraumatic stress reactions.

One of the main objectives of the paper was to identify stressors endorsed by children aged 2 to 5 years during the war, now aged 12 to 15 years. The children had endorsed a variety of stressors both during the war and in the aftermath of the events, as outlined in table 1. Some events are stressor related in accordance with the criteria of stressors A1 (danger) and A2 (subjective responses of fear, helplessness and horror), described in the DSM-IV and some are clearly secondary adversities related to living conditions and deprivation of food etc. (La Greca et al. 1996).

In this research we found that the severity of PTSD symptoms and cluster symptoms of re-experience and avoidance were significantly reduced amongst students where the members of the School project team worked in compliance with their plan and program of psycho-social help and decrease of prevailing prejudices on acceptance and difference as well as on decrease of aggressive features among children by connecting children, parents, teachers and school management in both entities, as well as establishment of Students' clubs as a legal part of schools in which they work. Involvement of parents and teachers in the psycho-social program may have improved the home and school milieu, thereby facilitating recovery from PTSD (Goenjian et al. 1997). A psychosocial intervention program of NGO

“Priateljice” had been implemented in BH within 2 years of the Dayton Peace Agreement when war in BH ended, but systematic research was not undertaken during the past period because of the large number of victims in need of mental health services and the limited professional and material resources available. In addition, systematic research had to await the alleviation of subsistence problems and physical hardships as well as recovery of the school and community environments (Goenjian et al. 1997). The significant reduction in severity of overall posttraumatic stress reaction among school adolescents involved in psycho-social assistance was attributable to improvement in re-experience and avoidance of PTSD symptom categories. The benefit with regard to intrusion symptoms is most likely explained by the focus on emotions, non-violent communication, peer mediation, cooperation and tolerance, stereotypes and prejudices, children rights and humanization of inter-gender relations in the psycho-social work with involved students, in which strategies were employed to increase tolerance of re-experiencing phenomena and reduce physiological and psychological reactivity to traumatic reminders. The beneficial effects of psycho-social work on avoidance symptoms may have been due to multiple factors within the groups. Students were encouraged by the project facilitators and their peers to express themselves, to engage in activities with their families and peers, and to seek support from family members at times of renewed distress. Improvement in the symptom categories of intrusion may have also contributed to the reduction of avoidance symptoms. Identification of interpersonal conflicts and exploration of appropriate coping skills, including the

management of aggression, may have contributed to improvement in sleep, which, in turn, may have improved daytime concentration and reduced irritability (Goenjian et al. 1997).

Furthermore, such results in this research can be explained with fact that war in BH destroyed interpersonal relationships between citizens regarding ethnical belonging, so traditionally trust and confidence that were cultivated amongst neighbourhoods vanished. The actual school system based on ethnical school programs with different points of view on the history of BH war; about who is guilty for the war increased mistrust and the gap in interethnic dialogue. This comprehensive project involved students, their teachers and school directors and particularly their parents to spend a certain time together, it helped them to get over artificial and tragic ethnical division and enmity, and to re-establish trust and confidence, which help in decreasing of PTSD symptoms severity. These findings are similar to findings of other research about the effects of psychosocial support for war-traumatized children and adolescents (Dybdahl 2001, Hubbard et al. 1995).

The PTSD and cluster symptoms severity among studied participants were similar to other studies or reports of PTSD and cluster symptoms among children and adolescents from Bosnia and Herzegovina (Hasanović et al. 2005, 2006, Husain et al. 1998, Allwood, Bell-Dolan & Husain 2001). The girls presented more severe PTSD symptoms than the boys involved in the School project (Goenjian et al. 1997, Hasanović et al. 2005, 2006), as well as in other researches (Smith et al. 2001, Möhlen et al. 2005). Also the girls presented a significantly higher mean score on the avoidance and re-experience items of the Impact of Event Scale similar to other studies (Shannon et al. 1994, Husain et al. 1998). This can be explained by the greater number of traumatic experiences that girls reported, also their feeling of severe fears were significantly more frequently reported than by boys. This can be explained by the girls' higher vulnerability and sensibility in situations of insecurity and increased demand and need for safety which is lost during war conditions. Worse health in adolescent females seems to be a general finding. However, although this is widely accepted, this belief should not be generalized for all health indicators (Salonna et al. 2008).

This research showed that in the first testing among the studied population girls and boys differed in experiences of different traumas. With regard to survival and average number of traumas, students from the school project group had a significantly higher average number of traumas than their peers from the control group. All investigated students had a number of traumatic experiences during the war, especially loss of their close family members, which has been described in the literature (Pynoos 1993, Husain 1998, Papageorgiou 2000, Smith et al. 2002, Allwood et al. 2002, Barath 2002, Hasanović 2005, 2006).

We found interesting in this research that the participants were of very young age when the war occurred. These students were between 2 and 5 years of age when the war was going on. Many of the traumatic events may not be actually remembered by the participants, but they may be aware of them through their parents or other caregivers. In light of this, their PTSD and cluster symptoms severity are even more interesting, and point to the intergenerational transmission of PTSD.

These findings showed the changed proportion in national structure related to pre-war structure of BH citizens, because of different types of involuntary migrations during and after war. Despite the end of the war, more than ten years ago, the national composition did not repair as was planned. Because of the fact that a lot of people are still living out of their pre-war homes, the continual trauma of being out of their own property is very severe.

This research has certain limitations taking into account a number of post war traumas that the children were exposed to. Measurement of PTSD and cluster symptoms' severity level ten years after the war cannot be an assurance that the obtained results are only based on war trauma consequences. The level of PTSD and depression can increase or decrease over a period of time for unknown reasons (Hasanović et al. 2006). We know little about what social experiences and additional traumas these children had after the war considering the fact that BH is in its transition period with constant changes of social framework. Finally, in terms of limitations, we point out here that participation in the program was voluntary, and this may have strong implications for its effectiveness.

Findings in this research can be used for recommendations on enhancement and improvement of primary and secondary educational system so that besides the regular teaching it should also have aspects of psychosocial support for the traumatized students. Awareness of trauma of students can help teaching staff and school management to develop more efficient approaches in their working with these students instead of a repressive approach. This School project that justified its' existence can be an example for development of new similar projects that should be included in all existing primary and secondary schools if possible. Schools and other institutions ought to envisage as many projects as possible to be implemented in schools and out-of-schools in order to assist youth to more easily overcome the consequences of war in their development. There is a need to implement health promotion and preventive programs for adolescents.

Further research is needed to better understand the psychological effects of war trauma on young war victims, and the natural course of posttraumatic symptoms, so as to improve interventions targeted to this vulnerable population (Dybdahl 2001).

## CONCLUSION

This study suggests that work with students on their psychosocial support within the School Project resulted in a significant reduction of PTSD symptoms' severity. Girls presented more severe PTSD symptoms than the boys. Findings in this research can be used for recommendations in enhancement and improvement of the post war educational system so that besides the regular teaching there should also be aspects of psychosocial support for the traumatized students. There is a need for health promotion and preventive programs for young BH population. Further research is needed to better understand the psychological effects of war trauma on young war victims.

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