

War-related psychological sequelae among emergency department patients
in the former Republic of Yugoslavia

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ABSTRACT

INTRODUCTION: Residents of the Republic of Serbia faced civil war and a NATO-led bombing campaign in 1999. We sought to assess the burden of mental health dysfunction among emergency department (ED) patients presenting for care three years post-war in Serbia. **METHODS:** This study was conducted during July and August 2002 at two sites: a university hospital ED in Belgrade, Serbia and an ED in a remote district hospital serving a Serbian enclave in Laplje Selo, Kosovo. Investigators collected data on a systematic sample of non-acute patients presenting to the ED. All respondents completed a structured questionnaire assessing demographics and symptoms of post-traumatic stress (PTSD) [using the Harvard Trauma Questionnaire (HTQ)] and major depression [using the Center for Epidemiologic Studies Depression Scale (CESD)]. **RESULTS:** 562 respondents participated (310 in Belgrade, 252 in Laplje Selo). 43% were female. Response rate was 83.8%. Mean age was 37.6 years (SD=13.4). Overall, 73 (13.0%) participants had symptoms consistent with PTSD. 272 (49.2%) had symptoms consistent with depression. In separate multivariable logistic regression models, predictors of PTSD were: refugee status, and residence in Laplje Selo and predictors of depression were: older age, current unemployment, and lower social support. **CONCLUSIONS:** Three years post-war, symptoms of PTSD and major depression in Serbia remained a significant public health concern, particularly among refugees, those suffering subsequent economic instability, and persons living in rural, remote areas.

Key Words: post-war, mental health, emergency department, Serbia, Kosovo

INTRODUCTION

Beginning in June 1991, a series of civil wars dissolved the Socialist Federal Republic of Yugoslavia as Slovenia, Croatia, Bosnia-Herzegovina, and the Former Yugoslav Republic of Macedonia sought independence. Yugoslav President Slobodan Milošević ignited years of ethnic tensions between Kosovar Serbs and Kosovar Albanians, which led leading to the forced mass expulsion from Kosovo of thousands of ethnic Albanians from Kosovo. As a result, open conflict subsequently erupted in Kosovo in March 1999, the southern province and historic center of the Republic of Serbia. After attempts at reaching a peace accord failed in Rambouillet, France, members of the states of the North American Treaty Organization (NATO) voted to intervene militarily to end the conflict. On March 24, 1999, NATO-led air strikes commenced against targets throughout Serbia and the capital city of Belgrade. After an 11-week air campaign, a tenuous peace accord was established and the province was placed under the administration of the UN Interim Administration Mission in Kosovo (UNMIK)^[1].

Fearing retaliation from ethnic Albanians, hundreds of thousands of Kosovar Serbs fled the province during in the months following the NATO campaign. While census data show that nearly 200,000 Serbs lived in Kosovo in 1991 (approximately 10% of the population), there are presently currently less than 100,000 Serbs in the province currently who remain there (approximately 6% of the population).^[2-4] Most of these remaining Serbs living in Kosovo reside in community enclaves protected by NATO-led peacekeeping forces. Today, despite the general improvement of conditions in the region, the Serb minority continues to lack freedom of movement and access to basic

services, including access to health care.

Research has long-documented the significant burden of war on the mental health of civilians.^[5-13] Among the ethnic Albanian population in Kosovo, a population-based study was conducted in Kosovo among the ethnic Albanian population 2-4 months after the end of armed hostilities. This study found that approximately 17.1% of the population had symptoms consistent with a diagnosis of post-traumatic stress (PTSD).^[14] In an emergency department (ED) sample in Pristina, Kosovo two years after the Kosovo crisis, 14% of respondents had symptoms of PTSD and lower levels of overall mental health relating to the war.^[15] A high prevalence of nonspecific psychiatric morbidity has been documented among Serbs that remained in Kosovo soon after the war.^[6] One year after the NATO air attacks, the prevalence among Serbian students was persistently high.^[16] Unfortunately, additional reports on the mental health status of Serbians following the cessation of active conflict have been sparse.

The long-term psychological effects of war are under-appreciated in clinical settings.^[17-21] Physical symptoms, frequently co-occurring with psychological symptoms, and may obscure psychological impairment in a medical healthcare setting.^[22-24] For example, in one study, 42% of patients presenting to an ED setting with somatic complaints had an occult psychiatric disorder.^[23] Physicians frequently miss opportunities to make diagnoses of a primary mental health nature in their clinical practices.^[23] The evaluation of frequent, somatic complaints can result in a costly burden of care, especially in an emergency department (ED) setting.^[22-24] Describing the extent of psychosocial issues in post-conflict settings, and demonstrating how these issues correlate with somatic presentations to EDs, can help direct public health

interventions. This may be particularly important during conflict or in post-conflict situations.^[25]

We were interested in assessing the mental health status among Serbs in the post-conflict setting. We hypothesized that a substantial prevalence of subjects would have war-related psychological sequelae even three years after the end of overt hostilities. We further hypothesized that any long-term sequelae of war would be more profound among those residing in a remote, minority enclave within the Albanian-dominated areas of Kosovo, in contrast with to those living in Belgrade. Furthermore, we were interested in conducting the project in the ED setting, to identify the burden that of mental health dysfunction among persons presenting with “routine” complaints to an ED in the aftermath of war.

METHODS

Study Design

This project was designed as a cross-sectional questionnaire study, enrolling patients presenting for care between July 15 and August 30, 2002.

Setting

The study was conducted in two locations: 1) an ED at a tertiary care university hospital in Belgrade, Serbia, and 2) an ED at a remote, district hospital serving a Serbian enclave in Laplje Selo, Kosovo. The annual patient census for the ED in Belgrade is approximately 130,000 visits; 18% of patients are admitted for further care. For Laplje Selo, the annual volume is approximately 7500, with 10% admitted. The hospital in Belgrade is the flagship of the teaching hospitals in Serbia, with training programs in

medicine, surgery, pediatrics and many of the subspecialties. In Laplje Selo, there are no trainees working in the hospital and only fully trained medical personnel attend to patients. To reduce risk of being caught in ongoing clashes between members of the Albanians majority and Serbian minority in Kosovo during transit, hospital staff is accompanied from often remote areas of Serbia into to the Laplje Selo enclave via armed police escort, with staff working on a rotational basis for a set number of days per month.

Selection of Participants

Between Monday and Saturday during the hours of 9am to 5pm, patients were enrolled into the study if they were over the age of 18, and presented with a stable, non-life-threatening complaint to one of the participating EDs, and could give informed consent to participate. Patients were excluded if they presented with an unstable or life-threatening condition, or if they were unable to freely give informed consent (i.e. inebriation, unconsciousness, extreme emotional or physical distress, etc.) as designated by medical facility staff. Patients were selected through a systematic sampling of patients presenting for care at each of the two participating sites. In Belgrade, every 5th non-acute patient presenting for care to the ED was approached to participate in the study. Due to a smaller daily patient volume, every 2nd non-acute patient was asked to participate in Laplje Selo.

Method of Measurement

The structured survey contained questions regarding the patient's demographics (age, sex, occupation, municipality of origin, etc.), medical and surgical history, history

of ethanol use, and history of cigarette smoking. The Harvard Trauma Questionnaire (HTQ) and the Center for Epidemiologic Studies Depression (CES-D) Scale were used to assess the prevalence of persons with symptoms of PTSD, and major depression, respectively. Both the HTQ and CES-D have been used extensively in a variety of international settings.^[5,9,14,15,21,25-35] The questionnaires were translated from English into Serbian, and then back-translated from Serbian into English by a physician fluent in both languages. This questionnaire was then pilot tested among various physicians in Belgrade.

Outcome Measures

The HTQ was scored based on a 2-part instrument: the first part assesses the exposure to various traumatic events; the second part seeks to assess specific symptoms of PTSD. Symptoms in the HTQ are based on symptoms from the 4th revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).^[36] We used the algorithm created by the Harvard Refugee Trauma Group to assess whether participants had symptoms consistent with a diagnosis of PTSD.^[37] Briefly, respondents are asked to indicate their direct exposure to a list of traumatic experiences (Criteria A). Respondents are then asked if they've experienced any symptoms of post-traumatic stress from a second list of options. Each of these questions is answered on a 4-point Likert scale (i.e., "not at all", "a little", "quite a bit", or "extremely"). A response of "quite a bit" or "extremely" is considered a positive endorsement of that symptom. To be classified as a case, a respondent would have to have at least one traumatic exposure on the list of traumatic events (Criteria A); at least 1 positive answer of the 4 re-experiencing

symptoms (Criteria B); at least 3 of the 7 avoidance/numbing symptoms (Criteria C); and at least 2 of 5 symptoms of arousal/hypervigilance (Criteria D).

The CESD was developed in the 1970's by researchers at the National Institute of Mental Health (NIMH).^[25] In this study, it was used as a screening tool to determine the prevalence of study subjects who have symptoms consistent with major depression.

These questions are also configured using a 4-point Likert scale format. We graded the CES-D according to the established NIMH methodology, considering persons who scored 16 positive endorsements or more on an additive scale as screening positive for depression.^[25,26] It is a widely-used screening measures of depression used in cross-cultural mental health research.^[27-35]

Data Analysis

To assure overall data quality, standard protocols were followed to ensure consistency in the entering and coding of data. Routine comparisons were made between the hard copy data forms and the keyed data to avoid data errors. Periodic edits were performed on the computer database to safeguard against out-of-range entries. The investigators used the SAS System, version 8 (Cary, N.C.), to carry out statistical analysis. In the bivariate analyses, we identified a set of factors a priori that we thought were likely predictors of the two mental health outcomes: age, sex, education and employment status as well as number of traumatic events. Significant individual bivariate correlates of poor mental health function ($p \leq 0.10$) were included in a multivariate logistic regression model for analyses. Overall, we sought to identify the association between various factors, PTSD (as determined by the HTQ), and symptoms of major depression,

(as determined by the CESD), while controlling for relevant socio-demographic variables.

RESULTS:

A total of 671 eligible patients presenting for care during the study period were approached to participate in the study. Of these, 567 agreed to participate, and 562 (83.8%) completed the questionnaire (310 in Belgrade, 252 in Laplje Selo). Table 1 shows demographics. Overall participation was 83.8%. 242 (43%) participants were female. The mean age of the sample population was 37.6 years (SD=13.4). The participants were predominantly male (57%), of Serbian ethnicity (n=518, 94%). Two hundred forty-eight (44.3%) of respondents were born in Serbia; 254 (45.4%) were born in Kosovo, and 58 (10.4%) were born elsewhere.

Among respondents, 73 (13.0%) had symptoms consistent with PTSD. As Table 2 shows, the covariates found associated with PTSD in bivariate analyses were: living with a spouse or partner (p=0.014), marital status (p=0.016), lower household income (p <0.001), being born in Kosovo (p <0.001), refugee status during war (p <0.001), greater number of times moved in past 5 years (p <0.001), living in same home as before the war (p <0.001), data collection setting (i.e. higher in remote Laplje Selo setting vs. urban Belgrade setting) (p <0.001), and social support (p <0.001). Overall, 272 (49.2%) had symptoms consistent with depression. Depression was associated with older age (p <0.001), current (p <0.001) and pre-war employment status (p <0.001), being born in Kosovo (p=0.010), refugee status during the war (p=0.017), lower household income (p <0.001), less education (p <0.001), living in the remote community of Laplje Selo (p =

0.005), and lower social support ($p < 0.001$).

In a multivariable logistic regression models (Table 3), predictors of PTSD were: being a refugee for longer than 30 days (OR = 3.89, 95% CI: 1.5, 10.2), and living in remote Laplje Selo (OR = 13.6, 95% CI: 2.7, 67.9). Multivariable predictors of depression (Table 4) were: age 55 years or older (OR = 2.6, 95% CI: 1.4, 4.7), current unemployment (OR = 1.7, 95% CI 1.0, 2.7), and lower social support (OR = 3.3, 95% CI: 1.0, 11.1).

DISCUSSION:

Three years after the NATO-led bombing campaign over Serbia and Kosovo, a high prevalence of war-related mental health problems exists among ED patients presenting for care. In our sample of 562 participants, 13.0% had symptoms of PTSD, while almost half the study sample (49.2%) had symptoms consistent with depression. Among study participants, becoming a refugee during the war and living in the remote community of Laplje Selo were predictive of PTSD. Older age, unemployment, and lower social support predicted depression.

A persistently high prevalence of PTSD following conflict situations, torture or forced migration has been frequently described elsewhere.^[5,9,14-16,21,37-43] For example, the prevalence of PTSD was 14% among ethnic Albanians presenting for care in the ED setting in Kosovo 2 years post conflict.^[15] In Serbia, one year following the NATO air attack, 11% of subjects had symptoms suggestive of PTSD. Distress at the time of the bombing raids was predictive of PTSD symptoms one year later.^[16]

Despite numerous associations with PTSD in bivariate analysis, only two factors,

refugee status during the war and living in a remote isolated setting, remained important after controlling for other factors in this study. The importance of refugee status in determining mental health after conflict is consistent with the findings of others. For example, even after 20 years following civil conflict in Guatemala, 11.8% of participants had symptoms of PTSD.^[40] In that study, symptoms of PTSD were predicted by refugee status, human rights violations, and sum of traumatic events.^[40] Not surprisingly, living in the remote, isolated village of Laplje Selo was also predictive of PTSD. In a study evaluating the effects of social isolation, Mollica et al reported that among Bosnian refugees, PTSD was associated with isolation from family at a 3-year follow up.^[42]

In our study, we found that nearly half of participants reported symptoms consistent with major depression was a frequent finding. The high prevalence of depression in this sample is comparable with the findings by investigators in other post-conflict setting. Among a clinical sample of Bosnian refugees that who had resettled in Chicago, Illinois, the prevalence of major depression was 66%.^[41] In a study of Bosnian refugees, 43% of participants who met DSM-IV criteria on original testing for major depression (alone or co-morbid with PTSD) still met criteria at 3-year follow-up.^[42]

Older age, unemployment, and lower social support were predictive of major depression among respondents in this data set. Our findings are in accord with what has been reported elsewhere.^[43-47] For instance, in a study of ethnic Albanians following the war in Kosovo, those persons age 65 years and older had higher odds of psychiatric morbidity.^[14] Among former Somali refugees resettled in the United Kingdom, suicidality and drug use were associated with unemployment prior to their migration.^[48] In a study evaluating that evaluated coping strategies among Serbian medical students,

greater social support activities seemed to protect against psychological morbidity in the year following the NATO air campaign.^[49]

There were a number of limitations to this study. This project was designed as a cross-sectional study, where both exposure status and outcomes are determined simultaneously. Therefore, the issue of causality (i.e., war-trauma had *directly caused* poor results on post-war mental health screening) cannot be readily established.^[50-52] However, cross-sectional studies allow for rapid, cost-efficient, gathering of information that generates hypotheses for further investigation. Furthermore, the findings from a cross-sectional study can help to focus attention on issues of public health importance, which can assist public health planning.^[50-52] It is possible that participants drawn from a clinical setting may exaggerate the true prevalence of PTSD and depression than would a non-clinical sample.^[50-52] This study was primarily conducted among a Serbian patient population presenting to hospitals in a post-war setting, thus generalizations beyond this setting need to incorporate additional information.

One of the major challenges to conducting post-war mental health research beyond Western Europe and North America is the paucity of established benchmark data in a given area. Although these instruments have been used extensively, normative data has yet to be determined in this setting. Therefore, it is important to emphasize that the clinical implication of screening “positive” for depression or PTSD using the instruments in this study has yet to be fully established in Serbia.

CONCLUSION

In this study, a considerable number of ED patients in two Serbian communities were found to have significant psychopathology even three years following war. This study highlights the burden that post-war mental health dysfunction may have on patients that who present for care in the post-war context. Additional effort is needed to optimize appropriate screening for at-risk individuals. The ultimate goal of such a program for ED-based mental health screening would be to identify persons at-risk for mental health sequelae of war (i.e. PTSD and/or depression), and refer them to outpatient mental treatment. Public health officials, clinicians, and others with an interest in humanitarian work should bear in mind that a considerable number of patients presenting who present for care to at an ED setting may still harbor the mental health consequences of war, even three years following the end of conflict.

COMPETING INTERESTS

None declared

AUTHORS CONTRIBUTION

WGF and SG formulated the research design. BDN, WGF, SG, and SS were responsible for creation of survey materials. BDN primarily translated all survey materials. BDN, SS, KD, and MVR pilot tested the surveys. BDN, KD, SS, GSG, and MM were responsible for recruitment of patients. AN and JA were responsible for data analysis. BDN, WGF, and SG were responsible for creating the initial manuscript. All authors were involved in the editing and final approval of the manuscript. WGF takes

overall responsibility for the manuscript.

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Table 1. Demographic Characteristics among a sample of emergency department patients in Belgrade, Serbia, and Laplje Selo, Kosovo, three years after the 1999 NATO bombing campaign (N=562)

Characteristic	N	%
Age		
18-34	209	38.49
35-54	198	36.46
55+	136	25.05
Female Gender	237	42.47
Serbian Ethnicity	518	94.01
Married	338	60.68
Place of birth		
Serbia	248	44.29
Kosovo	254	45.36
Elsewhere	58	10.36
Number of times moved in past 5 years		
0	352	66.42
1	86	16.23
2+	92	17.36
Refugee status during NATO bombing		
Was not a refugee	449	82.84
Refugee for \leq 30 days	44	8.12
Refugee $>$ 30 days	49	9.04
Lived in same house as before NATO bombing	444	80.29
Education		
High School education or more	355	63.51
$<$ High School education	204	36.49
Total combined household income last year		
$>$ 500 German Deutsche Marks (DEM)	166	30.40
250-500 DEM	157	28.75
$<$ 250 DEM	223	40.84
Employed before NATO bombing	368	65.95
Currently employed	246	44.01
Social support		
High	387	69.60
Moderate	135	25.36
Low	28	5.04
Site of data collection		
Belgrade	310	55.16
Laplje Selo	252	44.84

Table 2. Bivariate analysis of sample characteristics and association with symptoms of post-traumatic stress (PTSD) and major depression among emergency department patients in Belgrade, Serbia, and Laplje Selo, Kosovo, three years post-war (N=562)

Characteristics	PTSD			Depression		
	N	%	p-value	N	%	p-value
Total	73	12.99		272	49.19	
Age						
18-34	29	13.88	0.119	84	41.18	<0.001
35-54	31	15.66		92	47.18	
55+	11	8.09		86	63.70	
Gender						
Male	40	12.46	0.612	145	45.89	0.072
Female	33	13.92		125	53.65	
Ethnicity						
Serbian	67	12.93	0.389	252	49.41	0.684
Not Serbian	6	18.18		17	53.13	
Marital status						
Not married	19	8.68	0.016	102	47.22	0.439
Married	53	15.68		168	50.60	
Place of birth						
Serbia	11	4.44	<0.001	103	42.21	0.010
Kosovo	55	21.65		139	55.82	
Elsewhere	6	10.34		28	48.28	
Number moves in past 5 years						
0	27	7.67	<0.001	159	45.69	0.123
1	9	10.47		41	48.81	
2+	24	26.09		52	57.78	
Refugee status during NATO bombing						
Was not a refugee	44	9.80	<0.001	205	46.28	0.017
Refugee for ≤ 30 days	5	11.36		24	55.81	
Refugee for > 30 days	18	36.73		32	66.67	
Live in same house as before NATO bombing						
Yes	47	10.59	<0.001	208	47.49	0.063
No	25	22.94		61	57.55	
Education						
High School education or more	39	10.99	0.078	151	43.14	<0.001
Less than a High School education	33	16.18		119	59.50	
Total combined household income last year						
>500 German Deutsche Marks (DEM)	14	8.43	<0.001	63	38.18	<0.001
250-500 DEM	14	8.92		70	44.87	
<250 DEM	44	19.73		133	60.45	
Employment before NATO bombing						
Yes	49	13.32	0.821	157	43.61	<0.001
No	24	12.63		114	60.32	
Currently employed						
Yes	25	10.16	0.072	84	34.71	<0.001
No	48	15.34		187	60.71	
Social support						
High	35	9.04	<0.001	160	41.99	<0.001
Moderate	28	19.86		89	63.12	
Low	9	32.14		19	73.08	
Site of data collection						
Belgrade	13	4.19	<0.001	134	43.79	0.005
Laplje Selo	60	23.81		138	55.87	

Table 3. Multivariate regression analysis of factors predicting symptoms of post-traumatic stress (PTSD) among emergency department patients in Belgrade, Serbia, and Laplje Selo, Kosovo, three years post-war (N=562)

Characteristic	PTSD		
	OR	95% CI	p-value
Marital status			
Not married	1.000		0.737
Married	0.748	0.137-4.076	
Place of birth			
Serbia	1.000		0.193
Kosovo	0.285	0.051-1.575	
Elsewhere	1.424	0.379-5.347	
Number moves in past 5 years			
0	1.000		0.252
1	1.158	0.431-3.111	
2+	2.331	0.841-6.458	
Refugee status during NATO bombing			
Was not a refugee	1.000		0.006
Was a refugee for \leq 30 days or less	0.391	0.075-2.038	
Was a refugee for $>$ 30 days	3.888	1.483-10.193	
Live in same house as before NATO bombing			
Yes	1.000		0.686
No	0.821	0.315-2.139	
Education			
High School education or more	1.000		0.638
Less than a High School education	1.187	0.581-2.426	
Total combined household income last year			
$>$ 500 German Deutsche Marks (DEM)	1.000		0.538
250-500 DEM	1.290	0.448-3.717	
$<$ 250 DEM	1.764	0.622-5.004	
Currently employed			
Yes	1.000		0.430
No	0.734	0.341-1.580	
Social support			
High	1.000		0.117
Moderate	1.624	0.771-3.423	
Low	3.481	0.980-12.371	
Site of data collection			
Belgrade	1.000		0.002
Laplje Selo	13.598	2.723-67.899	

Table 4. Multivariate regression analysis of factors predicting symptoms of major depression among emergency department patients in Belgrade, Serbia, and Laplje Selo, Kosovo, three years post-war (N=562)

Characteristic	Depression		
	OR	95% CI	p-value
Age			
18-34	1.000		0.005
35-54	1.582	0.976-2.564	
55+	2.599	1.448-4.667	
Gender			
Male	1.000		0.323
Female	1.265	0.793-2.018	
Place of birth			
Serbia	1.000		0.470
Kosovo	1.450	0.530-3.970	
Elsewhere	0.743	0.358-1.539	
Refugee status during NATO bombing			
Was not a refugee	1.000		0.109
Was a refugee for ≤ 30 days	1.362	0.617-3.003	
Was a refugee for > 30 days	2.208	1.029-4.739	
Live in same house as before NATO bombing			
Yes	1.000		0.377
No	1.281	0.739-2.222	
Education			
High School education or more	1.000		0.142
Less than High School education	1.404	0.893-2.207	
Total combined household income last year			
>500 German Deutsche Marks (DEM)	1.000		0.808
250-500 DEM	0.997	0.584-1.703	
<250 DEM	1.165	0.666-2.036	
Employment before NATO bombing			
Yes	1.000		0.169
No	1.432	0.858-2.389	
Currently employed			
Yes	1.000		0.047
No	1.662	1.006-2.744	
Social support			
High	1.000		0.025
Moderate	1.678	1.040-2.707	
Low	3.334	1.000-11.117	
Site of data collection			
Belgrade	1.000		0.637
Laplje Selo	1.269	0.472-3.410	