

# Psychological Symptoms among Workers Employed in Companies Undergoing Privatization in Postwar Bosnia and Herzegovina

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## ABSTRACT

*In Central and Eastern European countries, after abandoning communism, significant political, economic and social changes occurred, followed by the increase in income inequality and social disparity. The goal of this study was to examine the relationship between psychological symptoms and monthly income of employees in companies undergoing privatization. The study included 258 workers from seven companies undergoing privatization in the Tuzla Canton region. For the study purposes, the Brief Symptom Inventory (BSI) and a general questionnaire with questions about socio-demographic characteristics, income, and workplace, were used. Monthly income of the majority of workers (207 or 80.2%) was below the monthly income in Bosnia and Herzegovina. Workers with salaries below the average salary for Bosnia and Herzegovina have pronounced somatization, anxiety, paranoia, interpersonal sensitivity and hostility. The BSI scale yielded significant negative correlation between the level of monthly salary and the expression of psychological symptoms ( $r=-0.184$ ,  $p=0.002$ ) and between the level of family income and the expression of psychological symptoms ( $r=-0.123$ ,  $p=0.024$ ). Based on the study results, it was determined that socio-economic factors such as the level of salary and total family income and job insecurity, educational level, marital status and gender may be predictors of psychological symptoms.*

**Key words:** *psychological symptoms, mental health, socio-economic factors, low-income employees, poverty*

## Introduction

Mental disorders and conduct disorders are some of the most significant causes of illness and disabilities in developing countries as well as in developed countries. Worldwide, mental health problems show an upsetting growing tendency, and according to the World Health Organization (WHO) evaluation, in 2020 depression will be one of the leading causes of disability<sup>1</sup>. Previous studies indicated that there is the relationship between mental health and socioeconomic status<sup>2</sup>. Recent studies have investigated the relationship between poverty and health, especially between poverty and mental health<sup>3-6</sup>. Poverty is a multidimensional phenomenon, encompassing inability to satisfy basic needs, lack of control over resources, low level of education and poor health. Poverty may have direct or indirect effect on the development

and maintenance of emotional, behavioral and psychiatric problems<sup>3</sup>. Multidimensionality of poverty as a phenomenon allows the poverty to be viewed as a temporary or a chronic condition of insufficient resources, possibilities, choices, security and power needed to achieve satisfying standard of living and satisfying civil, economic, political, cultural and social rights. The majority of studies related to poverty and mental health have been conducted among subjects who were unemployed, homeless, suffering from mental disorders, and had low-paid jobs<sup>7-10</sup>. In Central and Eastern Europe significant political, economic and social changes occurred after the collapse of socialist system, followed by inequalities in income and social upheaval. The increased income inequality and rapid social changes have been associated with increased

physical and mental illnesses<sup>11</sup>. In addition, Bosnia and Herzegovina is being in a post-conflict period and has been graded as having a medium level of poverty<sup>12</sup>. On the basis of the study of living standards in Bosnia and Herzegovina – Living Standards Measurement Survey (LSMS) – conducted in 2001 it is possible to assess the level of poverty and to determine the poverty line. According to the LSMS, total annual *per capita* expenditure of €1127.17 presents the general poverty line for Bosnia and Herzegovina, whereas the extreme poverty line is set at about €398.74 *per capita per year*. About 19.5% of the population in Bosnia and Herzegovina is estimated to live below the general poverty line, about 30% live just above the poverty line, and about 16% live on less than US\$ 2 *per day*, but no population groups live near or below extreme poverty<sup>13</sup>. According to data of the Federal Office of Statistics of the Federation of Bosnia and Herzegovina, monthly net salary in 2006 was €309.33, whereas the average costs of the so called »consumer basket« were €251.69<sup>14</sup>. The consumer basket includes the most important consumer goods, the contents and quality of which cover standard necessities of a family of four, and represent a minimum of necessities needed to sustain human life, as recommended by the experts. It is estimated that leading psychological disorders are related to war<sup>15</sup>.

Considering the ongoing privatization of the state-owned enterprises and job insecurity<sup>16,17</sup>, our hypothesis was that it decreases monthly income of the majority of workers in Bosnia and Herzegovina and decreases their general satisfaction with their workplace and monthly incomes. Though, the level of monthly salary and the level of family income could be in significant negative correlation with expression of psychological symptoms.

Our goal was to analyze the relationship between psychological symptoms, and the level of monthly salaries and total family incomes of persons employed in companies operating in Tuzla Canton that entered the process of privatization, and their general satisfaction with their workplace and monthly incomes. In addition, our goal was to analyze the poverty level of the subjects with regard to the national poverty line. The poverty level was based on the amount each family member may spend *per day*, and it was calculated by dividing total family income with the number of dependent family members.

## Methods

The study was conducted in Tuzla Canton in the period from December 2006 to March 2007. The subjects were employed in companies undergoing privatization in the Tuzla Canton region. In 2006, 71.293, out of 496.280 total populations in Tuzla Canton were employed; from that, 74% were employed in economy. We printed cards with names of companies operating in Tuzla Canton that entered the process of privatization and have more than 300 employees. We randomly selected 10 cards with names of 10 companies from 33 companies that met our criteria according to the Chamber of Economy of Tuzla

Canton<sup>18</sup>. After obtaining permission from the companies' directors to carry out the survey, we polled 60 first shift workers of each company. Participation in the study was voluntary and anonymous. In two shoe factories, out of 120 workers asked, 85 agreed to complete the questionnaire, eight of which were incomplete. In the detergent factory only 23 of 60 questionnaires were completed. The workers who refused to complete the questionnaire stated that the results might be the indicator for their dismissal. From two metal-processing companies 92 of 120 questionnaires were completed, nine of which were incomplete. The workers from a textile factory filled out 40 questionnaires, five of which were incomplete. Out Of 60 questionnaires from thermal power plant, 40 questionnaires were completed. We were not able to get permission to conduct the survey in three factories: wood processing plant, brewery, and the salt factory. From 420 planned workers, 258 agreed 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 time. All of the procedures and aims of the study were discussed with the potential participants; they agreed to participate voluntarily, and gave verbal informed consent to participate in the study. The average age of the subjects was 45.06±9.46 years. The majority of workers (76.0%) were in the age group of 36–55 years, and regarding the gender, there more male than female subjects were present (148 or 57.4%).

Psychological symptoms examination was conducted using the Brief Symptom Inventory (BSI)<sup>19</sup>. BSI is a self-report scale consisting of 53 items designed to reflect psychological symptom patterns of psychiatric and non-psychiatric patients. The symptom inventory covers nine primary symptom dimensions and three global indices of distress. Symptoms scales are: somatization, obsessive-compulsive tendency, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Global Severity Index measures the level of total psychological symptoms level, Positive Symptom Distress Index measures the intensity of symptoms and Positive Symptom Total reports on the number of experienced symptoms. The reliability coefficient for BSI was 0.97. Socio-demographic data, age, gender, professional qualification, workplace, years of service, home ownership (house, apartment), total monthly salary, total monthly family income, health insurance, and the number of family members supported by the worker were examined using a general questionnaire designed for the purpose of this study. Job satisfaction, satisfaction with salary, fear of losing job were gathered using additional questionnaire based on the Likert scale, graded 0–5, with 0 = total dissatisfaction or not at all, and 5 = total satisfaction or quite often.

## Statistics

The subjects' characteristics were analyzed using descriptive statistics. Differences in demographic characteristics of the subjects with regard to monthly salary and average monthly family income were assessed using

nonparametric tests. Mean values and nonparametric tests were used to assess the differences in expression of psychological symptoms in relation to average monthly salary and average salary in the Federation of Bosnia and Herzegovina, as well as in relation to average monthly family incomes and general poverty line. Correlation between expression of psychological symptoms and average monthly salary, and correlation between the expression of psychological symptoms and average monthly family income was determined using Pearson's coefficient. Nonparametric tests were also used to assess differences in the expression of psychological symptoms in relation to job satisfaction and satisfaction with monthly incomes. Socio-demographic characteristics of the subjects were examined and the differences were assessed using  $\chi^2$ -test. All statistical analyses were performed with Statistical Package for Social Sciences, version 7.5 SPSS Inc., Chicago, IL, USA, and  $p < 0.05$  was regarded as significant.

## Results

At the time of the study, average monthly salary of the examined group of workers was €227.6±137.8, ranging from €51.3 to €769.2. Average family monthly income

was €337.2±249.2, with the smallest income of €51.3 and the largest of €1538.5. Average daily income *per* dependent family member was €1.6±0.6, with minimum of €0.5 and maximum of €17.1 *per* family member. One worker supported an average of 3.1±1.1 family members. Two hundred and seven workers (80.2%) had monthly salaries below the average national salary, 40 (15.5%) had salaries above the average, whereas 11 (4.3%) workers had an average monthly salary. Total family incomes of 123 (47.7%) workers were below the national poverty line, 48 (18.6%) workers had incomes significantly above, and 49 (19.0%) had just above the poverty line, whereas 38 (14.7%) workers were living on general poverty line. One hundred and fifty nine workers, or 61.6%, reported to be forced to find additional income sources.

Significantly higher salaries were reported by men with university education, who were married, and whose partners were employed. Also, significantly higher monthly family incomes were reported by workers with university education, who were married, and whose partners were employed (Table 1). Kruskal Wallis test did not yield significant difference between male and female workers regarding their professional qualification, number of children, accommodation, job satisfaction, monthly family

**TABLE 1**  
DEMOGRAPHIC CHARACTERISTICS OF WORKERS (N=258) IN COMPANIES UNDERGOING PRIVATIZATION FROM THE TUZLA CANTON REGION, WITH REGARD TO SELF-REPORTED AVERAGE MONTHLY SALARY AND AVERAGE MONTHLY FAMILY INCOME

Demographic characteristics	N (%)	Monthly salary ( $\bar{X}$ ±SD)	Family monthly income ( $\bar{X}$ ±SD)
Gender			
Male	148 (57.4)	240.9±141.2*	311.8±210.1
Female	110 (42.6)	209.8±131.7	373.2±290.7
Marital status			
Married	198 (76.7)	246.0±147.0*	372.4±263.5*
Unmarried	43 (16.7)	158.9±63.5	208.3±118.0
Divorced	11 (4.3)	184.3±118.0	242.9±188.7
Widowed	6 (2.3)	194.8±80.7	268.4±225.3
Education level			
Without education	2 (0.8)	192.3±90.6	282.0±36.2
Elementary school	29 (11.2)	171.1±73.2	227.1±170.2
Secondary (high) school	189 (73.3)	209.8±117.9	303.9±191.3
University education	38 (14.3)	361.2±185.6*	589.6±377.7*
Accommodation			
House owner	139 (53.9)	214.20±115.30	327.62±223.71
Apartment owner	51 (19.8)	270.49±182.38*	452.44±304.27*
Rented apartment	9 (3.5)	270.48±241.65*	355.09±315.79*
Parent's house	59 (22.9)	192.22±99.16	257.35±209.92
Partner's employment status			
Employed	98 (38)	263.6±162.6*	504.0±290.1*
Unemployed	160 (62)	205.6±115.3	234.9±146.1
Health insurance			
With insurance	204 (79.1)	240.12±135.87*	352.31±241.13*
Without insurance	54 (20.9)	180.44±136.08	279.87±272.38

\* Kruskal Wallis Test,  $p < 0.01$ ;  $\bar{X}$ ± - Means ±

**TABLE 2**  
EXPRESSION OF PSYCHOLOGICAL SYMPTOMS ON THE BRIEF SYMPTOM INVENTORY (BSI), WITH REGARD TO THE LEVEL OF AVERAGE MONTHLY INCOME IN THE FEDERATION OF BOSNIA AND HERZEGOVINA, IN WORKERS (N=258) OF COMPANIES IN THE PROCESS OF PRIVATIZATION FROM THE TUZLA CANTON REGION

Symptoms on the Brief Symptom Inventory (BSI)	Average monthly salary of subjects with regard to the average monthly income of the F B&H (€309.33 <i>per person per month</i> )			p*
	Below* (n=207)	In level with (n=11)	Aabove* (N=40)	
	$\bar{X}\pm SD$	$\bar{X}\pm SD$	$\bar{X}\pm SD$	
Somatization	1.33±1.16	0.78±0.69	0.76±0.79	0.005
OCT	1.05±0.95	0.74±0.88	0.61±0.54	0.015
Interpersonal sensitivity	0.95±0.87	0.72±0.76	0.62±0.55	0.060
Depression	0.86±0.92	0.62±0.93	0.28±0.39	<0.001
Anxiety	1.13±1.01	0.53±0.51	0.50±0.53	<0.001
Hostility	0.94±0.89	0.56±0.65	0.55±0.52	0.016
Phobic anxiety	0.75±0.80	0.47±0.77	0.30±0.40	<0.001
Paranoid ideation	1.58±1.05	1.16±0.98	1.11±0.78	0.012
Psychoticism	0.57±0.68	0.56±0.88	0.31±0.46	0.007
Extra scale	0.88±0.81	0.54±0.91	0.51±0.57	0.006
GSI	1.02±0.80	0.66±0.64	0.56±0.57	0.001
PSDI	1.79±0.68	1.61±0.75	1.45±0.62	0.006
GS	54.47±42.91	35.36±34.33	29.77±22.82	0.001
PST	27.11±14.74	20.00±14.64	19.47±12.08	0.002

\* Mann Whitney test;  $\bar{X}\pm SD$  – Means±Standard deviation; OCT – Obsessive-Compulsive Tendency; GSI – Global Severity Index; PSDI – Positive Symptom Distress Index; GS – Global Symptom; PST – Positive Symptom Total

**TABLE 3**  
EXPRESSION OF PSYCHOLOGICAL SYMPTOMS ON THE BRIEF SYMPTOM INVENTORY (BSI), WITH REGARD TO AVERAGE MONTHLY FAMILY INCOME AND GENERAL POVERTY LINE IN BOSNIA AND HERZEGOVINA IN WORKERS (N=258) OF COMPANIES IN THE PROCESS OF PRIVATIZATION FROM THE TUZLA CANTON REGION

Symptoms on the Brief Symptom Inventory (BSI)	Average monthly family income with regard to general poverty line of the F B&H (€93.93 <i>per person per month</i> )					p*
	Below* (N=123)	In level with (N=38)	Just above* (N=49)	Significantly above (N=48)	Total (N=258)	
	$\bar{X}\pm SD$	$\bar{X}\pm SD$	$\bar{X}\pm SD$	$\bar{X}\pm SD$	$\bar{X}\pm SD$	
Somatization	1.49±1.20	1.18±1.20	0.90±0.80	0.83±0.86	1.21±1.11	0.004
OCT	1.13±1.01	1.03±0.85	0.72±0.75	0.77±0.76	0.97±0.91	0.014
Interpersonal sensitivity	1.00±0.88	0.90±0.97	0.73±0.71	0.75±0.67	0.89±0.83	0.103
Depression	0.92±0.94	0.76±0.91	0.63±0.79	0.48±0.72	0.76±0.89	0.027
Anxiety	1.24±1.01	1.03±1.04	0.78±0.83	0.61±0.70	1.01±0.96	0.005
Hostility	1.03±0.93	0.84±0.87	0.63±0.62	0.68±0.73	0.86±0.85	0.008
Phobic anxiety	0.79±0.81	0.72±0.91	0.55±0.65	0.46±0.61	0.67±0.77	0.070
Paranoid ideation	1.65±1.06	1.44±0.95	1.37±1.03	1.24±0.91	1.49±1.02	0.092
Psychoticism	0.61±0.69	0.58±0.76	0.37±0.52	0.45±0.61	0.53±0.66	0.026
Extra scale	0.96±0.85	0.73±0.80	0.73±0.70	0.57±0.68	0.81±0.80	0.130
GSI	1.16±0.82	0.94±0.85	0.76±0.63	0.68±0.61	0.94±0.77	0.011
PSDI	1.82±0.70	1.72±0.69	1.63±0.56	1.61±0.75	1.73±0.69	0.104
GS	28.68±14.40	25.21±14.61	21.93±13.60	21.87±14.83	25.62±14.62	0.011
PST	58.55±43.67	50.02±45.14	40.79±33.62	36.56±32.66	49.83±41.10	0.004

\* Mann Whitney test;  $\bar{X}\pm SD$  – Means±Standard deviation; OCT – Obsessive-Compulsive Tendency; GSI – Global Severity Index; PSDI – Positive Symptom Distress Index; GS – Global Symptom; PST – Positive Symptom Total

**TABLE 4**  
SEVERITY OF PSYCHOLOGICAL SYMPTOMS ON THE BRIEF SYMPTOM INVENTORY (BSI) IN THE EXAMINED GROUP OF WORKERS (N=258) OF COMPANIES IN THE PROCESS OF PRIVATIZATION FROM TUZLA CANTON IN RELATION TO SATISFACTION WITH WORKPLACE

Symptoms on the Brief Symptom Inventory (BSI)	Means $\pm$ standard deviation of symptoms severity in relation to job satisfaction		
	satisfied (N=161)	dissatisfied (N=97)	p*
Somatization	1.02 $\pm$ 0.96	1.53 $\pm$ 1.26	0.004
OCT	0.81 $\pm$ 0.76	1.23 $\pm$ 1.08	0.010
Interpersonal sensitivity	0.75 $\pm$ 0.78	1.11 $\pm$ 0.88	0.001
Depression	0.62 $\pm$ 0.81	1.00 $\pm$ 0.96	0.001
Anxiety	0.87 $\pm$ 0.88	1.23 $\pm$ 1.05	0.008
Hostility	0.68 $\pm$ 0.67	1.16 $\pm$ 1.01	<0.001
Phobic anxiety	0.56 $\pm$ 0.71	0.86 $\pm$ 0.84	0.002
Paranoid ideation	1.31 $\pm$ 0.93	1.79 $\pm$ 1.09	0.001
Psychoticism	0.45 $\pm$ 0.61	0.67 $\pm$ 0.73	0.009
Extra scale	0.63 $\pm$ 0.79	1.10 $\pm$ 0.86	<0.001
GSI	0.78 $\pm$ 0.67	1.19 $\pm$ 0.86	<0.001
PSDI	1.62 $\pm$ 0.67	1.91 $\pm$ 0.74	0.003
GS	41.76 $\pm$ 35.66	63.22 $\pm$ 45.96	<0.001
PST	23.09 $\pm$ 13.81	29.81 $\pm$ 15.03	<0.001

\*Kruskal Wallis test; OCT – Obsessive-Compulsive Tendency; GSI – Global Severity Index; PSDI – Positive Symptom Distress Index; GS – Global Symptom; PST – Positive Symptom Total

income, number of dependent family members, and satisfaction with monthly salary, satisfaction with daily income *per* family member, health insurance, and fear of losing job. There was a significant difference between male and female workers regarding age ( $\chi^2=5.410$ ,  $p=0.020$ ), marital status ( $\chi^2=8.113$ ,  $p=0.004$ ), years of service ( $\chi^2=11.914$ ,  $p=0.001$ ), salary ( $\chi^2=14.094$ ,  $p<0.001$ ),

and partners employment status ( $\chi^2=8.432$ ,  $p=0.004$ ). Male workers were older than female workers (46.25 $\pm$ 9.05 *vs.* 43.47 $\pm$ 9.80;  $\chi^2=5.410$ ,  $p=0.020$ ), more male than female workers were married (82.4% *vs.* 69.1%;  $\chi^2=8.113$ ,  $p=0.004$ ), male workers were more years in service than female workers (24.19 $\pm$ 10.47 *vs.* 19.79 $\pm$ 10.22;  $\chi^2=11.914$ ,  $p=0.001$ ), men had a higher average monthly

**TABLE 5**  
SEVERITY OF PSYCHOLOGICAL SYMPTOMS ON THE BRIEF SYMPTOM INVENTORY (BSI) IN THE EXAMINED GROUP OF WORKERS (N=258) OF COMPANIES IN THE PROCESS OF PRIVATIZATION FROM TUZLA CANTON REGION IN RELATION TO SATISFACTION WITH MONTHLY INCOMES

Severity of psychological symptoms on the Brief Symptom Inventory (BSI)	Means and standard deviation of symptoms in relation to satisfaction with monthly incomes		
	satisfied (N=47)	dissatisfied (N=211)	p*
Somatization	0.85 $\pm$ 0.82	1.29 $\pm$ 1.15	0.022
OCT	0.63 $\pm$ 0.65	1.05 $\pm$ 0.94	0.005
Interpersonal sensitivity	0.59 $\pm$ 0.59	0.95 $\pm$ 0.86	0.009
Depression	0.38 $\pm$ 0.60	0.84 $\pm$ 0.92	<0.001
Anxiety	0.53 $\pm$ 0.60	1.11 $\pm$ 1.00	<0.001
Hostility	0.57 $\pm$ 0.58	0.93 $\pm$ 0.88	0.011
Phobic anxiety	0.37 $\pm$ 0.52	0.74 $\pm$ 0.80	0.002
Paranoid ideation	1.05 $\pm$ 0.88	1.59 $\pm$ 1.03	0.001
Psychoticism	0.35 $\pm$ 0.58	0.57 $\pm$ 0.68	0.009
Extra scale	0.53 $\pm$ 0.64	0.87 $\pm$ 0.82	0.004
GSI	0.59 $\pm$ 0.52	1.01 $\pm$ 0.80	0.001
PSDI	1.58 $\pm$ 0.70	1.76 $\pm$ 0.68	0.095
GS	31.63 $\pm$ 28.04	53.88 $\pm$ 42.48	0.001
PST	19.08 $\pm$ 13.37	27.08 $\pm$ 14.51	0.001

\*Kruskal Wallis test; OCT – Obsessive-Compulsive Tendency; GSI – Global Severity Index; PSDI – Positive Symptom Distress Index; GS – Global Symptom; PST – Positive Symptom Total

**TABLE 6**  
ASSOCIATION OF GENDER, AGE, FEAR OF JOB LOSING AND JOB SATISFACTION WITH SEVERITY OF PSYCHOLOGICAL SYMPTOMS ON THE BRIEF SYMPTOM INVENTORY (BSI) IN WORKERS (N=258) WITH SALARIES BELOW THE AVERAGE SALARY IN THE FEDERATION OF BOSNIA AND HERZEGOVINA

Socio-demographic variables	Psychological symptoms on the Brief Symptom Inventory (BSI) *													
	SO	OCT	IS	DEP	ANX	HOS	PHOB	PAR	PSYCH	ES	GSI	PSDI	GS	PST
Gender	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.009	<0.001	<0.001	<0.001	<0.001
Age	0.002	0.018	0.406	0.067	0.061	0.174	0.026	0.183	0.297	0.092	0.050	0.091	0.050	0.010
Fear of losing job	0.002	<0.001	<0.001	0.002	<0.001	0.003	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001
Job satisfaction	0.006	0.003	0.007	0.010	0.034	<0.001	0.034	0.009	0.022	<0.001	0.002	0.034	0.002	0.003

\*Pearson correlation; SO – somatization, OCT – obsessive-compulsive tendency, IS – interpersonal sensitivity, DEP – depression, ANX – anxiety, HOS – hostility, PHOB – phobic anxiety, PAR – paranoid ideation, PSYCH – psychoticism, ES – extra scale, GSI – Global Severity Index; PSDI – Positive Symptom Distress Index; GS – Global Symptom; PST – Positive Symptom Total

salaries than women (240.85±141.21 *vs.* 209.85±136.66;  $\chi^2=14.094$ ,  $p<0.001$ ), and more men than women had unemployed partners (69.6% *vs.* 51.81%;  $\chi^2=8.432$ ,  $p=0.004$ ). Satisfaction with monthly salaries was reported by 47 (18.2%) workers, and additional monthly income by 12 (4.7%) workers. Constant or frequent fear of losing job was reported by 75 (29.1%) workers; occasional fear was reported by 99 (38.4%) workers, whereas 84 (32.6%) workers reported not being afraid of losing their job. Job satisfaction was reported by 161 (62.4%) workers. Workers whose average monthly salary was below the average national salary had significantly more expressed mental symptoms on the BSI scale, than workers with an average monthly salary above the average national salary (Table 2). Linear regression analysis yielded a significant negative correlation between expression of psychological symptoms and the salary level ( $p<0.01$ ). Present was also, a significant negative correlation between psychological symptoms and average monthly family income ( $p<0.05$ ) (Table 3). Workers who reported job dissatisfaction (Table 4) and dissatisfaction with their monthly salaries (Table 5) had significantly more expressed psychological symptoms on the BSI scale than satisfied workers. Socio-demographic variables showed a significant correlation between the intensity of psychological symptoms and gender, fear of losing job, and job satisfaction (Table 6). Workers who had to find additional income sources had a significantly expressed hostility ( $p=0.043$ ), whereas there was no significant difference in expression of other symptoms on the BSI scale at the Kruskal Wallis test in relation to the workers who did not have to earn additional money (GSI  $\chi^2=1.539$ ,  $df=1$ ,  $p=0.215$ ; PSDI  $\chi^2=0.730$ ,  $df=1$ ,  $p=0.393$ ).

## Discussion

In this study, workers whose salaries were below the average salary at the level of the Federation of Bosnia and Herzegovina had significantly pronounced paranoia, somatization, anxiety, obsessive-compulsive tendencies, whereas workers whose average monthly family income was below the national poverty line had, in addition, pronounced hostility. Several epidemiological studies have

found that low-income population groups were more vulnerable to psychological problems<sup>10,20,21</sup>. However, these studies found more significant associations between psychological symptoms, especially depression, and workplace variables, and organizational level and social support than between psychological symptoms and economic inadequacy. The majority of studies found that low-income workers or workers with low-paid jobs had more pronounced symptoms of depression than well-paid workers, and they also found that, for psychological symptoms, other variables, such as low education level, poor housing, and restricted standard of living, were important as well<sup>4,22</sup>. Our study showed significant correlation between the intensity of psychological symptoms and female gender, possible fear of losing job, and dissatisfaction with workplace and salary. The results of this study may be related to the process of privatization and concomitant insecurity, especially because it was not accompanied by adequate social programs<sup>17</sup>. Considering that paranoia was also pronounced in workers with salaries and total family incomes significantly above the poverty line, it may be explained with the fact that the particular population was living in Bosnia and Herzegovina during the war (1992–1995) and was exposed to various social stressors related to the process of transition in the post-war period<sup>6,23–26</sup>. Another possible explanation could be in regard of that paranoid ideation is a common appearance in existentially threatening situations when people usually start to use less mature defenses mechanisms<sup>5</sup>. Lower average monthly salary was reported by women, who were unmarried, with lower education level, subtenants, whose partners were unemployed and without regulated health insurance, which was similar to results obtained from other studies<sup>5,7,10,27,28</sup>.

Based on the study results, we may conclude that socio-economic factors such as the low salary, low family income, and job insecurity may be the predictors of increased of psychological symptoms severity in workers employed in companies operating in Tuzla Canton that entered the process of privatization. Also, based on the study results, it was determined that educational level, marital status and gender may be predictors of psychological symptoms too.

The study results may be helpful in understanding or association of psychological symptoms and poverty for workers in companies that operate in countries with medium or low incomes, in postwar countries, and countries in transition.

Limitation of our study was a relatively small sample size, and the fact that this study did not include absences from work due to psychological and health problems. The design of this snap-shot study without control group permitted some conclusions on symptoms prevalence and some correlation, though we could not expect predictions. Because the sample was population that under-

went a war traumatization that influenced the mental status of participants as well, we had to be very cautious when interpreting the design and data.

### Acknowledgements

The authors would like to thank Nihada Bijedić, a social worker of the Clinic for Psychiatry University of Tuzla and social workers in companies in which the study was conducted, for significant technical help that was provided, in obtaining data.

### REFERENCES

1. WHO, World Health Report 2001: Mental Health: New Understanding, New Hope (World Health Organization, Geneva 2001). — 2. PATEL V, Br Med Bull, 81–82 (2007) 81. — 3. WHO, The world health report 1995: Bridging the Gaps (World Health Organization, Geneva, 1995). — 4. ARAYA R, LEWIS G, ROJAS G, FRITSCH R, J Epidemiol Community Health 57 (2003) 501. — 5. MURALI V, OYEBODE F, Advan Psychiatr Treat, 10 (2004) 216. — 6. PRANJIC N, BRKOVIĆ A, BEGANLIĆ A, Croat Med J, 48 (2007) 691. — 7. WEICH S, LEWIS G, BMJ, 317 (1998) 115. — 8. STURM R, GRESENZ CR, BMJ, 324 (2002) (7328) 20. — 9. MACKENBACH JP, BMJ, 324 (2002) 1. — 10. MUNTANER C, EATON WW, MIECH R, O'CAMPO P, Epidemiol Rev, 26 (2004) 53. — 11. JENKINS R, KLEIN J, PARKER C, BMJ, 331 (2005) 173. — 12. The World Bank. Bosnia and Herzegovina country economic memorandum. Report No. 29 500-BA. (The World Bank, Washington (DC), 2005). — 13. FEDERATION OF BOSNIA AND HERZEGOVINA, FEDERAL OFFICE OF STATISTICS. Living standard measurement survey in Bosnia and Herzegovina, assessed 26.10.2011. Available from URL: <http://www.fzs.ba/Eng/lsmse.htm> — 14. FEDERATION OF BOSNIA AND HERZEGOVINA, FEDERAL OFFICE OF STATISTICS, Major indicators of economic and other trends, assessed 26.10.2011. Available from URL: <http://www.fzs.ba/Eng/index.htm> — 15. BUTOLLO WH, Dialogues Clini Neurosci, 2 (2000) 71. — 16. LIERL M, Journal of Development and Social Transformation, 3 (2007) 37. — 17. ANDREASSON O, »The Good, The Bad and The Ugly« Post-war privatization in Bosnia and Herzegovina. Minor Fi-

led Study. Department of Economic History (Uppsala University, Uppsala, 2007). assessed 26.10.2011. Available from: URL: [http://www.diva-portal.org/diva/getDocument?urn\\_nbn\\_se\\_uu\\_diva-8204-2\\_fulltext.pdf](http://www.diva-portal.org/diva/getDocument?urn_nbn_se_uu_diva-8204-2_fulltext.pdf) — 18. CHAMBER OF ECONOMY OF TUZLA CANTON, assessed 26.10.2011. Available from: URL: <http://www.kpktz.ba/> — 19. DEROGATIS LR, Brief Symptom Inventory (BSI): Administration, scoring and procedures manuel-II, (Minneapolis, 1993). — 20. MUNTANER C, LI Y, XUE X, THOMPSON T, CHUNG H, O'CAMPO P, Soc Sci Med, 63 (2006) 1454. — 21. CARON J, LATIMER E, TOUSIGNANT M, Can J Pub Health, 98 Suppl 1 (2007) S35. — 22. VETTER S, ENDRASS J, SCHWEIZER I, TENG HM, ROSSLER W, GALLO T, BMC Public Health, 6 (2006) 223. — 23. AVDIBEGOVIĆ E, SINANOVIĆ O, Croat Med J, 47 (2006) 730. — 24. KLARIĆ M, KLARIĆ B, STEVANOVIĆ A, GRKOVIĆ J, JONOVSKA S, Croat Med J, 48 (2007) 167. — 25. HASANOVIĆ M, SINANOVIĆ O, PAVLOVIĆ S, Croat Med J, 46 (2005) 105. — 26. HASANOVIĆ M, SINANOVIĆ O, SELIMBAŠIĆ Z, PAJEVIĆ I, AVDIBEGOVIĆ E, Croat Med J, 47 (2006) 85. — 27. HASANOVIĆ M, HARAČIĆ E, AHMETSPAHIĆ Š, KURTOVIĆ S, HARAČIĆ H, Poverty and Psychological Disturbances of War-Traumatized Adolescents from Rural and Urban Areas in Bosnia and Herzegovina. In: WEINSTEIN EM (Ed.) Encyclopedia of Psychology Research (3 Volume Set) (Nova Publishers, New York, 2011) 863. — 28. BRAŠ M, MILUTINOVIĆ V, BOBAN M, MIČKOVIĆ V, LONČAR Z, GREGUREK R, LACO M, Coll Antropol, 35 (2011) 681.

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### PSIHOLOŠKI STRES KOD RADNIKA S NISKIM PRIHODIMA U BOSNI I HERCEGOVINI

#### SAŽETAK

U zemljama središnje i istočne Europe, nakon pada komunizma, došlo je do značajnih političkih, ekonomskih i društvenih promjena, nakon kojih je uslijedio rast neravnopravnosti primanja i društvene nejednakosti. Cilj ovog istraživanja bio je istražiti odnos između psiholoških simptoma i mjesečnih prihoda zaposlenika u tvrtkama koje prolaze kroz proces privatizacije. Studija je uključivala 258 radnika sedam tvrtki pod privatizacijom u tuzlanskom kantonu. Sa potrebe studije korišten je Kratki inventar simptoma (BSI) i opći upitnik s pitanjima o sociodemografskim karakteristikama, приходима и радном мјесту. Мјесечни приходи већине радника (207 или 80,2%) били су испод просјечног износа мјесечних прихода у Босни и Херцеговини. Радници с исподпросјечним износима плаћа за Босну и Херцеговину показивали су изражену соматизацију, анксиозност, параноју, интерперсоналну осјетљивост и непријатељско расположење. BSI скала је указала на значајну негативну корелацију висине мјесечне плаће и експресије психолошких симптома ( $r=-0,184$ ,  $p=0,024$ ). На основи резултата истраживања, утврђено је да социоeкономски фактори попут висине плаће, укупан обитељски доходак, несигуран посао, ступањ образовања, брачни статус и spol, могу бити предиктори психолошких симптома.