

# Social Determinants of Health – A Comparative Study of Bosnian Adolescents in Different Cultural Contexts

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## ABSTRACT

*This study investigated the effects of sociocultural contexts on health and the psychological well-being of immigrant adolescents, aged 15 to 18 years, originally from Bosnia and Herzegovina and now living as displaced persons either in Bosnia, or immigrants in Croatia and Austria. The study addresses the social determinants of health with a specific focus on five factors in the social environment that might have an influence on health status: gender, socio-economic status (SES), perceived discrimination and exposure to violence, social support and religious commitment. Dependent variables included self-rated health, a count of self-reported objective health problems and a range of indices of psychological well-being (somatic stress, anxiety, depression and self-esteem). The purpose of the study was to examine whether social risk factors have an effect on health, which factors mediate these effects on self-rated health and to assess whether these effects differ by gender. Results indicate that perceived discrimination and violence are related to poor health through psychological stress as a major mechanism with stronger effects for girls in the study. Differences across the three socio-cultural contexts reveal the complexity and specificity of the relationships between analyzed factors as the association between discrimination and health was attenuated for some groups due to the protective resources of immigrants.*

**Key words:** adolescents, acculturation, discrimination, health, psychosocial well-being

## Introduction

Previous studies confirm that immigration is a strong stressor for psychological and physical health<sup>1</sup>. Immigrants must immerse themselves in a new culture and often must undergo a great deal of social and personal change that could affect their general and psychological health. Research has consistently found that displaced or immigrant persons are usually faced with disadvantaged conditions, including lower overall socioeconomic conditions, discrimination and violence<sup>3,4,5</sup>. Their poor socioeconomic conditions in many health studies have proved to be a meaningful and important factor of health and health behavior. In that sense, adequate income represents the ability to access the necessities of good health, such as adequate housing, a nutritious diet and educational opportunities<sup>6</sup>. On personal level, immigrant or refugee status of a longer duration and developmental stage (e.g. adolescence) interfere with developmental pro-

cesses of individuation-separation, and also with other tasks of adolescence, in the same time with integration in new society<sup>7</sup>.

Based on the existing literature, the relationship between migration and overall health especially among adolescents is a complex one and involves a multiplicity of factors while the relationships and the relative importance of these factors are rarely studied simultaneously. Besides, many studies associated with migration and health have clearly shown that in spite of hardships and difficulties the majority of migrants make positive adaptation outcomes due to the interplay of protective and risk factors at various levels of adolescent's environment<sup>8</sup>.

An international comparative study related to the quality of life and health outcomes of adolescent youth,

with particular focus on youth with immigrant experience was carried out in different socio-cultural contexts across European countries<sup>8</sup>. Project goals were to determine risk and protective factors of socio-cultural integration and health of adolescent immigrants, and assess the role of contextual effects through cross-cultural comparison in six countries. The general hypothesis of the research was that the sociocultural context and socio-economic conditions in different countries representing the macrosystem of the transactional model of health, with varying degrees of cultural and linguistic familiarity and contact history for immigrants and different ethnic attitudes will influence differently the process of adjustment of adolescent refugees and potential effects on their health and psychosocial well being. The possible effects of migration and exile on adolescent health and well being were assessed within the ecological model of health based on the dynamic interplay of the different factors and mechanisms (social and intraindividual) and situational specificity of the symptoms,<sup>9</sup> which constitute a holistic view of the child and her environment. The environment of an individual is seen as being composed of several coexisting layers: macrosystem (cultural beliefs and values), exosystem (community, school, peers, neighborhood) and microsystem (family and close friends).<sup>10</sup>

In this article, we address the social determinants of health with a specific focus on five factors in the social environment that might have an influence on health status: gender, socio-economic status (SES), perceived discrimination and exposure to violence, social support and religious commitment. The purpose of the study was to examine whether social risk factors have an effect on subjective health status, which factors mediate these effects on self-rated health and to assess whether these effects differ by gender and specific socio-cultural contexts.

Within this culturally anchored ecological framework the study design contrasts four groups of Bosnian-origin adolescents living in three different cultural contexts, in their home country (Bosnia and Herzegovina) and as refugees/immigrants in receiving countries (Croatia and Austria). These groups indicate different degrees of cultural similarity with receiving societies, while each migrant group and each context has its own characteristics that have to be considered in the analysis. In addition to considerable socioeconomic differences related to various transition stages toward democracy and market economy, each of these countries is situated on a cultural continuum ranging from high traditionalism and collectivistic values to individualism. These orientations are directly linked to changes in family systems, socialization values, parenting styles and childrearing orientations (dependence and obedience, autonomy and self-reliance) which may affect psychosocial health.

## Methods

### Participants

Data for these analyses were drawn from a larger international study related to the quality of life and health outcomes of adolescent youth, with particular focus on youth with immigrant experience<sup>8</sup>. The sample of the current study comprised a total of 1282 respondents born in Bosnia & Herzegovina who were interviewed in three different contexts during 2003. The sample consisted of 553 boys and 729 girls. The mean age of the respondents was 16.9 years (*SD* = 1.5 years). The demographic characteristics of the sample divided by adolescent groups are shown in Table 1.

TABLE 1  
DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE BY GROUP

	Displaced Bosnians in B&H	Bosnians in Croatia	Bosnians in Austria	Host population in B&H
Total N by group	N=359	N=301	N=198	N=424
Mean age (years)	17.3	17.0	16.84	16.84
Gender				
Females	217 (60.45%)	164 (54.49%)	102 (51.52%)	246 (58.0%)
Males	142 (39.55%)	137 (45.51%)	96 (48.48%)	178 (42.0%)
Religion				
Muslim	100%	18.6%	42.9%	92.9%
Catholic	0.00%	80.1%	21.7%	3.5%
Other	0.00%	1.3%	35.4%	3.6%
Parental employment				
Unemployed	9.19%	8.97%	0.00%	5.90%
Homemaker	65.46%	10.63%	0.00%	10.61%
Retired	10.86%	23.26%	2.02%	29.72%
Part-time employed	12.26%	26.91%	18.18%	30.66%
Fully employed	2.23%	30.23%	79.80%	23.11%

Adolescents still living in Bosnia and Herzegovina were divided in two groups, the first including Bosnian displaced youth, all Muslims of Bosniac nationality, and the second including the host adolescents living in the Tuzla – Canton area, consisting of 92.9% Muslims, 3.5% Catholics and 3.6% of other denominations. The third group consists of Bosnian immigrants living in the towns of Zagreb and Knin in Croatia. They include 18.6% Muslims of Bosniac nationality, 81% Catholics of Croatian nationality and 1.3% of other denominations, while the fourth group includes Bosnian immigrants living in Austria, mainly in the area of Linz, with 42.9% Muslims, 21.7% Catholics and 35.4% of other denominations.

The cluster sampling method was used as the most appropriate for this type of cross-sectional study. Trained assistants administered the self-report questionnaires to students of secondary schools during regularly scheduled class time.

Between-group analyses indicated that the displaced Bosnians were older than host adolescents and their counterparts in Austria. With regard to parental employment, there are also significant differences between groups reflecting different socioeconomic conditions in each country. Parents of displaced adolescents in Bosnia have significantly the lowest rates of both part-time (12.26%) and full-time employment (only 2.23%), while those in Austria are either fully-employed (79.8%) or have a part-time job (18.18%) ( $p < .001$ ).

## Measures

### *Dependent health variables*

*Perceived health problems.* This variable is constructed from the question, »How would you rate your overall physical health? Is it excellent, good, fair or poor?« This measure is treated as a continuous variable and a value of 1 represents a self-report of excellent, whereas a value of 4 represents a self-report of poor health<sup>6</sup>.

*Objective health problems.* The second dependent variable in our analysis is a composite measure of three variables concerning medication use, utilization of health services and absence from school because of illness (adapted from WHO, HBSC<sup>6</sup>). Medication use during the last month was assessed for the following symptoms: headache, stomach ache, nervousness, indigestion, or other problems. The utilization of medical services was assessed by the frequency of visits to a doctor and hospitalization during the past twelve months. Absence from school is used as an additional indicator of general health status. Respondents were asked to report absence from school in days on account of illness during the preceding 6 months, on a scale ranging from 1 (0 days) to 4 (5 or more days). All items were summed up into a one-item indicator of objective health problems that ranges from 1 (low objective problems) to 3 (high objective problems).

The *index of psychological distress* was measured using the indices of the most common anxiety symptoms, depressive behavior and somatic complaints, based on

Hopkins Symptom Checklist 25,<sup>11,12</sup> and RADS – Reynolds Adolescent Depression Scale.<sup>13</sup> In this study count variables of anxiety, depression and somatic symptoms were used as separate variables. *Anxiety* (5 items) is assessed by difficulty relaxing, nervous arousal, tension, irritability and feeling of threat. *Depression* (20 items) items refer to dysphoric mood, sadness, loneliness, sleep disturbance, anhedonia, pessimism, self-injurious or suicidal tendency, self-depreciation, reduced speech, worry, social withdrawal, loss of interest, appetite disturbance, helplessness, confusion. *Somatic symptoms* (10 items) include those most frequently related to stress. The items are rated on a four point a Likert scale ranging from 1 (almost never) to 4 (most of the time) depending on the extent to which specific states are experienced. Higher score on every scale indicates higher level of distress.

Self-esteem was measured using the Self-Esteem Scale by Rosenberg.<sup>14</sup> It has 10 items answered on a four point a Likert scale ranging from strongly disagree to strongly agree. Studies have demonstrated both a one-dimensional and a two-factor (self-confidence and self-deprecation) structure to the scale.

### *Independent environmental predictors*

Several indicators of *socioeconomic status* were used in the survey, to obtain more reliable data from the adolescents. Economic status was measured by two variables: family affluence scale (FAS) consisting of home ownership, adolescent's own bedroom occupancy, family car ownership and family holidays (adapted from WHO Cross National Study<sup>6</sup>), and employment status of father and mother. The FAS scale ranged from 5–20, while higher score on scale indicates higher level of family affluence. The employment status scale included the following options: fully employed (5), part-time employed (4), retired (3), homemaker (2), unemployed- looking for job (1). The third variable was parental education, ranging from low (1) to high (3) education levels. The level of mother's and father's *education* (elementary, secondary, university) was used as a proxy for social status which, particularly in transitional countries and for immigrant populations does not necessarily imply adequate economic status, but can be an important factor for general adolescent well-being.

*Demographic variables* included items related to gender, age and status according to origin and place of residence.

*Risk environmental factors* on health and psychological stress were measured by three scales including perceived discrimination, peer violence and adult violence. Perceived personal discrimination due to ethnic, religious, linguistic and gender differences was measured by frequency of experience during the past six months (adapted from CHKS<sup>15</sup>). The exposure to peer violence was measured by a four-point scale asking respondents about the frequency of their exposure to physical and verbal forms of violence during the past six months (adapted from CHKS<sup>15</sup>). Higher scores on last two scales indicate higher levels of peer violence and personal discrimina-

tion. A separate item measured any lifetime experience of physical violence from an adult. A variable is constructed from the question, »During your life, has any adult ever intentionally hit or physically hurt you?« The answer ranged from 1 (negative) to 2 (positive).

*Protective environmental factors* on health and psychological stress related to social support were measured by three scales, family and school connectedness and neighborhood attachment. The scale of family connectedness (adapted from CHKS<sup>15</sup>) consists of 9 survey items with a four point Likert scale response option. They measure emotional support, instrumental support, high expectations, clear rules and boundaries and meaningful participation in the family. The measure of school connectedness<sup>14</sup> includes 9 items rated on a four-point scale, which refer to emotional and instrumental support, high expectations and meaningful participation. Higher scores on above scales indicate higher levels of family and school connectedness. Neighborhood Scale (adapted from Corrigan<sup>16</sup>) explores emotional attachment, sociability in the neighborhood, neighborhood safety, and respondent’s involvement with neighbors. The scale includes 5 items rated on a four-point scale.

Religious commitment was measured with a composite measure of two scales. One scale refers to service at-

tendance or involvement in religious community activities measured on a four-point scale from 1 (never) to 4 (once a week or more), while the other refers to subjective feeling of one’s own religious devotion measured on a five-point scale from 1 (don’t know) to 5 (very religious).

## Results and Discussion

### *Mean differences between the groups*

The differences between the four groups of Bosnian adolescents in socio-economic status, risk factors (perceived discrimination, peer violence and adult violence), protective factors (family and school connectedness, neighborhood attachment and religious commitment), perceived health problems, objective health problems, somatic stress, depression, anxiety and self-esteem were assessed by two-way, 4 (group) × 2 (gender) ANCOVAs, with age as a covariate. The results of these analyses are shown in Table 2.

The four immigrant groups differed significantly from each other in all analyzed variables except one, somatic stress. Post-hoc comparisons indicated that displaced Bosnians in Bosnia and Herzegovina had the signifi-

**TABLE 2**  
RESULTS OF ANCOVA ANALYSIS

Variables	Group Means				ANCOVA, Main Effects	
	Displaced Bosnians in B&H	Bosnians in Croatia	Bosnians in Austria	Host population in B&H	Group F (35.68)	Gender F (26.14)
<b>SOCIO-DEMOGRAPHIC FACTORS</b>						
Parental education	1.44 <sup>a,b,c</sup>	1.97 <sup>a,d</sup>	2.01 <sup>b,e</sup>	1.82 <sup>c,d,e</sup>	107.55***	6.07*
Family affluence scale	1.66 <sup>a,b,c</sup>	2.24 <sup>a,d</sup>	2.37 <sup>b,d,e</sup>	2.21 <sup>c,e</sup>	320.77***	
Parental employment	2.30 <sup>a,b,c</sup>	3.43 <sup>a,d</sup>	4.64 <sup>b,d,e</sup>	3.36 <sup>c,e</sup>	226.12***	
<b>RISK FACTORS</b>						
Peer violence	1.16 <sup>a</sup>	1.15 <sup>b</sup>	1.09 <sup>a,b,c</sup>	1.15 <sup>c</sup>	5.37**	4.68*
Adult violence	1.41 <sup>a</sup>	1.39 <sup>b</sup>	1.23 <sup>a,b,c</sup>	1.39 <sup>c</sup>	6.75***	6.02*
Perceived discrimination	1.18 <sup>a</sup>	1.24 <sup>b</sup>	1.16	1.08 <sup>a,b</sup>	10.13***	4.48*
<b>PROTECTIVE FACTORS</b>						
Family connectedness	3.37 <sup>a,c</sup>	3.53 <sup>a,b</sup>	3.34 <sup>b,d</sup>	3.55 <sup>c,d</sup>	13.30***	24.04***
School connectedness	2.95 <sup>a,b</sup>	2.64 <sup>a,c</sup>	2.68 <sup>b,d</sup>	2.90 <sup>c,d</sup>	31.97***	
Neighborhood attachment	3.14 <sup>a,b,c</sup>	2.89 <sup>a,d,e</sup>	2.56 <sup>b,d,f</sup>	3.32 <sup>c,e,f</sup>	60.27***	4.02*
Religious commitment	2.79 <sup>a,b,c</sup>	3.13 <sup>a,d,e</sup>	2.40 <sup>b,d,f</sup>	2.59 <sup>c,e,f</sup>	39.37***	
<b>PSYCHOSOCIAL HEALTH</b>						
Perceived health problems	1.91 <sup>a</sup>	1.75 <sup>a,b</sup>	1.86	1.91 <sup>b</sup>	4.27**	50.54***
Objective health problems	2.76 <sup>a,b</sup>	3.07 <sup>a,c,d</sup>	3.30 <sup>b,c,e</sup>	2.77 <sup>d,e</sup>	22.06***	6.47*
Somatic symptoms	1.79	1.83	1.78	1.82		168.74***
Depression	2.00 <sup>a,b,c</sup>	1.86 <sup>a</sup>	1.90 <sup>b</sup>	1.90 <sup>c</sup>	4.50**	127.66***
Anxiety	2.12 <sup>a</sup>	2.10 <sup>b</sup>	1.88 <sup>a,b,c</sup>	2.13 <sup>c</sup>	5.43**	102.99***
Self-esteem	2.89 <sup>a</sup>	2.98 <sup>b</sup>	3.29 <sup>a,b,c</sup>	2.92 <sup>c</sup>	45.72***	55.16***

<sup>a,b,c</sup> t tests with Bonferroni’s adjustment; the means that share the same superscript differ significantly ( $p < .05$ ).

\* $p < .05$ , \*\* $p < .01$ , \*\*\*  $p < .001$

cantly lowest socioeconomic status of all groups concerning parental education, parental employment and family affluence, while Bosnians in Austria had significantly higher scores than all other groups in parental employment and family affluence. As to risk factors, Bosnians in Austria experienced less peer and adult violence than the other groups, whereas displaced Bosnians and those in Croatia reported more perceived discrimination.

With respect to group differences in protective factors, Bosnians in Croatia and host adolescents in B&H experienced significantly more support from their families, than other two groups, while both displaced and host adolescents in B&H were more connected to school and attached to their neighborhood than their counterparts in Austria and Croatia. Bosnians in Croatia expressed the highest religious commitment, followed by displaced adolescents in Bosnia, while those in Austria reported the lowest values. With regard to self-rated health, both groups in Bosnia perceived more health problems than the other two groups. On the other hand, Bosnians in Croatia and Austria reported significantly more objective health problems than both groups in Bosnia and Herzegovina. In addition, displaced Bosnians in B&H reported a higher level of depression than all other groups, while the level of anxiety was higher for both groups in B&H and Croatia than for those in Austria. Adolescents in Austria, in turn, expressed significantly higher self-esteem than all other groups.

The gender effect was found for all health variables, all risk factors as well as for family connectedness and neighborhood attachment. The girls perceived more health problems and reported more somatic, depressive and anxiety symptoms than the boys, while boys experienced more violence and discrimination and had higher self-esteem than the girls.

The significant Group X Gender interactions included family connectedness, neighborhood attachment and all health variables. Displaced boys in B&H and those in Austria were significantly less connected to their families than boys and girls in other groups, while girls in Croatia and both boys and girls in Austria were less attached to their neighborhoods than other groups. The greatest gender difference was observed in perceived health between girls and boys in Austria. These girls had the highest rate of reported poor health among all groups, while boys reported the most favorable levels of health, significantly higher than boys in Bosnia. Both girls and boys in Austria and Croatia also reported significantly more objective problems than their counterparts living in Bosnia. Adolescents of both gender in Austria experienced significantly lower anxiety levels than all other groups, while displaced girls in B&H reported significantly higher depression than girls in other groups. Boys and girls in Austria and boys in Croatia reported significantly higher self-esteem than all other boys and girls.

### *Perceived health problems*

We modeled perceived health problems through the specification of five linear regression models (Table 3).

Results from Model 1 indicate significant positive effects of all three risk factors on perceived health problems, with a stronger effect of perceived discrimination than those of peer and adult violence. Model 2 adds controls for the three analyzed groups of Bosnian adolescents living in different cultural contexts. The only significant effect is found for Bosnians in Croatia who tend to report more favorable levels of health. The observed insignificant effects show that the group in Austria has less perceived health problems than the one in Bosnia and Herzegovina. The initial effects of risk factors on perceived health are only slightly changed with a small increase in the effect of discrimination on health. Model 3 includes controls for demographic factors of gender and age. Whereas age does not affect perceived health, it is in expected direction, while gender expectedly has a highly significant effect. Simultaneously, the effect of perceived discrimination is slightly decreased, and those of peer and adult violence are slightly increased, net of demographic factors. The fourth model controls for the important factors of socio-economic status. They are all in the expected direction, with family affluence scale having a significantly stronger effect than parental education and parental employment. The group effects in this model are significant and negative for Bosnians in Croatia, and significant but positive in the Austrian group. The effects of risk factors are slightly decreased except for adult violence, net of socio-economic status. Model 5 controls for important protective factors that may affect perceived health problems and moderate the impact of risk factors through social support. However, only school connectedness and religious commitment are significantly associated with self-rated health, with adolescents who are less attached to school and less religious reporting worse health. The inclusion of social support in the model reduces somewhat the effects of both peer and adult violence, with a slight increase in discrimination effect. On the other hand, the effect of group turns insignificant, that of gender is slightly decreased, while in addition to family affluence parental education becomes significant.

Finally, model 6 tests the hypothesis whether the effects of environmental social variables on subjective health are mediated through objective health problems and psychosocial health problems manifested as symptoms of somatic stress, anxiety, depression and self-esteem. As it can be seen in Table 3, all indices of objective and psychological health except for anxiety are significantly related to poorer reports of perceived health. In addition to a highly significant effect of objective health, the strongest effect is found for somatic stress, while adolescents exhibiting higher levels of depression and lower levels of self-esteem also report more perceived health problems. Simultaneously, the effects of all risk factors, gender, socio-economic status and protective factors are considerably reduced and most of them cease to be statistically significant. The exceptions are perceived discrimination, parental education and the effect of religious commitment which are also reduced but remain statistically significant. This model is significant for Bosnians in Croatia

**TABLE 3**  
LINEAR REGRESSION COEFFICIENTS OF PERCEIVED HEALTH PROBLEMS ON PREDICTOR VARIABLES

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>1. Risk factors</i>						
Perceived discrimination	0.115***	0.119***	0.116***	0.113***	0.116***	0.063*
Peer violence	0.080*	0.079*	0.091**	0.085**	0.066*	-0.018
Adult violence	0.063*	0.063*	0.075*	0.080**	0.062*	0.006
<i>2. Country – group</i>						
Displaced Bosnians in B&H		0.054	0.040	-0.089	-0.065	-0.025
Bosnians in Croatia		-0.136***	-0.133**	-0.095*	-0.070	-0.100**
Bosnians in Austria		-0.024	0.041	0.096*	0.050	-0.041
<i>3. Socio-demographic factors</i>						
Sex (female)			0.190***	0.187***	0.182***	0.038
Age			0.030	0.024	0.018	0.021
<i>4. Socio-economic status</i>						
Parental education				-0.047	-0.068*	-0.059*
Parental employment				0.007	-0.004	-0.045
Family affluence scale				-0.120*	-0.118*	-0.048
<i>5. Protective factors</i>						
Family connectedness					-0.022	0.008
School connectedness					-0.106**	-0.047
Neighborhood attachment					0.088	0.021
Religious commitment					-0.120***	-0.097***
<i>6. Psychosocial health</i>						
Objective health problems						0.234***
Somatic stress						0.238***
Anxiety						0.026
Depression						0.094*
Self-esteem						-0.108***
R <sup>2</sup>	0.038	0.050	0.085	0.097	0.123	0.285

\*\*\* p<0.001, \*\* p<0.01, \* p<0.05

as opposed to displaced adolescents in Bosnia and Herzegovina and Austria. Additionally, it adds to perceived health problems in Austrian adolescents, while it works in a negative direction for other groups. As compared to previous five models, model 6 accounts for 29% of variance and clearly indicates that social and environmental factors such as discrimination and violence, lower socio-economic status and a lack of social support operate indirectly through objective health problems, somatic stress, depression and low self-esteem to affect subjective self-rated health.

#### *Predictors of psychological well-being*

To test the above mediating role of objective health and psychosocial problems in the relationship between social determinants and subjective health, we further performed stepwise multiple regression analyses for each of the five health measures to determine the extent to

which (a) social risk factors, measured as perceived discrimination, peer and adult violence, (b) cultural contexts measured through country of residence, (c) socio-demographic factors, in terms of gender and socio-economic status, and (d) social protective factors, measured as family and school connectedness, neighborhood attachment and religious commitment, accounted for the variance in psychological well-being. The results of the regression analyses are presented in Table 4. It can be seen that the two risk factors, including perceived discrimination and peer violence, as well as gender affect significantly all five health variables. Additionally, adult violence and low connectedness to school are significantly related to somatic stress, anxiety, depression and self-esteem. The more the adolescents perceived discrimination and experienced violence, the less they were attached to school, the higher their somatic stress, anxiety and depression, and the lower their self-esteem. Religious com-

**TABLE 4**  
STEPWISE MULTIPLE REGRESSION COEFFICIENTS OF MENTAL HEALTH INDICATORS ON PREDICTOR VARIABLES

Variables	Objective health	Somatic stress	Anxiety	Depression	Self-esteem
R <sup>2</sup>	0.76	0.24	0.24	0.32	0.27
F	11.67***	34.22***	34.11***	50.51***	38.35***
<i>1. Risk factors</i>					
Perceived discrimination	0.083**	0.141***	0.115***	0.160***	-0.130***
Peer violence	0.063*	0.171***	0.192***	0.174***	-0.084**
Adult violence		0.110***	0.121***	0.088***	
<i>2. Country – group</i>					
Displaced Bosnians in B&H	-0.188***				-0.101*
Bosnians in Croatia	0.067				-0.104**
Bosnians in Austria	0.261***		-0.136***		0.372***
<i>3. Socio-demographic factors</i>					
Sex (female)	0.081**	0.359***	0.307***	0.333***	-0.220***
<i>4. Socio-economic status</i>					
Family affluence scale				-0.095**	0.140***
<i>5. Protective factors</i>					
Family connectedness				-0.139***	0.165***
School connectedness		-0.092***	-0.112***	-0.117***	0.148***
Neighborhood attachment				-0.077**	
Religious commitment			-0.095***	-0.104***	0.051*

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

mitment had a significant negative impact on anxiety and depression, while it positively affected self-esteem. In addition, the lower socio-economic status of adolescents measured by family affluence scale, and the lack of social support provided by family, school and neighborhood, the higher their depression levels and the lower their self-esteem. The only index of psychological problems affected by neighborhood attachment was depression.

As to group specific results, a significant negative effect was found for displaced Bosnians in B&H and a significant positive effect for adolescents in Austria with respect to objective health problems. In other words, higher perceived discrimination and experience of violence are associated with more objective health problems in Austrian Bosnians, but not in displaced youth in B&H. Also, more perceived discrimination, and experience of both peer and adult violence are also negatively associated with anxiety levels in Bosnians in Austria as opposed to other groups.

Significant group effects were found for all three groups with respect to self-esteem. Less perceived discrimination and experience of peer violence, higher economic status and stronger family and school connectedness as well as higher religious commitment are positively associated with self-esteem of Bosnians in Austria, while for youth in Bosnia and Croatia, and especially girls the effects are in negative direction.

## Conclusions

In this study we explored the social determinants of health in young immigrants with a specific focus on five factors in the social environment that might have an influence on health status: gender, socio-economic status (SES), perceived discrimination and exposure to violence, social support and religious commitment. We wanted to examine not only the possible influences on health, but also which factors mediate these effects on self-rated health and to assess whether these effects differ by gender and specific socio-cultural contexts. Our analyses reveal significant effects of risk factors including discrimination and violence on self-ratings of health. Importantly, these risk factors are primarily mediated by objective health, somatic stress, depression and self-esteem in the interaction with socioeconomic status and religious commitment. The regression models performed indicate clearly that psychological health works as a key mechanism through which social risk factors in the interplay with protective factors affect subjective health status. While school connectedness represents an important factor for all indices of psychological health, family connectedness is additional protective factor in depression and self-esteem, while religious commitment plays important role in anxiety, depression and self-esteem.

In line with other similar studies, our analyses also revealed consistent differences in gender in all health

variables, all risk factors as well as for family connectedness and neighborhoods attachment. The girls perceived more health problems and reported more somatic, depressive and anxiety symptoms than the boys, while boys experienced more violence and discrimination but had higher self-esteem than the girls.

We also anticipated that specific contexts in particular countries would moderate the associations between risk and protective factors, and health. Our results with respect to differences in perceived health status and objective health between adolescents in Bosnia and those in Austria and Croatia seem to reflect particular contextual factors, such as different socioeconomic conditions, availability of medical services and general cultural attitudes towards medication use and usage of medical services.

These differences in the adolescents' adjustment are probably due to differential response from the broader society as well as to its differential effects on family and other type of support to these groups.

The macro-system contexts in this study refer to three countries that differ politically, economically and culturally. Austria is a highly developed country, with relatively stable democratic polity, and market economy in place. Two other countries are post-conflict countries in different transition stages, faced with economic shifts, destabilisation of institutions and value change in the society at large. All these national specifics through the initial institutional configurations, have an influence on individual values, beliefs and attitudes, which is mediated in different ways by the support of the family and other processes at the micro-level. In Bosnia and Herzegovina the situation is further compounded by high unemployment rates affecting more than a third of the population and high levels of poverty manifesting itself not only in low income, but also importantly in limited access to and poor quality of health services. Youth in that country are more likely, compared to those in other two countries, to lack health insurance coverage, mainly because of its high cost and lack of employer coverage, as evidenced by Bosnian youth in Bosnia, both displaced and native, reporting higher levels of fair or poor health, but lower rates of objective health problems when compared to Bosnians in Croatia and Austria.

Dramatic socioeconomic changes bring attitudinal and norm shifts, value confusion and conflict, and individual disorientation for both adult and adolescent citizens, with resulting feelings of uncertainty, insecurity and lack of confidence. All this results in a more problematic adolescence for youth in all post-socialist countries as evidenced in our samples by high levels of anxiety and low self-esteem experienced by youth regardless of origin in

Bosnia and Herzegovina and Croatia. Additional factor that contributes to the feelings of uncertainty and insecurity is the lack of public security, weak judicial system and increase in crime, reflected in our samples by higher rates of both adult and peer violence reported by youth in Bosnia and Herzegovina and Croatia.

As to moderating effects of protective factors, cultures develop different beliefs and parenting patterns in response to immediate environmental risks and demands, with resulting variations in different types of desirable behaviour. Connectedness to school is especially critical, since it is the major socializing institution in all countries and the main source of secondary cultural experiences outside the family. Lower connectedness to school is associated with both perceived discrimination and violence, as well as with higher rates of poor health and psychological problems, particularly for Bosnians in Croatia. Aspects of the neighbourhood context include youth's familiarity and association with neighbours, and the cohesiveness and safety of the neighbourhood. Our analyses showed its negative association with depression and significantly higher values of neighbourhood attachment and its protective quality for both immigrants and hosts in a more traditional society in Bosnia and Herzegovina, in which the immediate neighbourhood is likely to be of the same ethnic origin, while in contrast, for Bosnians in Austria, the neighbourhood attachment is considerably lower. On the other hand, family connectedness, which is also negatively associated with depression, though rather high in all groups, is significantly lower for immigrants in Austria and displaced Bosnians in Bosnia. These results reflect considerable variations in developmental orientations related to traditional collective values and individual autonomy, that are directly linked to changes in family systems, socialization patterns and parenting styles. As shown by significantly higher self-esteem of Bosnians in Austria, in the new individualistic cultural context, with changing life styles, autonomous orientations become more functional in coping with more specialized tasks requiring individual responsibility and decision making rather than pursuing traditional values.

## Acknowledgements

The research is funded by the Ministry of Science and Technology of the Republic of Croatia under grant 0196002 for the project »Population structure of Croatia – socio-cultural approach« and under grant of European Community project »Health problems, mental disorders and cross-cultural aspects of developing effective rehabilitation procedures for refugees of the war-affected countries« (EC INCO-Copernicus Programme, ICA2-CT-2002-10006).

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## **DRUŠTVENE ODREDNICE ZDRAVLJA: USPOREDNO ISTRAŽIVANJE BOSANSKIH ADOLESCENATA U RAZLICITIM KULTURNIM KONTEKSTIMA**

### **S A Ž E T A K**

U radu se analiziraju utjecaji sociokulturnih faktora na zdravlje adolescenata u dobi od 15–18 godina, porijeklom iz Bosne i Hercegovine, koji žive kao izbjeglice u Bosni i Hercegovini, te kao doseljenici u Hrvatskoj i Austriji. Istraživanje društvenih odrednica zdravlja usmjereno je na pet društvenih faktora koji utječu na zdravstveni status: rod, socio-ekonomski status, percepciju diskriminiranosti i izloženost nasilju, društvenu podršku i religioznost. Zavisne varijable uključuju, subjektivnu procjenu zdravstvenog statusa, objektivne pokazatelje zdravstvenih problema te četiri mjere psihološkog zdravlja (somatski stres, anksioznost, depresivnost i samopoštovanje). Istraživanjem se nastoji utvrditi u kojoj mjeri navedeni društveni faktori utječu na zdravlje, mehanizme interakcije faktora te moguće razlike obzirom na rod i zemlju boravka. Dobiveni rezultati pokazuju da je psihološko zdravlje ključni mehanizam kroz koji rizični društveni faktori (percepcija diskriminiranosti i izloženost nasilju) utječu na nižu subjektivnu procjenu zdravstvenog statusa, a ta povezanost je statistički značajnija u djevojaka. Razlike između bosanskih adolescenata u tri različite zemlje ukazuju na složenost utjecaja na zdravlje kroz specifičnosti pojedinog sociokulturnog konteksta koji utječe na interakciju društvenih rizičnih i zaštitnih faktora.