

The Influence of Social Capital Domains on Self-Rated Health Among Serbian High-School Students? A School-Based Cross-Sectional Study

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ABSTRACT

Social capital has been shown as a positive asset for improving overall health in children and youth. Thus, the purpose of the present study was to determine the associations between family, neighborhood and school social capital with self-rated health among Serbian high-school students. This cross-sectional study on 1220 high-school students (539 males and 681 females) was carried out in the school year 2015/2016. Main outcome was defined as self-rated health, measured by one question: "How would you rate your health?" with five possible answers: (1) very poor; (2) poor, (3) fair, (4) good and (5) excellent. We binarised the outcome, where answers "very poor", "poor" and "fair" represented "poor health" and "good" and "excellent" "good health". Multiple logistic regression was used to determine the associations between social capital domains and self-rated health. Adjusted by gender, body-mass index, self-perceived socioeconomic status, psychological distress and physical activity, good self-rated health was positively associated only with high family social capital ($OR\ 2.29;\ 95\% CI\ 1.62\ to\ 3.24$). When all the social capital variables were entered simultaneously, self-rated health remained associated with family social capital ($OR\ 2.28;\ 95\% CI\ 1.61\ to\ 3.24$). Family social capital was the only domain strongly associated with self-rated health. Since neighborhood and school social capital represent key support and empathy for children and youth, neighborhood and school-based strategies and policies should be implemented within the system to increase overall physical and mental health.

Key words: Family, Neighborhood, School, Adolescents, Logistic Regression, Health.

Introduction

Social capital has been defined as social organisations, like networks, high level of interpersonal trust and reciprocity, which work through individuals and facilitate collective actions (Kawachi, Kennedy, Lochner & Prothrow-Stith, 1997). Because of theoretical development, there has been different forms of social capital (Harpham, Grant & Thomas, 2002). Cognitive social capital is constructed from norms of trust, reciprocity and solidarity, while social social capital refers to activities of networks and institutions (Harpham et al., 2002). Since social capital was firstly introduced by Hanifan (1916) in local school community, a few studies have been dealing with social capital in school (Morgan & Halglund, 2009; Wit, Karioja, Rye & Shain, 2011; Demaray & Malecki, 2002). Moreover, several studies found out that high social capital could have positive effects on health and well-being among adults (Kim, Subramanian & Kawachi, 2008; Murayama, Fujiwara & Kawachi, 2012; Virtanen, Ervasti, Oksanen, Kiwimäki, & Vahtera, 2013) and youth (Novak, Suzuki & Kawachi, 2015; Currie et al., 2012; Borges, Campos, Vargas, Ferreira & Kawachi, 2010; Furuta et al., 2012).. For example, Novak et al. (2015) found significant positive associations between family, neighbourhood and school social capital on self-rated health among Croatian high-school students. Also, Borges et al. (2010), who investigated different

type of social capital, found that adolescents who said that someone else could take advantage of them, who did not take time to participate in some community projects and who did not get together with people from different social status were more likely to report poor self-rated health.

Health state among Serbian adolescents does not differ from other adolescents' health in the world. However, it is necessary to point out several facts. Serbia has been through wars and economic sanctions which led to social disintegration, especially including family and school environment in the last 25 years. In that way, children and youth grew and still growing up without adequate social care, guided by images of vandalism and finding themselves within the society they did not create (The Institute of Public Health of Serbia, 2008).

To authors' knowledge, there has been lacking of studies investigating possible influences between family, neighbourhood and school social capital on self-rated health among adolescents (Novak et al., 2015; Borges et al., 2010). Also, associations between social capital and self-rated health are still unclear in different countries, due to their different demographic characteristics, tradition, heritage, way of living and history. Thus, the aim of the present study was to investigate possible associations between family, neighbourhood and school social capital with self-rated health among Serbian high-school students aged 17-19 years.

Methods

Participants

This cross-sectional study on a sample of 1220 high-school students (539 males and 681 females) was carried out in the 2015/2016 school year. The students ranged in age from 17–19 years. Basic descriptive characteristics are presented in Table 1. One of the parents for each subject signed an informed consent form. The students signed an assent form as well. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved in advance by Faculty of Sport and Physical Education.

Self-rated health

Self-rated health was assessed using one-item measure: "How would you estimate your health?". Possible responses were arranged through five-item Likert-scale: very poor (1), poor (2), neither poor or good (3), good (4) and excellent (5). Given responses were binarised, where answers very poor, poor and fair were categorized as poor, while good and excellent represented good self-rated health. Self-rated health, as a measure, has been used in adult (Idler & Benyamin, 1997) and adolescent (Johnson & Richer, 2002) population.

Social capital domains

Social capital in children and youth has been consisted of family, neighborhood and school social trust (Morrow, 1999). Family social capital was assessed using one-item question: "Do you feel that Your family understands and gives attention to you?". Neighborhood social capital was assessed using two-item questions: "Do you feel people trust to each other in your neighborhood?" and "Do you feel that your neighbors step in to criticize someone's deviant behavior during high school. The first neighborhood social capital question referred on neighborhood trust, and the second one on informal social control. School social capital was assessed using three-item questions: "Do you feel that teachers and students trust each other in your high-school?", "Do you feel students trust to each other in your high-school?" and "Do you think students collaborate to each other in your high school?". The first school social capital question referred on vertical school trust, the second one on horizontal school trust and the third on reciprocity at school. Possible answers were arranged across five-item Likert-type scale: (1) strongly agree, (2) agree, (3) neither agree or disagree, (4) low disagree and (5) disagree. We binarised the outcome of each variable as "high" (strongly agree and agree) and "low" (neither agree or disagree, low disagree and disagree).

Table 1. Characteristics of the study subjects, Serbia, 2016

	Total (N=1220)	Males (N=539)	Females (N=681)	<i>p</i> value*
	N (%)	N (%)	N (%)	
Self-rated health				
Poor	323 (26.5)	111 (20.6)	212 (31.1)	
Good	897 (73.5)	428 (79.4)	469 (68.9)	<0.001
Family social capital				
Low	218 (17.9)	97 (18.0)	121 (17.8)	
High	1002 (82.1)	442 (82.0)	560 (82.2)	0.917
Neighbourhood trust				
Low	1041 (85.3)	440 (81.6)	601 (88.2)	
High	179 (14.7)	99 (18.4)	80 (11.8)	<0.001
Informal social control				
Low	729 (59.1)	341 (63.3)	380 (55.8)	
High	499 (40.9)	198 (36.7)	301 (44.2)	0.008
Vertical school trust				
Low	964 (79.0)	400 (74.2)	564 (82.8)	
High	256 (20.1)	139 (25.8)	117 (17.2)	<0.001
Horizontal school trust				
Low	894 (73.3)	369 (68.5)	525 (77.1)	
High	326 (26.7)	170 (31.5)	156 (22.9)	<0.001
Reciprocity at school				
Low	608 (49.8)	259 (48.0)	349 (51.2)	
High	612 (50.2)	280 (52.0)	332 (48.8)	0.267
Body mass index				
Normal	1070 (87.7)	429 (80.0)	645 (94.7)	
Overweight/obese	150 (12.3)	110 (20.0)	36 (5.3)	<0.001
Self-perceived socioeconomic status				
High/middle	734 (60.2)	322 (59.7)	416 (61.1)	
Low	486 (39.8)	217 (40.3)	265 (38.9)	0.632
Psychological distress				
High	154 (12.6)	59 (11.0)	100 (14.7)	
Low	1066 (87.4)	480 (89.0)	581 (85.3)	0.054
Physical activity				
High/moderate	825 (67.6)	414 (76.8)	406 (59.6)	
Low	395 (32.4)	125 (23.2)	275 (40.4)	<0.001

Legend: *Chi-square test.

Covariates

Physical activity was assessed using the validated short version of the International Physical Activity Questionnaire (IPAQ) and was expressed as metabolic equivalent (hours per week) (Craig et al., 2003). As additional potential mediators, we considered body mass index based (BMI) on the calculation from self-reported height and weight (scoring of responses in the range ≥ 25 kg/m 2 vs < 25 kg/m 2) discriminates between respondents with and without high BMI). Socioeconomic status was entered in our regression models as a potential confounder, that is, theoretically associated with self-rated health and social capital (Subramanian, Kim, & Kawachi, 2002). The classification of socio-economic status was based on both parents' occupation at the time when the research was conducted. Self-perceived socio-economic status was categorized into three levels as high (i.e., managers and professionals), middle (white collar) and low (blue collar) (Wang, Byrne, Kenardy, & Hills, 2005) and it was dichotomized as high/middle (responses in the range 2–4) and low (responses in the range 5–6). Psychological distress was also assessed as a potential confounder using the six-item Kessler scale by the questions: "About how often during the past 30 days did you feel nervous?", "During the past 30 days, about how often did you feel hopeless?", "During the past 30 days, about how often did you feel restless or fidgety?", "How often did you feel so depressed that nothing could cheer you up?", "During the past 30 days, about how often did you feel that everything was an effort?" and "During the past 30 days, about how often did you feel worthless?" (Kessler et al., 2003). Each question is scored from 0 (none of the time) to 4 (all of the time). Scores of the six questions were then summed (0–24), with a lower score indicating low levels of psychological distress. Previous research has shown that dichotomous scoring of responses in the range 13+ versus 0–12 discriminates between respondents with and without significant psychological distress (Kessler et al., 2003).

Table 2. ORs for good self-rated health among high-school students, Serbia, 2016

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)
Family social capital				
Low				
High	2.29 (1.62 to 3.24)***			2.28 (1.61 to 3.24)***
Neighbourhood trust				
Low				
High		1.01 (0.68 to 1.50)		0.90 (0.60 to 1.35)
Informal social control				
Low				
High		0.93 (0.70 to 1.22)		0.95 (0.72 to 1.26)
Vertical school trust				
Low				
High			1.29 (0.89 to 1.88)	1.30 (0.89 to 1.91)
Horizontal school trust				
Low				
High			1.02 (0.72 to 1.46)	0.99 (0.69 to 1.42)
Reciprocity at school				
Low				
High			1.07 (0.80 to 1.44)	1.06 (0.78 to 1.43)
Gender				
Male				
Female	0.53 (0.39 to 0.72)***	0.54 (0.40 to 0.73)***	0.55 (0.41 to 0.74)***	0.54 (0.40 to 0.73)***
Body mass index				
Normal				
Overweight/obese	0.59 (0.38 to 0.92)*	0.62 (0.40 to 0.95)*	0.62 (0.40 to 0.95)*	0.60 (0.39 to 0.93)*
Self-perceived socioeconomic status				
High/middle				
Low	0.96 (0.72 to 1.27)	0.99 (0.75 to 1.31)	0.99 (0.75 to 1.30)	0.95 (0.72 to 1.26)
Psychological distress				
High				
Low	0.63 (0.42 to 0.93)*	0.52 (0.35 to 0.75)***	0.52 (0.36 to 0.76)***	0.63 (0.43 to 0.94)*
Physical activity				
High/moderate				
Low	0.56 (0.42 to 0.74)**	0.57 (0.43 to 0.76)**	0.57 (0.43 to 0.76)**	0.56 (0.42 to 0.74)**

Legend: *p<0.05, **p<0.01, ***p<0.001.

Statistical analysis

All the analysis were analyzed using SPSS 18.0 software (SPSS Inc. Chicago, IL USA). Firstly, we determined number of answered questions using percentages (%). Differences for categorical variables were determined using Chi-square test. The associations between social capital variables and self-rated health

were determined using multivariate logistic regression. Also, as potential cofounders, we entered gender, body mass index, level of socio-economic status, level of psychological distress and level of physical activity. In the present study, we investigated the associations between family social trust and self-rated health (Model 1), between neighborhood social trust and self-rated he-

alth (Model 2), between school social trust and self-rated health (Model 3) and between all social capital determinants simultaneously entered into the model with self-rated health (model 4). Statistical significance was set up at $p < 0.05$.

Results

Among all students, the prevalence of students reporting poor self-rated health was 26.5% (20.6% for males and 31.1% for females). As expected, almost 90% of them reported normal body mass index (80.0% for males and almost 95% for females). Female students reported slightly higher high psychological distress (14.7%) than male students (11.0%). Also, more male students were invol-

ved in doing high/moderate physical activity during past 7 days (Table 1).

The associations between social capital domains (separately and simultaneously) are presented in Table 2. Adjusted by gender, body mass index, self-perceived socioeconomic status, psychological distress and physical activity, only family social capital was significantly associated with self-rated health (OR 2.29; 95% CI 1.62 to 3.24). When all variables were entered simultaneously, family social capital remained significantly and positively associated with self-rated health (OR 2.28; 95% CI 1.61 to 3.24). Other social capital domain did not show significant associations with self-rated health, whether they were entered separately or simultaneously.

Table 3. Coefficients for good self-rated health associated with family, neighborhood and school social capital among high school students, Serbia, 2016

	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)
Family social capital				
Low				
High	0.83 (0.49 to 1.19)***			0.83 (0.47 to 1.17)***
Neighbourhood trust				
Low				
High		0.01 (-0.35 to 0.43)		-0.10 (-0.53 to 0.33)
Informal social control				
Low				
High		-0.07 (-0.36 to 0.21)		-0.05 (-0.34 to 0.24)
Vertical school trust				
Low			0.25 (-0.14 to 0.67)	0.27 (-0.12 to 0.68)
High				
Horizontal school trust				
Low			0.02 (-0.33 to 0.38)	-0.01 (-0.36 to 0.35)
High				
Reciprocity at school				
Low			0.07 (-0.23 to 0.38)	0.06 (-0.24 to 0.36)
High				
Gender				
Male				
Female	-0.64 (-0.96 to -0.33)***	-0.62 (-0.91 to -0.32)***	-0.60 (-0.92 to -0.31)***	-0.62 (-0.95 to -0.32)***
Body mass index				
Normal				
Overweight/obese	-0.52 (-0.94 to -0.08)*	-0.48 (-0.92 to -0.01)*	-0.48 (-0.93 to -0.02)*	-0.51 (-0.96 to -0.09)*
Self-perceived socioeconomic status				
High/middle				
Low	-0.04 (-0.36 to 0.23)	-0.01 (-0.32 to 0.29)	-0.01 (-0.31 to 0.29)	-0.05 (-0.34 to 0.24)
Psychological distress				
High				
Low	-0.47 (-0.86 to -0.03)*	-0.66 (-1.03 to -0.26)***	-0.65 (-1.06 to -0.28)***	-0.46 (-0.89 to -0.01)*
Physical activity				
High/moderate				
Low	-0.58 (-0.89 to -0.28)**	-0.55 (-0.83 to -2.64)**	-0.56 (-0.84 to -0.27)**	-0.59 (-0.88 to -0.30)**

Legend: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The associations between social capital domains and self-rated health, presented by coefficients, are presented in Table 3. According to model 1, family social capital was significantly

and strongly associated with self-rated health (β coefficient 0.83; 95% CI 0.49 to 1.19). When all the variables were entered simultaneously, family social capital remained significantly and

positively associated with self-rated health (β coefficient 0.83; 95% CI 0.47 to 1.17). Other variables did not show significant associations with self-rated health.

Discussion

The aim of the present study was to examine possible associations between family, neighborhood and school social capital with self-rated health among Serbian high-school students aged 17–19 years.

Results from our study showed that family social trust was the only social capital domain strongly associated with self-rated health. Previous study from Novak et al. (2015) showed that high-school students, who reported high family social capital, were almost 2.5 times more likely to report good self-rated health. Family plays important role and support in children's life. Studies showed that children who regularly talked to their parents, were more likely to report positive body image (Fenton, Brooks, Spencer & Morgan, 2010), self-rated health and not smoking (Pedersen, Granado Alcón & Smith, 2004) and higher life satisfaction (Levin & Currie, 2010). According to Lambert and Cashwell (2004), "warm" communication between father and male adolescent may prevent aggressive and violent lifestyle. One other study showed that family impact was strongly associated with socioeconomic status, higher parental education and the ability of creating enriched learning environment (Bornstein & Bradley, 2003). Since Serbia, also like the other countries from Eastern bloc, moved from socialism to capitalism, families have become more important for financial and social support (Kennedy, Kawachi & Brainerd, 1998).

Our results did not show significant associations between neighborhood and school social capital with self-rated health. Our results were inconsistent with other study (Drukker, Buka, Kaplan, McKenzie & Van Os, 2005). For example, Drukker et al. (2005) reported that community informal social control was associated with higher levels of health. Also, another study from Drukker, Kaplan, Feron & Van Os (2003) showed that high informal social capital served as a preventive method, by

keeping them away from engaging in some risk behaviors. Authors of the present study speculate that those result changes occur because of socioeconomic characteristics, tradition and history Serbia had. In one recent study, national sample of Serbian people showed lower level of trust on institutions and networks, in comparison to European Union countries. Also, results from the same study showed that participation in community actions did not lead to higher level of universalistic norms (Stanojević & Stokanić, 2014). According to Putnam (1993), due to different social integration, post-socialistic societies go through a period of low trust, individual competencies and lower level of participation in community actions for the common good. One study showed that the trust of young people was very personalized, where family relations were the only certain social relationship (Tomanović & Stanojević, 2015), which is consistent with our results. Neighborhood and school social trust might be directly associated with children and youth, who did not give enough trust to others with different political, sports or religious beliefs (Tomanović & Stanojević, 2015). Also, results from the same study showed that youth with higher educational degree were more likely to trust others, than those with lower education degree, due to insecurity and competing interest. Serbian people, especially youth, still affected by the Homeland War, increased the distance and community trust towards Croats, Romas and other nations influencing on their future.

Our study has several limitations. First, due to cross-sectional design, we cannot exclude reverse causality, that is, that higher level of family social capital is caused by higher level of self-rated health. Second, since we used questionnaires, as subjective method, possible method bias may occur. Third, since we also gave them to fulfill the questionnaires during the class, it is also possible that environment method bias might occur (because of the teacher standing there). Fourth, social capital might not be fully understandable by the students, pointing out different individual understanding of it. Fifth, future studies are warranted to assess all three domains (family, neighborhood and school social capital) by approaching different sample subjects.

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