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Original Research

Social capital and physical activity among Croatian high school students

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ABSTRACT

Objective: To examine factors associated with regular physical activity in Croatian adolescents.**Study design:** A cross-sectional survey among high school students was carried out in the 2013/14 school year.**Method:** A survey was conducted among 33 high schools in Zagreb City, Croatia. Participants were students aged 17–18 years. The dependent variables were regular moderate to vigorous physical activity (MVPA) and overall physical activity measured by the short version of International Physical Activity Questionnaire and defined as 60 min or more of daily physical activity. The independent variables included family, neighborhood, and high school social capital. Other study covariates included: socio-economic status, self-rated health, psychological distress and nutritional status. The associations between physical activity and social capital variables were assessed separately for boys and girls through multiple logistic regression and inverse probability weighting in order to correct for missing data bias.**Results:** A total of 1689 boys and 1739 girls responded to the survey. A higher percentage of boys reported performing regular vigorous and moderate physical activity (59.4%) and overall physical activity (83.4%), comparing with the girls (35.4% and 70%, respectively). For boys, high family social capital and high informal social control were associated with increased odds of regular MVPA (1.49, 95%CI: 1.18 – 1.90 and 1.26, 95%CI: 1.02 – 1.56, respectively), compared to those with low social capital. For girls, high informal social control was associated with regular overall physical activity (OR 1.38, 95% CI: 1.09 – 1.76). **Conclusion:** High social capital is associated with regular MVPA in boys and regular overall activity in girls. Intervention and policies that leverage community social capital might serve as an avenue for promotion of physical activity in youth.

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Introduction

Physical inactivity is a major cause of disease, disability and preventable death worldwide; while conversely physical activity is an important protective factor against the development of chronic diseases at any age.^{1,2} Yet, the global prevalence of sedentarism is high.² Furthermore, evidence suggests that physical activity levels during adolescence tracks into adulthood. A systematic review of 27 studies from Australia, Canada, Europe and United States found strong associations between physical activity levels during adolescence and at follow-up into adulthood.³ Studies suggest that physical activity during adolescence is a complex behavior that is shaped by different personal and social factors, including sociodemographic circumstances and psychosocial factors, as well as the built environment.^{4–10} Information about factors that influence physical activity in adolescence comes primarily from North America and Western European countries, while evidence from Eastern Europe remains very limited. Recent reports on physical activity indicated a high prevalence of insufficient physical activity in Croatian children and youth.¹¹ According to the international Health Behaviour in School-aged Children (HBSC) survey, among 15-year-olds, 92% of girls and 78% of boys had insufficient physical activity and 10% of girls and 23% of boys were overweight or obese.¹¹ Furthermore, a study of 1840 adolescents from the Istrian Region in Croatia found that among boys aged 16–18 years, 63.1% were physically inactive, while the corresponding figure among girls was 66.9%.¹²

Social capital has received increased attention as a potential influence on the development of youth.¹³ Social capital is defined as the resources accessed through social networks and social participation.¹⁴ Social capital theory posits that interpersonal trust, norms of reciprocity, and exchange of social support each constitutes a type of resource and that access to these resources may promote the resilience of the individuals against adversity.^{13,15} Recent studies have expanded the range of social capital outcomes to include health behaviors and population health outcomes.^{13,15} Social capital is a contextual social factor which has been suggested to affect health by a decrease in psychosocial stress, influencing the norms concerning health related behaviors, increased access to health care, and a decline in violent crime.¹⁶ For instance, social capital has been demonstrated to be associated with mental health,¹⁷ a lower likelihood of elevated waist circumference, and overweight and obesity.¹⁸ While an initial paucity of primary research was a constraint,¹⁹ the empirical evidence base has accumulated over the last decade with a number of studies suggesting that social capital is an important asset for the health and well-being of children and adolescents.^{20–22} However, few studies have simultaneously examined the contribution of different sources of social capital to youth physical activity levels. One study from western Balkan countries reveals that Croatian adolescents reported more family and social loneliness, lower parental and friends' influence and lower friendship quality, compared with adolescents from Bosnia, Herzegovina and Macedonia.²³ This finding suggests that there may be unique social circumstances of Croatian adolescents that can affect

their physical activity. Additionally, the literature suggests that adolescents' involvement in physical activity varies by sex, as boys are more physically active and persistent exercisers than girls.^{10,24} Also, determinants of physical activity differ for girls and boys.²⁵

Therefore, the objective of the present study was to evaluate factors associated with regular physical activity in Croatian adolescents, particularly the association between different forms of social capital and physical activity among male and female adolescents.

Methods

A cross-sectional survey was conducted among thirty three high schools in Zagreb City in Croatia. Schools were randomly selected from the list of the city public and private high schools (out of 86). All students enrolled during the 2013/14 school year were invited to participate. From 3650 available school students, 3428 students (1689 males and 1739 females, aged 17–18 years) responded to the survey (93.8% response rate). The study used a self-administered questionnaire that was administered during obligatory physical education classes. The study questionnaire was previously tested in a pilot group of 30 high school adolescents to make sure that all questions were understood. The study was approved by the Institutional Review Board of the Faculty of Kinesiology University of Zagreb. All students signed an assent form and at least one parent signed a consent form.

Study variables

The dependent variable was regular physical activity measured by the validated short version of International Physical Activity Questionnaire (IPAQ).²⁵ Two dependent variables were analyzed: 1) regular vigorous and/or moderate physical activity and 2) overall regular physical activity. For both variables regular physical activity was defined as 60 min or more of daily physical activity during the week. In the case of the first variable only reports on vigorous and/or moderate physical activity were considered. In the case of the second variable, walking was also considered. This definition was based on the recommendations of physical activity for this age group.²⁶ The principal independent variables of interest were family, neighborhood, and school social capital. These variables were assessed by six questions proposed by Furuta et al., 2012.¹⁵ Family social capital was assessed by the question: 'Do you feel your family understands and gives attention to you?' Neighborhood social capital was assessed by two items; 'Do you feel people trust each other in your neighborhood (neighborhood trust)?' 'Do you feel that your neighbors step in to criticize someone's deviant behavior during high school (informal social control)?' School social capital was assessed by three items; 'Do you feel teachers and students trust each other in your high school (vertical school trust)?' 'Do you feel students trust each other in your high school (horizontal school trust)?' 'Do you feel students collaborate with each another in your high school (reciprocity at school)?' The response options were: 'strongly disagree', 'disagree', 'neither agree or disagree', 'agree' and 'strongly agree'. Then,

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