

Sociodemographic and socioeconomic variations in leisure time physical activity in a sample of Hungarian youth

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Summary

Objectives: The main goal of the present study is to detect the relationship between youth's leisure time physical activity and a set of sociodemographic (age, gender, family structure) and socioeconomic variables (SES and parental schooling).

Methods: Data were collected among Hungarian youth (middle and high school students, N = 1662) aged between 10–20 years using a self-administered questionnaire.

Results: Our findings did not indicate gender differences during the years of middle school, whereas gender differences became significant during the years of high school. In multivariate analyses, parental schooling played a decisive role in youth's physical activity, whereas SES self-assessment did not remain significant.

Conclusion: These findings provide some useful information on characteristics of the target groups for health education programs.

Key words: Leisure time physical activity – Youth – Sociodemographics – Health inequalities.

Sedentary lifestyle is a serious public health concern since inactive lifestyle is a risk factor for premature mortality and morbidity.¹ Regular physical activity is a psychosocial asset in preventing youth's future health problems.^{2,3} Therefore, students may form an important target group in health promotion programs. Attitudes towards leisure time physical activity, similar to other health behaviors, are established during childhood and adolescence.^{4,5} Whereas regular leisure time physical activity is popular among children, it starts to

decrease during adolescence, and even more in young adulthood.⁶ However, a high level of physical activity at ages 9 to 18, especially when continuous, predicts a regular physical activity in adulthood.⁷

Sociodemographic and socioeconomic variables, such as age, gender or socioeconomic status have been found to be associated with physical activity among adults.⁸ Youth as a population subgroup, however, may differ in factors influencing their leisure time physical activity that requires further investigations. Studies usually report gender differences in the amount and level of physical activity; male sex is associated with more involvement, particularly in regular and heavy physical activity.⁹ Girls and boys differ in their motivational structure; boys are primarily motivated by showing competitive drive and demonstrating their physical power, and they have more positive experiences with school physical education. Girls, on the other hand, are more motivated by reaching a nice figure or a healthy body, and they show lower interest in leisure time physical activity.^{10,11}

Besides gender, age is an important sociodemographic factor influencing youth's physical activity. Longitudinal studies have found a decreasing tendency of frequencies, particularly in terms of regular and organized leisure time physical activity.¹² The decline is the strongest during early adolescence, between childhood and puberty, particularly among girls.^{7,13} This decline is also accompanied by a significant increase in leisure time sedentary behavior, e.g. watching TV, videos, playing video games.⁸

Social inequalities in health usually appear in health behavior patterns: youth from higher SES engage in more leisure time physical activity than their peers from lower SES groups.^{14,15} In addition to the higher family income that may be associated with being an active member of certain sports clubs⁹, high parental education may contribute to youth's being

physically more active.¹⁶ A previous study, however, found that controlling for other influences, these associations disappeared.⁹ Besides family SES, results also report the important role of family structure (i.e., family intactness) in generating inequalities in health and health behavior.¹⁷

The above review implicates a number of correlates of youth's physical activity. In the present study, we focus on the role of these variables (such as age, gender, socioeconomic status, family structure) in frequencies of leisure time physical activity among Hungarian youth aged between 10–20 years.

Methods

Data were collected during the school year of 2003/2004 in a representative sample of middle and high school students ($n = 1662$) in Szeged and the Southern Plain Region (three counties). The sample consisted of middle school students ($n = 548$) and high school students ($n = 1114$) using randomly selected classes from randomly selected schools (four schools were randomly selected in each county of the region). Thus, this sample well represents middle and high school children living in Southern Hungary. The total number of students sampled was 1800. Of the questionnaires, 1662 were returned and analyzed, yielding a response rate of 92.3%. Among middle school students, 54.7% ($n = 301$) of the sample was male and 44.9% ($n = 247$) female; the age range of the respondents was 10 to 15 years of age (Mean = 12.2 years, S.D. = 1.2 years). Among high school students, the age range of the respondents was between 14 and 20 years of age (Mean = 16.5 years, S.D. = 1.3 years); 39.9% (444) boys and 60.1% (670) girls.

Data collection was going on by means of a self-administered questionnaire. Parents were informed of the study with their consent obtained prior to data collection. A standardized procedure of administration was followed. Trained graduate students and public health workers distributed the questionnaires to students in each class after briefly explaining the study objectives and giving the necessary instructions. Students completed the questionnaires during the class period. The questionnaires were anonymous and voluntary.

Regarding leisure time physical activity, students were asked about their usual extracurricular physical activity level during the school year.¹⁸ Although based on self-report, this measure proved to be a valid method for detecting social variations in physical activities in population samples.¹⁹ The following question was asked: "How many times during the past several months did you engage in physical activity besides school for at least a half hour?" Response categories were never (1), once or twice (2), two or three times a month (3), once or twice a

week (4), and three or more times a week (5). This variable was dichotomized as follows: never besides school physical education or just occasionally (1), and regularly, minimum once or twice a week (2).

Among sociodemographics, the following variables were measured: age (by means of school grades), gender (male = 1, female = 2), and family structure (nonintact, that is, a single-parent family = 1; intact, that is, a two-parent family = 2).¹⁷ Socioeconomic status (SES) was measured by parental schooling and SES self-assessment.¹⁴ Since social structure in Hungary is based on a dual-earning system, both father's and mother's educational level was measured. A four-level classification of education was used to measure father and mother schooling: 1) primary education; 2) apprenticeship; 3) general certificate of education, i.e. high school level; and 4) university or college degree. In addition, adolescents asked to respond to the following question: "How would you rate your family's socioeconomic status?" The answer categories included: 1) lower; 2) lower-middle; 3) middle; 4) upper-middle; and 5) upper class. This variable seems to be a proxy measure of the family's financial situation, that is, wealth, whereas children may have problems with reporting income or the parents' employment status.²⁰

SPSS for MS Windows Release 11.0 program was used in the calculations, with maximum significance level set to .05. The role of sociodemographic and socioeconomic variables in levels of the students' leisure time physical activity were assessed by Chi-square tests and multivariate logistic regression analyses. The results of the multivariate logistic regression analyses are presented as a series of odds. An odds ratio >1.0 indicates that there is a positive association between the factors of interest to the baseline odds, that is, the variable may elevate the likelihood of regular leisure time physical activity, where an odds ratio <1.0 indicates the reverse. P-values and confidence intervals (95%) were also calculated for detecting statistically significant relationships. In multivariate analyses, model evaluation was checked by Chi-square (with degree of freedom), p values and goodness of fit.

Results

Table 1 shows frequencies of leisure time physical activity by sociodemographic and socioeconomic variables in the subsamples of middle and high school students.

There were no gender differences in frequencies among the middle school children ($p >0.05$) by Chi-square test. However, at the high school level, boys are engaged in more physical activity than girls ($p <0.001$). According to school

Table 1. Frequencies of
leisure time physical activity
by sociodemographic and
socioeconomic variables.

	Frequencies of physical activity (%)			
	Middle school (n = 548)		High school (n = 1114)	
	Not besides school/ or occasionally	Regularly (weekly)	Not besides school/ or occasionally	Regularly (weekly)
Gender				
Boys	30.4	69.6	23.3	76.7
Girls	32.9	67.1	41.8	58.2
Significance		p>0.05		p<0.001
School grades/age				
Grade 1	30.3	69.7	36.4	63.6
Grade 2	39.3	60.7	30.4	69.6
Grade 3	24.8	75.2	69.6	63.4
Grade 4	32.8	67.2	34.2	65.8
Significance ^a		p>0.05		p>0.05
Family intactness				
Non-intact	31.1	68.9	37.0	63.0
Intact	31.6	68.4	33.6	66.4
Significance		p>0.05		p>0.05
Father schooling				
Primary schooling	61.5	38.5	51.2	48.8
Apprenticeship	32.2	67.8	36.5	63.5
High school level	32.6	67.4	31.6	68.4
College or higher	27.6	72.4	28.8	71.2
Significance ^a		p<0.05		p<0.001
Mother schooling				
Primary schooling	58.3	41.7	46.9	53.1
Apprenticeship	32.2	67.8	40.4	59.6
High school level	32.5	67.5	32.2	67.7
College or higher	28.6	71.4	27.0	73.0
Significance		p<0.05		p<0.001
SES				
Lower class	40.0	60.0	40.0	60.0
Lower-middle	53.8	46.2	43.5	56.5
Middle class	34.7	65.3	33.8	66.2
Upper-middle	25.3	74.7	28.6	71.4
Upper class	16.7	83.3	21.4	78.6
Significance		p<0.01		p<0.05

^a Chi-square tests.

grades (age), no differences in frequencies may be detected ($p > 0.05$). As to the relationship between parental schooling and the students' frequencies of leisure time physical activity, both among middle and high school children, high parental education is associated with youth's being physically active. Likewise, the relationship between frequencies of leisure time physical activity and the family's socioeconomic status (SES self-assessment) proved to be significant ($p < 0.01$ for middle school children and $p < 0.05$ for high school children). This means that students from higher SES families were more engaged in regular leisure time physical activity.

Table 2 focuses on the results of multivariate logistic regression analyses for regular leisure time physical activity including sociodemographic and socioeconomic variables. Among the sociodemographics, gender (being a male) was a signifi-

cant predictor but only in the subsample of high school students (OR = 2.4; 95% CI: 1.8–3.1). Among the socioeconomic indicators, parental schooling seemed to be an important predictor in both subsamples, whereas SES self-assessment became nonsignificant.

Discussion

The focus of this paper has been to detect the relationship between youth's leisure time physical activity and a set of sociodemographic and socioeconomic variables in a sample of Hungarian youth aged between 10–20 years. Previous studies report considerable differences in youth's physical activity according to these variables.^{3,9,12,13,15–17} Our findings partly

Table 2. Estimated odds ratios (OR) of the effects of sociodemographic and socioeconomic variables on the likelihood of regular (weekly) leisure time physical activity.

	OR (95 % CI)	
	Middle school (n = 548)	High school (n = 1114)
Gender		
Girls	1.0	1.0
Boys	1.1 (0.8–1.6)	2.4 (1.8–3.1)***
School grades/age		
Grade 1	1.0	1.0
Grade 2	0.7 (0.4–1.1)	1.3 (0.8–1.8)
Grade 3	1.3 (0.8–2.2)	1.0 (0.7–1.4)
Grade 4	0.9 (0.5–1.5)	1.1 (0.6–1.6)
Family intactness		
Non-intact	1.0	1.0
Intact	1.0 (0.7–1.5)	1.2 (0.9–1.6)
Father schooling		
Primary schooling	1.0	1.0
Apprenticeship	3.4 (1.1–10.7)*	1.8 (1.2–2.9)**
High school level	3.3 (1.1–10.7)*	2.3 (1.4–3.7)***
College or higher	4.2 (1.3–13.7)**	2.6 (1.6–4.2)***
Mother schooling		
Primary schooling	1.0	1.0
Apprenticeship	2.9 (1.2–7.2)*	1.3 (0.8–2.0)
High school level	2.9 (1.2–6.9)*	1.8 (1.2–2.8)**
College or higher	3.5 (1.4–8.5)**	2.4 (1.5–3.7)***
SES		
Lower class	1.0	1.0
Lower-middle	0.6 (0.1–4.0)	0.9 (0.4–1.9)
Middle class	1.3 (0.2–7.6)	1.3 (0.6–2.8)
Upper-middle	1.9 (0.3–12.1)	1.7 (0.7–3.7)
Upper class	3.3 (0.4–25.4)	2.4 (0.6–10.6)
Model evaluation of multiple logistic regression		
Chi-square	27.3 (d. f. = 15)	64.0 (d. f. = 12)
Goodness of fit	435.8	1078.4
p value	p < 0.05	p < 0.001

OR, odds ratios. 95 % CI, 95 % confidence intervals.
*p < .05 **p < .01 ***p < .001 (p values)

support previous research results, in addition, they draw the attention to some special aspects of these associations.

Previous studies report significant gender differences in frequencies of physical activity among youth.^{9,11} However, age is also a factor influencing gender differences that tend to increase during the years of adolescence.^{6,7} Our findings do

not indicate gender differences during the years of middle school, whereas gender differences become significant during the years of high school. The turning point between middle and high school is the most important in terms of the decline; changes in school requirements and biological-psychosocial changes of the puberty may contribute to this decline.

The relationship between youth's physical activity and their families' socioeconomic background has been justified in previous studies.^{9,14–16} Among SES variables, parental higher schooling may help students develop health conscious attitudes and behaviors.¹⁶ Family income, on the other hand, may contribute to greater possibility of engagement in certain sports with high cost.^{9,16} Our findings support these relationships, however, as multivariate analyses have pointed out, parental schooling plays a decisive role in youth's physical activity, whereas the family's SES (self-assessment) does not remain significant. In addition, whereas the relationship between family structure (whether living in an intact or a non-intact family) may also count in youth's substance use¹⁷, this variable does not play a role in youth's physical activity.

We may conclude that gender (particularly in relation to age) and socioeconomic status may be important variables influencing youth's physical activity. Although findings on the relationship between substance use and social inequalities are rather controversial^{14,15}, social inequalities have been detected in terms of youth's leisure time physical activity. Namely, students from high SES families (particularly indicated by the parents' high educational level) are more likely to be physically active. Our findings are descriptive, therefore, may be viewed as preliminary. Another limitation implies the self-report nature of physical activity. All in all, due to the large sample size and the age range of the sample, these findings provide some useful information for health education programs drawing the attention to characteristics of the target groups. These results suggest that late adolescent girls and those from lower social classes are particularly important target groups in school based programs.

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