CHARACTERISTICS OF PHYSICAL ACTIVITY AMONG HEALTHY SERBIAN ADOLESCENTS

CARACTERÍSTICAS DA ATIVIDADE FÍSICA DE ADOLESCENTES SÉRVIOS SAUDÁVEIS

CARACTERÍSTICAS DE LA ACTIVIDAD FÍSICA DE ADOLESCENTES SERBIOS SALUDABLES

ABSTRACT

Introduction: Physical activity (PA) remains the most important modifiable risk factor in the prevention of chronic diseases that are major killers in the modern era. However, many young people today do not meet the recommended guidelines on PA. Few studies were found on the levels of physical activity among adolescents from transitional countries. Objective: To determine the levels of physical activity in a representative sample of healthy adolescents from Pančevo (Serbia), and the factors that determine these levels. Methods: This cross-sectional study included 401 randomly selected adolescents (191 boys and 210 girls) from the city of Pančevo, Serbia. The long version of the International Physical Activity Questionnaire (IPAQ), validated for Serbia, was applied. PA was expressed as metabolic equivalent-minute per week (MET-min/week) and classified as low, moderate, or high. Results: The median PA for the whole sample was 2049.18 MET-min/week. The average PA score in boys was higher (2680 MET-min/week) than in girls (1479 MET-min/week). The prevalence of respondents with inadequate PA was 53.9%, and was higher in girls than in boys. Boys showed the higher values for intense and moderate PA, while the prevalent type of PA among girls was walking. Level of PA did not depend on the adolescent’s nutritional status. The most important predictors of PA among the participants were sex, father’s PA, and hours spent on sedentary activities like using a computer and watching television. Conclusion: Adolescents in Pančevo do not practice enough physical activity, especially girls. Better strategies are needed, to increase levels of PA, considering the main predictors in the adolescent population. Level of Evidence II; Retrospective study.

Keywords: Physical activity; Adolescent; Epidemiology.

RESUMO

Introdução: Atividade física (AF) continua sendo o fator de risco modificável mais importante na prevenção de doenças crônicas, conhecidas como principais causadoras de morte na era moderna. No entanto, atualmente, muitos jovens não estão atendendo às diretrizes de AF. Poucos estudos sobre o nível de atividade física foram encontrados nas amostras de adolescentes dos países em transição. Objetivo: Determinar o nível de atividade física de uma amostra representativa de adolescentes saudáveis de Pančevo (Sérvia), assim como os fatores de condicionamento desse nível. Métodos: O estudo retrospectivo incluiu 401 adolescentes selecionados aleatoriamente (191 meninos e 210 meninas) da cidade de Pančevo, Sérvia. Aplicou-se a versão sérvia longa e validada do International Physical Activity Questionnaire (IPAQ). A AF foi expressa através do equivalente metabólico - minuto por semana (MET-min/semana) e classificada em baixa, moderada e alta. Resultados: A mediana da AF total para toda a amostra foi de 2049,18 MET-min/semana. O escore total médio de AF observado nos meninos foi maior (2680 MET-min/semana) do que nas meninas (1479 MET-min/semana). A prevalência de respondentes ativos não adequados foi de 53,9%, maior número de meninas do que meninos. O grupo de participantes do sexo masculino apresentou os maiores valores de escore intensivo e moderado de AF, enquanto o tipo de AF dominante entre as meninas foi a caminhada. O nível de AF não dependera do estado nutricional das adolescentes. Os previsores mais importantes da AF entre os participantes foram sexo, AF do pai e horas de atividades sedentárias, como por exemplo, usar o computador ou assistir televisão. Conclusão: Os adolescentes em Pančevo não praticavam atividade física suficiente, especialmente, as meninas. É necessário desenvolver melhores estratégias para garantir um aumento da AF com atenção aos principais previsores na população de adolescentes. Nível de evidência II; Estudos retrospectivos.

Descritores: Atividade física; Adolescente; Epidemiologia.

RESUMEN

Introducción: La actividad física (AF) continúa siendo el factor de riesgo modificador más importante en la prevención de enfermedades crónicas, conocidas como principales causadoras de muerte en la era moderna. Sin embargo, actualmente, muchos jóvenes no están atendiendo las diretrices de AF. Pocos estudios sobre el nivel de actividad física fueron encontrados en las muestras de adolescentes de los países en transición. Objetivo: Determinar el nivel de actividad física de una muestra representativa de adolescentes saludables de Pančevo (Serbia), así como los factores de condicionamiento de ese nivel. Métodos: El estudio retrospectivo incluyó a 401 adolescentes seleccionados aleatoriamente (191 niños y 210 niñas) de la ciudad de Pančevo, Serbia. Se aplicó la versión serbia larga y validada del
The health benefits of regular exercise and physical activity are independent of age, but it is especially important for young people. The level of PA among children and adolescents is an important premise for their present and future health promoting lifestyle, that is emphasized in many studies. Regular physical activity helps in the prevention and control of risk behaviors such as smoking, alcohol consumption and abuse of psychoactive substances, and it impacts on diet and prevents violence. Together with sports, it promotes psychological well-being and reduce stress, anxiety, depression and loneliness.

However, a recent worldwide survey revealed that large proportions of young people across different European countries did not meet PA recommendations (60 minutes or more in moderate physical activity on five or more days a week, totaling at least 300 minutes of physical activity per week) and spent a lot of time sedentary. According to data from five European countries, only 4.6% of girls and 16.8% of boys complied with the 60 min/day of moderate- to vigorous-intensity physical activity daily. Generally speaking, citizens of southern EU countries have lower levels of PA than northern and western countries. Additionally, PA level declines across the lifespan, particularly during adolescence.

In most transitional countries, significant deviations from recommendations for healthy lifestyle was noted in children’s habits, knowledge and practice. Furthermore, a change in diet and sedentary lifestyle has been reflected in an increase of the number of overweight and obese children. Measuring and assessing physical activity in childhood daily. Generally speaking, citizens of southern EU countries have lower levels of PA than northern and western countries. Additionally, PA level declines across the lifespan, particularly during adolescence.

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boys and 16.7 (SD ± 1.7 years) for girls. There was no statistically significant difference in boys’ age compared to girls (p=0.661) Table 1.

The median of total PA for the whole sample was 2049.2 MET-min/week (Table 2). The average total PA score (Figure 1) observed in boys (2680.6 MET-min/week) was significantly higher than in girls -1478.9 MET-min/week (t=3.319, p < 0.0001).

This study found that prevalence of non adequate active respondents was 53.9%, and prevalence of active was 79.8% (Table 2). Adequate PA level was found in 46.1% of participants. Among 81 inactive adolescents, 55 was girls and 26- boys.

The types of PA among adolescents in the study was different regarding sex. The male participants showed the higher values of intensive and moderate PA score compared to female and dominant type of PA among girls was walking (Table 3).

Examined adolescents were physically very active at leisure-time domain and in the domestic and garden domain as opposed to transportation (Table 4). The boys and girls in the study differed statistically by all domains of PA, except transport.

In the regression model with PA as dependent variable, we used independent variables from the study those are in previous statistical tests

differ significantly like: gender, level of mother’s PA, level of father’s PA, floor of housing of adolescents, elevator using, family income, smoking habits, alcohol consuming, drug consuming, TV/hours and PC/hours.

Multiple regression analyses showed that the most important predictors of PA among adolescents that remained significant were gender, PA of father and hours of sedentary activities like PC using and TV watching (Table 5).

**DISCUSSION**

Understanding of the faulty PA habits and the factors responsible is very essential to develop effective interventions for PA promotion and minimizing life style problems like obesity during adolescence.

In this study total PA in the representative sample of adolescents from one area in Serbia was almost 2700 MET-min/week for boys and about 1500 MET-min/week for girls. Majority of the respondents reach the level of at least 30 minutes of moderate PA or a 1 ½ hour of vigorous PA five days of week. Only about 19% of Serbian adolescent are characterized by a high level of physical activity, which was less that reported in the study done in other European countries. In a study done in Poland, more than 60% of adolescents had high level of PA. The results of the study done in Ukraine showed that the mean total physical activity of students was 3560 MET-min/week. The majority of 17-year-old adolescents attending selected schools in Lithuania characterized by a high level of physical activity close to 5000 MET-min/week, with the larger group being boys. On the other hand, most other recently studies dealing with physical activity among European adolescents conclude that interventions to enhance physical activity are strongly needed.

Our survey also obtained the gender differences whereby boys were significantly more active than girls. This result is in accordance with many previous studies . According to Sallis et al., differences in PA between genders mainly start appearing at 16 years old. The study of Vasickova et al. suggested that well-designed type of intervention into the PA behavior of adolescents could eliminate differences in PA among girls and boys. Some studies suggest that gender differences are caused by biological differences and even hormonal changes between girls and boys and other believe that difference in socialization in which girls are encouraged to be more focused on their own emotions and the analysis of them often leads to sedentary behaviour.

For a more complete insight into the pattern of physical activity, it is interesting to separately analyze each physical activity domain. Our study showed that among girls dominates activities related with walking, while among boys intensive activity dominated. Also Bergier et al. reported similar findings. Armstrong and Welsman state that European boys are more active than European girls, particularly in term of vigorous PA.
It was also found that adolescents who more lead a sedentary style of life (large time spent sitting in front of PC or TV) are characterized by a lower level of total PA. Using PC among youth for chatting on-line, internet, emailing, homework etc. in their free time has increased markedly in the last years and played an important role in influencing their PA level. Our findings also highlight a need for strategies and interventions aimed at reducing screen-time behaviours and promoting moderate-to-vigorous physical activity.

In our study, the distribution of physical activity throughout domains indicated considerably lower physical activity of adolescents in the domains of transport than in the domains of leisure-time and garden. The results indicate the importance of creating physical activity interventions with the emphasis on school and transportation domain. Attention should be paid to adolescents attending physical exercise classes at schools.

Some authors pointed out to the importance of parents and their multiple roles influencing youths’ physical activity behaviours, such as creating health-promoting rules and serving as a role model for physical activity. Like in many of our studies, the important predictor of PA among adolescents in our survey was PA of father. For example, regular exercising of both mother and father predicts 13–14-year old adolescents’ engagement in sport. According to Cheng et al., physical activity of the father was associated with that of their sons.

The WHO Regional Office for Europe is committed to encouraging and supporting countries to develop and implement their own guidelines. Developing the national guidelines for physical activity is an important part of creating public health policies in transitional countries and disseminating consistent information about a healthy lifestyle.

The major advantages of this study are the methods used. The long version of IPAQ allowed us to determine the level of physical activity in each of 4 physical activity domains, which is very important in order to get a complete insight into the pattern of physical activity among adolescents. But if we want to compare this study with similar studies conducted in other countries, we have to bear in mind that the recent studies in the European Union countries used the short version of IPAQ. Although comparative studies have shown that results obtained by different versions of IPAQ can be compared, physical activity estimated using the long version of IPAQ may be higher because the short version systematically underestimates physical activity level. The results of the study were limited by the local character of research. The sample size and this might make our findings less generalizable. Although Serbia is a typical example of a post-communist country in social and economic transition, generalization of our results on other transitional countries is not completely accurate.

CONCLUSION

Based on our results, we could conclude that urban adolescents in Serbia do not engage in sufficient physical activity. Gender difference affects the PA level of adolescents, as well as PA of father and sedentary activities. Taking into account these factors, it is necessary to pay greater attention to this population group while developing health programmes to ensure that the PA among adolescents be increased.

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