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ORIGINAL ARTICLE

Agreement between two cutoff points for physical activity and associated factors in young individuals[☆]

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KEYWORDS

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Abstract

Objective: To analyze the agreement between two cutoff points for physical activity (300 and 420 minutes/week) and associated factors in youth.

Methods: The study enrolled 738 adolescents of Londrina city, Paraná, Southern Brazil. The following variables were collected by a self report questionnaire: presence of moderate to vigorous physical activity, gender, age, father and mother education level, with whom the adolescent lives, number of siblings, physical activity perception, participation in Physical Education classes, facilities available to physical activity practice and sedentary behavior. Prevalence of physical activity between criterions were compared using McNemar test and the agreement was analysed by Kappa index. Multivariate analysis was performed using Poisson regression with robust variance adjustment was applied. **Results:** The prevalence for physical activity was significantly different: 22,3% for 300 minutes/week and 12,8% for 420 minutes/week ($p<0,05$), but the agreement was strong ($k=0,82$, $p<0,001$). The variables gender, father education, physical activity perception and sedentary behavior were associated to physical activity in both analyzed criteria. Participation in Physical Education class and facilities available to physical activity practice were associated to physical activity only with 300 minutes/week cutoff point.

Conclusion: Caution is suggested regarding cutoffs use for physical activity in epidemiological studies, considering they can result in differences in prevalence of physical activity and its associated factors.

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PALAVRAS-CHAVE

Adolescente;
Atividade motora/
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Concordância entre dois pontos de corte para atividade física e fatores associados em jovens**Resumo**

Objetivo: Analisar a concordância entre dois pontos de corte para atividade física (300 e 420 minutos/semana) e os fatores associados em jovens.

Métodos: Participaram do estudo 738 adolescentes da cidade de Londrina-PR, Brasil. A prática de atividade física em intensidade moderada a vigorosa e as variáveis sexo, idade, escolaridade paterna e materna, com quem mora, número de irmãos, percepção de atividade física, participação nas aulas de educação física, local para prática de atividade física e comportamento sedentário foram coletadas por meio de um questionário. A prevalência de atividade física entre os critérios foi comparada por meio do teste de McNemar, a concordância avaliada, por meio do índice Kappa, e a análise multivariada, por meio da regressão de Poisson com ajuste robusto da variância.

Resultados: A prevalência de atividade física foi significativamente diferente: 22,3% para 300 minutos/semana e 12,8% para 420 minutos/semana ($p < 0,05$), e a concordância foi forte ($k = 0,82$, $p < 0,001$). As variáveis sexo, escolaridade paterna, percepção de atividade física e comportamento sedentário se associaram com a atividade física em ambos os critérios analisados. A participação nas aulas de educação física e a disponibilidade de locais para prática se associaram apenas com o ponto de corte 300 minutos/semana.

Conclusões: Sugere-se cautela ao utilizar pontos de corte para atividade física em estudos epidemiológicos, considerando que pode resultar em diferença na prevalência de atividade física e dos fatores a ela associados.

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Introduction

Physical activity has been investigated in different age groups due to its positive association with health.¹ The recommendation for physical activity for children and adolescents is 60 minutes at a moderate-to-vigorous intensity, at least five days a week, and performing more than this daily can produce additional health benefits.² Therefore, active adolescents have a better cardiometabolic profile and a higher degree of physical fitness related to health, mental health, and nutritional status.³⁻⁵

In Brazil, several epidemiological studies have been performed to identify the prevalence and factors associated with physical activity among adolescents. The prevalence of physical activity ≥ 300 minutes/week in Brazilian adolescents from different regions of the country ranges from 14.5% to 50%.⁶⁻¹² Due to the low prevalence of young individuals who meet the recommendations of weekly physical activity, several studies have sought to identify factors associated with physical activity in this age group. In general, the factors positively associated with physical activity of young Brazilians are male gender,^{7,9,10,13} socioeconomic status,⁹ maternal and paternal education,⁸ and participation in physical education classes,⁷⁻⁹ while sedentary behavior,^{9,11,13} work,⁷ age,⁹ and night study¹² are factors negatively associated with physical activity.

Concerning the level of weekly activity by adolescents, although there is a recommendation of performing moderate to vigorous physical activity for 60 minutes daily, and because performing 60 minutes daily produces additional benefits,² studies have used 300 minutes/week as the cut-off,^{6-9,11,12,14} as well as 420 minutes/ week.^{5,13,15-19}

Nevertheless, it is not known whether using different cut-offs for physical activity among young individuals results in similar prevalence and factors associated to physical activity.

The absence of information that show the association between the cutoff and the factors associated with physical activity have resulted in the use of different cutoffs in epidemiological studies, a fact that hinders the interpretation of results.²⁰ Thus, the objectives of this study were: a) to analyze the agreement between two cutoffs (300 and 420 minutes) regarding the prevalence of active young individuals, and b) to identify factors associated with physical activity in each cutoff.

Methods

This was a cross-sectional study of children and adolescents from the public schools of the city of Londrina, state of Paraná, Brazil, carried out in the second quarter of 2012. According to a survey by the Regional Education Center, 55,475 children and adolescents were enrolled from the sixth grade of elementary school to the third year of high school in the public schools of the city in 2012.

The probabilistic method was used to select the sample by means of two clusters (school and series), stratified by city region (North, South, East, West, and Central) and by gender, performed in two stages. In the first stage, a school was randomly selected from each region. Secondly, the number of students in each school was evaluated, in order to obtain the proportion that the region represents. No participant had any physical or cognitive limitations that could prevent performing the study procedures.

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