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Original article

Student and parental perception about physical activity in children and adolescents



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ABSTRACT

Introduction: This study aimed to investigate the association between physical activity levels of children and adolescents and the perception of their parents or guardians regarding physical activity of their children.

Method: A total of 306 subjects, aged eight to eighteen years, living in a city in southern Brazil, participated in the study. The physical activity of schoolchildren was measured using the Physical Activity Questionnaire for Children. The Chi-squared test examined possible associations between the independent and dependent variables. Poisson regression was used to calculate the prevalence ratio and confidence intervals of 95%.

Results: The prevalence of schoolchildren who were insufficiently physically active was 86.6%. The incidence of physically active schoolchildren was lower in females. Both the children who perceived themselves as more physically active than their peers and those with guardians who perceived them as active, were more active.

Conclusions: Intervention programs to promote physical activity in schoolchildren should consider the perception of the schoolchildren and their parents.

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Percepción de estudiantes y de los padres acerca de la actividad física habitual en niños y adolescentes

RESUMEN

Introducción: Este estudio tuvo como objetivo investigar la asociación entre los niveles de actividad física de niños y adolescentes y la percepción de sus padres o tutores sobre la actividad física de sus hijos.

Método: Un total de 306 sujetos, entre ocho y dieciocho años, del sur de Brasil, participaron en el estudio. La actividad física de los escolares se midió a través del Cuestionario de Actividad Física para Niños. La prueba de Chi-cuadrado examinó las posibles asociaciones entre las variables independientes y dependientes. La regresión de Poisson fue utilizada para calcular la razón de prevalencia e intervalos de confianza de 95%.

Resultados: La prevalencia de los escolares que estaban insuficientemente físicamente activos fue del 86.6%. La incidencia en de los escolares físicamente activos fue menor en las mujeres. Tanto los niños que

Palabras clave:

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perciben a sí mismos como más activos físicamente que sus compañeros y los que tienen los padres que los perciben como activos, fueron más activos.

Conclusiones: Los programas de intervención para promover la actividad física en escolares deben considerar la percepción de los alumnos y sus padres.

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Percepção dos estudantes e pais sobre atividade física em crianças e adolescentes

R E S U M O

Palavras-chave:

Saúde

Estilo de vida sedentário

Adolescente

Introdução: Este estudo teve como objetivo investigar a associação entre níveis de atividade física de crianças e adolescentes e a percepção de seus pais ou responsáveis quanto à atividade física dos seus filhos.

Método: Participaram do estudo um total de 306 indivíduos, com idades entre 8 e 18 anos, de uma cidade do sul do Brasil. A atividade física dos escolares foi mensurada por meio do Questionário de Atividade Física para Crianças. O teste do qui-quadrado analisou as possíveis associações entre as variáveis independentes e dependentes. A regressão de Poisson foi utilizada para calcular a razão de prevalência com um intervalo de confiança de 95%.

Resultados: A prevalência de escolares insuficientemente ativos fisicamente foi de 86.6%. A ocorrência de escolares fisicamente ativos foi menor em garotas. Tanto as crianças que se perceberam como mais ativas fisicamente do que os seus colegas, quanto aquelas com pais que as perceberam como ativas, eram mais ativas.

Conclusão: Programas de intervenção para promover a atividade física em escolares devem considerar a percepção dos alunos e seus pais.

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Introduction

The current literature presents that practicing the recommended levels of physical activity is beneficial to muscular fitness, to individuals with diabetes mellitus and for cardiovascular health¹ and individuals who practice more physical activity seem to be less prone to cardiovascular risks and many other diseases that might lead to disability or death.^{1,2} Practicing physical activity at the school age is imperative, because it is a factor that contributes to increased physical activity in adulthood,³ and parents or guardians might have an important role on their children's physical activity.^{4–8}

In Brazil, high levels of physical inactivity in children and adolescents were reported in the southern⁹ and other regions.¹⁰ Due to this, different types of interventions have been presented and suggested^{11,12} in the literature and urgent strategies should aim to increase levels of activity in youth. Social support represents a type of functional interaction between parents and children,¹³ and the knowledge of parents or guardians about their children's behavior regarding the practice of physical activity seems to play an important role in the active behavior of children.^{14–17}

Previous Brazilian studies investigating children and adolescents influences and determinants for enhancing physical activity practice have focused on school-based programs, socioeconomic variables or neighborhood conditions.¹⁰ There is a lack of studies presenting information regarding parental influences on physical activity levels of their children. The way parents perceive their children's physical activity might encourage them to motivate their children to be more active or make them negligent in this matter, and these mechanisms should be investigated.⁸

Understanding and monitoring these mechanisms, especially the perception of parents and children about their physical activity, will contribute to the development of intervention programs for physical activity and health promotion in the community

according to recommendations in the current literature,^{11,18} specifically in Brazil.¹² Therefore, the aim of this study was to investigate the association between physical activity levels of children and adolescents and the perception of their parents or guardians regarding physical activity of their children.

Method

This study had a cross-sectional design and followed all guidelines and norms that regulate ethics in research in Brazil. The protocols of this study were approved by the local Ethics Committee on Research. The sample was chosen from one public school based in the town of Londrina, in the south of Brazil, with 2239 students enrolled in that school year, and no formula was used for the sample size calculation. There were 306 student participants, consisting of 145 males and 161 females with a mean age of 12.8 (± 1.8) years, and 306 parents or guardians, 72 male and 234 female. Students eligible to compose the sample were enrolled from 3rd grade to 8th grade (9–15 years old).

Physical activity evaluation

The physical activity of students was measured using the Physical Activity Questionnaire for Children (PAQ-C); its administration and scoring are described elsewhere.¹⁸ A translated and then modified version to exclude physical activities not practiced in Brazil¹⁹ was used in this study. In brief, this instrument investigates the amount of moderate and intense physical activity carried out by children in the seven days prior to completing the questionnaire. It is composed of 13 questions about the practice of sports and games, including physical activities at school and during leisure time, including weekends. Each question has a value of 1–5 and the final score is obtained by averaging the responses, ranging from

“very inactive (1)” to “very active (5)”. Scores 2, 3, and 4 represent the categories “fairly inactive”, “neither inactive or active” or “fairly active” respectively (see Corder et al., 2010).²⁰ Therefore, from the final score, it was possible to classify individuals as very active or very inactive. Students with scores ≥ 3 were considered active and those with scores < 3 were considered inactive for statistical analysis and comparisons.²⁰ Crocker et al.¹⁸ reported that the PAQ-C has internal consistency values between 0.79 and 0.89, and test–retest reproducibility of between 0.75 and 0.82. The validity was investigated by correlating the scores of the PAQ-C with the results of physical activity compared ($r=0.63$) with the Godin and Shephard physical activity questionnaire ($r=0.41$), and with the Caltrac accelerometer ($r=0.39$).²¹

Parents or guardians' perception about students' physical activity

Analysis of parents' or guardians' perceptions about the student's physical activity was investigated through the following question²⁰: *Compared to other children, how physically active or inactive would you say that your child is?* The answers were on a scale from 1 to 5, with 1 being *very inactive* and 5 *very active*, set as: *very active, apparently active, neither active or inactive, apparently inactive and very inactive*. The observed responses were separated into two groups, “active” (very active, apparently active, not inactive or active) and “inactive” (apparently inactive, and very inactive) for the perception of physical activity.

Students' perception about physical activity

Schoolchildren's perception about their physical activity was assessed through the following question²⁰: *Compared to other friends your age, how active would you say you are? (Choose only one)*. The possible answers were: “much more active,” “more active”, “average”, “less active” and “much less active.” In the same way as those for the perceptions of parents and guardians, the scores for these responses represented values of 1 (much less active) to 5 (much more active). The responses were divided into two groups: active ≥ 3 , consisting of the answers: “much more active”, “more active”, “average” and inactive < 3 , corresponding to the responses “less inactive” and “much less inactive” for the perception of physical activity.

Statistical analysis

The chi-squared test examined the possible associations between variables. Poisson regression was used to construct a model for the observed associations. Therefore, the dependent variable in the chi-squared test, which was associated with the independent variable up to 20% ($P < 0.20$), was included in the model. To analyze the degree of the associations between variables, prevalence ratios and confidence intervals of 95% were used. All cases of significance (P) of less than 5% were considered statistically significant. Analyses were performed on the statistical software SPSS – (Statistical Package for the Social Sciences Inc., Chicago, IL), version 17.0. For the reason of providing robust adjustment of variance, STATA 8.0 (Statistics/Data Analysis, Lakeway Drive, TX) was used.

Results

The results showed that 41 students (13.4%) were classified as active and 265 (86.6%) as inactive. Of this total, 250 (85%) had declared themselves to be physically active and 46 (15%) as inactive. A total of 234 women (76.6%), and 72 men (23.5%) answered the questionnaires. Of these parents or guardians, 285 (93.1%)

Table 1

Association between students' physical activity and parental perception about physical activity ($n = 306$).

Variables	Physical activity		χ^2	P
	Active ^a	Inactive ^b		
Sex				
Girls	14 (8.7%)	147 (91.3%)	5.650	0.017
Boys	27 (18.6%)	118 (81.4%)		
Perception of students about physical activity				
Active	40 (15.4%)	220 (84.6%)	4.795	0.029
Inactive	1 (2.2%)	45 (97.8%)		
Perception of parents or guardians about physical activity				
Active	41 (14.4%)	244 (85.6%)	2.359	0.125
Inactive	0 (0%)	21 (100%)		

^a PAQ-C score ≥ 3 .

^b PAQ-C score < 3 .

Table 2

Results of Poisson regression for the associations with physical activity of students ($n = 306$).

Variable	Category	SE	Physically active	
			PR _{Adjusted} (CI 95%)	P
Sex				
	Boys	0.019	1.00	0.028
	Girls		0.95 (0.92–0.99)	
Students' perception of PA				
	Inactive	0.017	1.00	> 0.001
	Active		1.07 (1.03–1.10)	
Parent or guardian's perception				
	Inactive	0.015	1.00	0.001
	Active		1.05 (1.02–1.08)	

Active: ≥ 3 points in PAQ-C; PA=physical activity; PR=prevalence ratio; SE=standard error; CI 95%=95% confidence interval.

perceived their children as active, whereas, only 21 (6.9%) perceived them as inactive.

Table 1 shows the association between the physical activity of students, the perceptions of parents or guardians, and the perception of students. A significant association ($\chi^2 = 5.650$; $P = 0.017$) was found when comparing physical activity between genders. 18.6% of males and 8.7% of females were found to be physically active. The students' perception about physical activity was significantly associated with physical activity in school ($\chi^2 = 4.795$; $P = 0.029$), indicating that 15.4% of students who considered themselves active in relation to their colleagues were also classified as active. On the other hand, 2.2% who considered themselves to be inactive were classified as active. All the children perceived by their parents or guardians to be inactive were classified as inactive. However, the association was not statistically significant ($\chi^2 = 2.359$; $P = 0.125$).

Table 2 shows the model for the results of the Poisson regression. Parents or guardians with a greater perception of physical activity about their children had more physically active children.

Discussion

The purpose of this study was to investigate the association between physical activity levels of children and adolescents and the perception of their parents or guardians regarding physical activity of their children. Physical activity levels measured through self-report questionnaires are widely used in the current literature^{10,22} due to the possibility of measuring duration, frequency, intensity or the setting of physical activity. This method for evaluating physical activity was also chosen for the following reasons: (1) the ability to make comparisons between results with other national and international studies; (2) a very good liability and concordance with

motion sensors; (3) the short application time and capacity to be fully supervised by researchers.

Some of the findings in the present study corroborate previous studies. The prevalence of physical activity in this study was higher in boys than in girls and this is in concordance with data presented in current literature.^{5,10,11,23} In the present study, 86.6% of the sample were classified as inactive. This result is in agreement with a study involving children from the northeast region in Brazil, where 93.5% of physical activity was classified as low,¹⁹ and with a recent investigation lead by Hallal et al.,¹¹ where the authors presented an 80.3% prevalence of children and adolescents doing fewer than 60 minutes of moderate to vigorous physical activity per day.

Rivera et al.¹⁰ reported low levels of physical activity and that 60% of students did not have regular physical education classes at school, indicating that these students might attend schools in poorer socioeconomic areas. Economic status might influence the physical activity levels of children and adolescents, a variable that our study did not include. Children and adolescents living in regions with better infrastructure are possibly more active when compared to those living in areas with fewer public improvements, appropriate facilities for practice, or areas with accessibility problems.^{24,25}

The present study adds to the current literature that the perceptions of children and parents about physical activity influences students' physical activity levels. A recent study with children from the southern region of Brazil did not include this variable.²⁶ In our results, students' perceptions about their physical activity were positively associated with their actual physical activity. Corder and Sluijs²⁰ found that 30.9% of children were classified as inactive and 40% overestimated their physical activity levels.

Van Sluijs and Griffin²⁷ reported that people who overestimate their level of physical activity appear to be healthier than people who are aware of their low level of physical activity. Those who overestimated themselves also had a more positive outlook on various psychosocial factors, and were considered less likely to change their physical activity behavior, making the perception a potential factor in promoting physical activity. These findings cannot be generalized for students who wrongly consider themselves active or physically inactive. Perceptions of physical activity should match their real values, so that people can evaluate and modify their behavior in relation to physical activity.

Strategies to promote physical activity in schools should support the way students perceive themselves physically.²⁷ One of the goals is to encourage them to be more physically active, and children and adolescents should have perceptions equal to their level of physical activity. In the present study, students who perceived themselves as more active than their peers were more active than those who considered themselves less active. Similar to these findings, a longitudinal study²⁸ reported that boys perceived themselves as more active than girls, which increased the chances of being active 3.8 times.

An important way that parents or guardians influence the physical activity of students is by providing them with proper support.²⁹ This involves aspects such as the purchase of materials for sports or watching the child in physical activity, as well as presenting incentives and teaching about the benefits of physical activity.¹³ This shows the importance of parents being strongly aware about their child's physical activity practice. This influence is stronger during the first years of infancy.⁶ During this period of human development, parents provide valuable support by way of example and conversation, while the child is more susceptible to behavior that will be incorporated into their own behavior and personality.

These results provide information that can justify the importance of physical activity in families, not just children and adolescents. Longitudinal studies working with these variables could deliver information about different periods of youth and its relation with physical activity. This study has limitations, which

need to be described and considered when analyzing its results; firstly, the sample size is not representative of the child and adolescent population of the town where it took place; secondly, although the self-report method for physical activity evaluation is widely used, this method is not better than motion sensors already used elsewhere in a similar study.²⁰ Finally, the literature suggests that socioeconomic variables might influence physical activity in children and adolescents, and this information was not investigated in this study.

In conclusion, boys were more physically active than girls in this sample. The results found in this study suggest that the way parents perceive their children and the students perceive themselves might influence their physical activity levels. The Poisson regression results showed that children and adolescents perceiving themselves as physically inactive might be another barrier, maybe the first, which intervention programs need to include in order to help children and adolescents to become more active.

Conflicts of interest

The authors have no conflicts of interest to declare.

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