

Physical activities and barriers reported by adolescents attending a health service

Atividades físicas e barreiras referidas por adolescentes atendidos num serviço de saúde

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Abstract – This study characterized the physical activity and barriers reported by adolescents attending the Physical Education service of the Adolescent Care and Support Center, São Paulo, Brazil. An exploratory study was conducted using anamnesis data from 118 adolescents aged 10 to 19 years seen between April 2005 and June 2008. The following aspects were analyzed according to gender and age group: participation in leisure-time physical activities and physical education classes, physical activity preferences, and barriers to preferred physical activity. Data are reported as frequencies and were compared by Fisher's exact test. Enjoying physical activities was reported by 93.2% of the adolescents, whereas 50.8% did not perform any physical activity during their leisure time. The lack of participation in school physical education classes predominated among older adolescents of both genders. Games and team games were the preferred activities, irrespective of gender or age. The lack of company or friends and the lack of places were the most frequently reported barriers to preferred physical activity. The results highlight the importance of a health service program for adolescents that promotes, guides, and supports a more active lifestyle.

Key words: Adolescent health services; Physical activity.

Resumo – O estudo caracterizou a atividade física e as barreiras referidas dos adolescentes atendidos pelo Centro de Atendimento e Apoio ao Adolescente (São Paulo/SP), em seu ambulatório de Educação Física. Trata-se de um estudo exploratório, com dados das anamneses de 118 adolescentes com idade de 10 a 19 anos, atendidos entre abril de 2005 e junho de 2008. Analisaram-se, segundo gênero e faixa etária: participação em atividades físicas de lazer e na Educação Física escolar, atividades físicas preferidas e barreiras para a prática da atividade física preferida. Descreveram-se os dados por meio de frequências, comparadas por meio do Teste Exato de Fisher. Relataram gostar de atividades físicas 93,2% dos adolescentes, mas 50,8% não praticavam atividades físicas no lazer. Houve maior número de relatos de não participação na Educação Física escolar entre os adolescentes mais velhos, em ambos os gêneros. Brincadeiras e jogos coletivos foram as atividades preferidas, independentemente de gênero e idade. Falta de suporte social ou ambiental foi o motivo mais importante para não praticar a atividade física preferida. Os resultados sustentam a importância de um serviço para adolescentes que promova, oriente e suporte um estilo de vida mais ativo.

Palavras-chave: Serviços de saúde para adolescentes; Atividade física.

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INTRODUCTION

Physical activity in adolescence is an integral and necessary part to prevent different health aggravations. In addition, physical activity is important for full development and exerts positive psychosocial effects¹. Regular physical activity in adolescence is also related to a high level of physical activity during adult life^{2,3}, with a marked impact on individual and collective health.

Nevertheless, a major portion of Brazilian adolescents does not perform regular physical activity^{4,5}, and biological, behavioral, family, sociocultural, economic and environmental determinants have been shown to contribute to this fact^{4,6,7}. Since this is also a problem in various other countries, different strategies for the promotion of physical activity have been implemented. In 2002, the Centers for Disease Control and Prevention (CDC), through the Task Force on Community Preventive Services, published evidence-based recommendations on interventions to increase physical activity levels in individuals and communities⁸.

On the basis of these recommendations, the Physical Education service of the Adolescent Care and Support Center (CAAA), which belongs to the Department of Pediatrics, Universidade Federal de São Paulo, promotes an active lifestyle by providing counseling, prescriptions, monitoring and individual support for behavior change according to the needs, difficulties, opportunities and tastes of each adolescent. Investments and interventions that help adolescents overcome barriers and increase their propensity to engage in physical activities, such as those provided by the Physical Education service of CAAA, are justified and should be encouraged⁹. However, a successful intervention requires knowledge that enables the professionals involved to develop better targeted and adequate solutions for the population to be attended¹⁰.

Since the focus of the service is the counseling and prescription of physical activities, it is fundamental to know the physical activity profile of the adolescents seen at CAAA and the difficulties encountered to adhere to this habit. However, studies investigating the characteristics of adolescents seen at Brazilian health services, including data on physical activity, are scarce. Therefore, the objective of the present study was to identify the physical activity characteristics of adolescents attending the Physical Education service of CAAA, Department of Pediatrics, Universidade Federal de São Paulo, specifically the participation in leisure-

time physical activities and physical education classes, physical activity preferences, and perceived barriers to physical activity.

METHODOLOGICAL PROCEDURES

An exploratory study was conducted using anamnesis data of adolescents seen at the Physical Education service of CAAA, Department of Pediatrics, Universidade Federal de São Paulo, São Paulo, Brazil. The CAAA consists of a multidisciplinary team formed by doctors, nutritionists, physical education teachers, psychologists, educational psychologists, speech therapists, and dentists who attend free of charge children aged 10 to 19 years, mainly those from São Paulo. The adolescents were referred to the Physical Education service by the other professionals of the Center always when counseling or prescription of physical activities was considered to be necessary either due to the request of the patient or of the professional attending the adolescent.

In July 2008, the main investigator reviewed the anamnesis data of all patients referred to the service between April 2005 and June 2008, a period during which the same anamnesis form and care protocol were used. The adolescents were seen at the Physical Education service by physical education teachers who were enrolled in or had completed the specialization course in Adolescent Health offered by the Center. All professionals were previously trained and performed the assessments under the supervision of a more experienced specialist.

Data about the first visit to the Physical Education service were collected. The following variables were analyzed: age (10 to 14 years; 15 to 19 years), gender (male; female), participation in school physical education classes (yes; no), participation in leisure-time physical activity (yes; no), enjoying physical activities (yes; no), preferred physical activity (games and team games; dance classes, wrestling or swimming; bodybuilding or fitness; others; no preference/not reported), and main barrier to preferred physical activity (situational; lack of resources; personal; did not know how to answer). All data were obtained by interview during the visit, except for age which was calculated with the Microsoft Excel[®] 2007 software as follows: age = (date of visit – date of birth of the adolescent)/365. Dates are reported as day/month/year. After calculation, the adolescents were divided into two age groups: 10.0 to 14.9 years and 15.0 to 19.9 years.

The answers to the questions “What is your preferred physical activity?” and “What is the

reason that you do not perform your preferred physical activity?" were open and were recorded and grouped according to similarity, and each category was labeled. This was done by the main investigator. The answers to the second question were categorized as follows: situational barriers - lack of social or environmental support; lack of resources - financial reasons or lack of material, and personal barriers - medical problems or unwillingness of the individual to perform physical activity.

The Statistical Package for the Social Sciences® for Windows, version 15.0 (SPSS, Inc., Chicago, IL) was used for statistical analysis. All variables are reported as frequencies, except for age which is reported by use of mean and standard deviation (SD). Fisher's exact test was used for comparison of frequencies between genders and age groups, adopting a level of significance of 5% ($p \leq 0.05$).

The study was approved by the Ethics Committee of Universidade Federal de São Paulo on May 30, 2008 (protocol 0639/08), and was conducted in accordance with Resolution 196/96 of the National Health Council.

RESULTS

A total of 118 adolescents were seen at the Physical Education service of CAAA between April 2005 and June 2008 (39 months), including 67

(56.8%) girls and 51 (43.2%) boys. The mean age of the adolescents was 14.6 years ($SD=2.3$), range 10.1 to 19.0 years. The mean age of girls was 14.5 years ($SD=2.3$) and the mean age of boys was 13.9 years ($SD=2.3$).

Table 1 shows the physical activities and barriers reported by the adolescents. Although 93.2% of the adolescents reported to enjoy physical activities, approximately half (50.8%) did not perform any leisure-time physical activity. Only 35 (29.7%) of the adolescents performed their preferred physical activity. Games and team games were the preferred activities, irrespective of gender. With respect to barriers, the lack of social or environmental support was the most important reason reported by girls and boys not to perform the preferred physical activity, followed by lack of financial or material resources and personal reasons. In addition, one in five adolescents did not know the main barrier to preferred physical activity.

Next, the results were analyzed after stratification of the adolescents according to age group within each gender (Tables 2 and 3). The lack of participation in school-based physical education was the most prevalent among older adolescents in both genders. Games and team games were the predominant preferred physical activities in girls and boys. Among girls, the number of subjects who reported to enjoy physical activities decreased

Table 1. Physical activities and barriers reported by adolescents attending the Physical Education service of the Adolescent Care and Support Center. São Paulo, Brazil (2005-2008).

Variables	Total		Girls		Boys		p*
	n	%	n	%	n	%	
Participation in school-based physical education	118		67		51		0.53
Yes	89	75.4	49	73.1	40	78.4	
No	29	24.6	18	26.9	11	21.6	
Participation in leisure-time physical activity	118		67		51		0.35
Yes	58	49.2	30	44.8	28	54.9	
No	60	50.8	37	55.2	23	45.1	
Enjoying physical activity	118		67		51		0.29
Yes	110	93.2	64	95.5	46	90.2	
No	8	6.8	3	4.5	5	9.8	
Preferred physical activity	118		67		51		0.23
Games and team games	61	51.7	33	49.3	28	54.9	
Dance classes, wrestling or swimming	23	19.5	13	19.4	10	19.6	
Bodybuilding or fitness	11	9.3	9	13.4	2	3.9	
Others	8	6.8	6	9.0	2	3.9	
No preference/not reported	15	12.7	6	9.0	9	17.6	
Main barrier	83		67		34		0.39
Situational	37	31.4	20	40.8	17	50.0	
Lack of resources	11	9.3	9	18.4	2	5.9	
Personal	10	8.5	7	14.3	3	8.8	
Did not know how to answer	25	21.2	13	26.5	12	35.3	

* Comparison between genders (Fisher's exact test).

Table 2. Physical activities and barriers perceived by girls attending the Physical Education service of the Adolescent Care and Support Center, according to age group. São Paulo, Brazil (2005-2008).

Variables	10-14 years		15-19 years		p*
	n	%	n	%	
Participation in school-based physical education	43		24		<0.001
Yes	40	93.0	9	37.5	
No	3	7.0	15	62.5	
Participation in leisure-time physical activity	43		24		0.45
Yes	21	48.8	9	37.5	
No	22	51.2	15	62.5	
Enjoying physical activity	43		24		0.04
Yes	43	100.0	21	87.5	
No	-	-	3	12.5	
Preferred physical activity	43		24		0.03
Games and team games	26	60.5	7	29.2	
Dance classes, wrestling or swimming	9	20.9	4	16.7	
Bodybuilding or fitness	3	7.0	6	25.0	
Others	3	7.0	3	12.5	
No preference/not reported	2	4.7	4	16.7	
Main barrier	29		20		0.36
Situational	12	41.4	8	40.0	
Lack of resources	3	10.3	6	30.0	
Personal	5	17.2	2	10.0	
Did not know how to answer	9	31.0	4	20.0	

* Comparison between age groups (Fisher's exact test).

Table 3. Physical activities and barriers perceived by boys attending the Physical Education service of the Adolescent Care and Support Center, according to age group. São Paulo, Brazil (2005-2008).

Variables	10-14 years		15-19 years		p*
	n	%	n	%	
Participation in school-based physical education	33		18		0.04
Yes	29	87.9	11	61.1	
No	4	12.1	7	38.9	
Participation in leisure-time physical activity	33		18		0.77
Yes	19	57.6	9	50.0	
No	14	42.2	9	50.0	
Enjoying physical activity	33		18		0.33
Yes	31	93.9	15	83.3	
No	2	6.1	3	16.7	
Preferred physical activity	33		18		0.22
Games and team games	20	60.6	8	44.4	
Dance classes, wrestling or swimming	5	15.2	5	27.8	
Bodybuilding or fitness	-	-	2	11.1	
Others	2	6.1	-	-	
No preference/not reported	6	18.2	3	16.7	
Main barrier	22		12		0.13
Situational	12	54.5	5	41.7	
Lack of resources	-	-	2	16.7	
Personal	1	4.5	2	16.7	
Did not know how to answer	9	40.9	3	25.0	

* Comparison between age groups (Fisher's exact test).

with age. Situational reasons (lack of social or environmental support) continued to be the main barrier to preferred physical activity, irrespective of age group or gender. No significant differences were observed between girls and boys of the same age group ($p \geq 0.20$).

DISCUSSION

This study analyzed the data of the first visit of 118 adolescents to the Physical Education service of CAAA between April 2005 and June 2008 to obtain physical activity counseling and support.

With respect to the participation in school-based physical education, one-fourth of the adolescents reported not to participate in these classes, with the frequency being higher among older girls and boys compared to younger ones. Similar findings have been reported in a study involving 5028 students from Santa Catarina aged 15 to 19 years, in which 42.2% did not participate in physical education classes, with this proportion being also higher among older adolescents¹¹. Data from a survey conducted by the Brazilian Institute of Geography and Statistics on 60,973 adolescents in 9th grade (age range 13 to 15 years in 89% of the sample) from private and public schools of the country's capitals showed that 20% of the students did not participate in the physical education class in the week prior to the study¹².

School-based physical education is believed to be an important element for movement, sometimes the only one in schools and in school age children, to promote physical activities¹³. Gordon-Larsen *et al.*⁷ showed that a higher weekly participation in these classes increased the chances of adolescents to achieve the recommendations of moderate to vigorous physical activity necessary to positively influence health⁷. It is therefore important that professionals of the service identify the individual reasons for the lack of participation in physical education classes, and provide counseling and support for engagement in school physical education programs as part of a strategy to promote the adoption of physical activities, particularly among older girls.

More than 90% of the adolescents reported to enjoy physical activities. Several studies have shown that physical activity enjoyment acts as an important mediator and predictor of the adoption of this behavior in adolescents¹⁴⁻¹⁶. However, older girls were less likely to enjoy physical activities than younger ones. Little is known about the association between age and physical activity enjoyment. This

fact might be related to differences in pubertal development between age groups since this phenomenon drastically alters the self-perception and self-concept of adolescents, resulting in reduced self-esteem and poor self-image^{17,18}. Ashford *et al.*¹⁹ argued that poor psychological well-being is associated with less physical activity enjoyment in youngsters¹⁹.

Approximately 50% of the adolescents reported not to perform any leisure-time activity. Although no association with gender or age was observed, the prevalence of leisure-time physical activity tended to be higher among boys and among older adolescents. Studies have shown that, indeed, physical activity is more frequently performed by boys than girls. The same is observed for younger adolescents compared to older ones and this phenomenon is more pronounced among girls^{20,21}.

Furthermore, less than one-third of the adolescents studied reported to perform their preferred physical activity. Among adolescents not performing their preferred activity, situational barriers were the main reason reported, irrespective of gender or age. This category comprises the lack of social or environmental support, especially the lack of friends or places. With respect to support from friends, studies highlight the view that adolescents more frequently engage in physical activities when their friends also participate²²⁻²⁴. In a review on factors correlated with physical activity in adolescents, Van Der Horst *et al.*²³ observed that support from friends is associated with engagement in physical activity. According to Wold and Hendry²⁴, friends influence youth physical activity in three ways: adolescents influence each other to begin a physical activity; an adolescent may begin a physical activity because his friend is already active, and formation of a friendship between adolescents engaged in the same physical activity. Duncan *et al.*²² suggested that social support between adolescents is also related to emotional (encouragement) and instrumental aspects (sharing equipment). These statements are supported by the observation that, in fact, games and team games were the preferred physical activities cited by most of the adolescents studied here.

Difficulties in accessing adequate places for physical activity was another important barrier reported by the subjects studied. A study conducted in Curitiba, Paraná, on 1718 adolescents found that the lack of performing physical activities in parks was associated in both genders with the perception of lack of spaces to be physically active, activities to choose from, and adequate equipment after

controlling for age, socioeconomic level, habitual physical activity, and distance to the park²⁵. It is also known that better socioeconomic conditions facilitate access to sports facilities such as gyms and clubs²⁶, and permit the subjects to live in safer and better urbanized areas, factors that are also associated with more frequent participation in physical activity^{6,7}. In fact, the socioeconomic profile of most families attending the CAAA indicated higher chances of living in less safe and poorly urbanized areas characterized by the lack of spaces free of charge or of low cost for organized or non-organized physical activities. This is a common characteristic of individuals seen by the Brazilian Health System to which the CAAA belongs²⁷.

Also regarding perceived barriers, 21.2% of the adolescents did not know what prevented them from performing their preferred physical activity. This finding can be explained by the fact that not only external but also internal factors influence behavior, which are difficult to perceive or named by the subjects. Self-efficacy is the best documented factor in the literature, which is strongly and positively associated with physical activity^{23,28,29}. Adolescents who are confident regarding their capacity of being physically active perceive fewer barriers and are less influenced by them¹⁴. Other psychological constructs that can be difficult to perceive also seem to be associated with physical activity, such as a favorable attitude and goal orientation/motivation²³.

Some limitations of the present study should be mentioned. First, the results obtained refer to a specific population and their extrapolation should be done with caution. In addition, no causal relationships can be established for the associations found because of the cross-sectional design of the study. On the other hand, considering the scarcity of studies in the literature, the aim of this study was to provide data on the physical activity profile and barriers reported by adolescents who seek health services for individual physical activity counseling and support.

CONCLUSIONS

Taken together, the present results showed that half the adolescents attending the Physical Education service of CAAA between April 2005 and June 2008 did not perform any leisure-time physical activity, although most of them reported to enjoy this type of activity. These data highlight the importance of a service within adolescent health

centers that promotes, guides, supports and monitors an active lifestyle.

Furthermore, girls and boys aged 10 to 14 years participated more frequently in school physical education classes than older adolescents. The participation in physical education classes should be encouraged considering their importance as a school discipline and the possibility of increasing the weekly volume of physical activities and of providing information and stimuli that will determine the attitude of youngsters towards physical activity. This encouragement should particularly address older adolescents using a change in attitude towards this type of activity as a strategy to modify life style and future sedentarism.

Finally, the lack of friends and places for physical activity seems to be the most important external barrier in the population studied. In addition, a better understanding of internal factors that mediate physical activity is necessary. Knowledge about the needs, difficulties, opportunities and tastes of adolescents who seek this type of service will help professionals develop adequate material, protocols and strategies in order to provide successful care.

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