



Relationship of parental encouragement to the physical activity of adolescents

Relação do incentivo parental com a atividade física de adolescentes

Patrícia Becker Engers¹, Tatiane Motta da Costa e Silva², Helter Luis da Rosa Oliveira³, Saulo Menna Barreto Dias⁴, Rodrigo de Souza Balk⁵, Susane Graup⁶

¹ Doutoranda no Programa de Pós-Graduação em Educação em Ciências: Química da Vida e Saúde, Universidade Federal do Pampa (UNIPAMPA), Uruguaiiana (RS), Brasil.

² Doutoranda no Programa de Pós-Graduação em Educação em Ciências: Química da Vida e Saúde, Universidade Federal do Pampa (UNIPAMPA), Uruguaiiana (RS), Brasil.

³ Mestre em Educação em Ciências: Química da Vida e Saúde pela Universidade Federal do Pampa (UNIPAMPA). Professor de Educação Física da rede Municipal, Uruguaiiana (RS), Brasil.

⁴ Mestre em Educação Física pela Universidade Federal de Santa Maria (UFSM). Técnico Desportivo da Universidade Federal do Pampa (UNIPAMPA), Uruguaiiana (RS), Brasil.

⁵ Doutor em Ciências Biológicas: Bioquímica Toxicológica pela Universidade Federal de Santa Maria (UFSM). Docente do Curso de Fisioterapia e do Programa de Pós-Graduação em Educação em Ciências: Química da Vida e Saúde da Universidade Federal do Pampa (UNIPAMPA), Uruguaiiana (RS), Brasil.

⁶ Doutora em Engenharia de Produção pela Universidade Federal de Santa Catarina (UFSC). Docente do Curso de Educação Física, da Residência Multiprofissional em Saúde e do Programa de Pós-Graduação em Educação em Ciências: Química da Vida e Saúde da Universidade Federal do Pampa (UNIPAMPA), Uruguaiiana (RS), Brasil.

***Corresponding author:** Patrícia Becker Engers – *E-mail:* patriciaengers@outlook.com

ABSTRACT

The aim of this study was to analyze the relationship of parental encouragement to the taste for the practice and the perception of the level of physical activity in adolescents. This was a school-based descriptive epidemiological study. Participants were 1,011 adolescents. The vast majority of participants (90.4%) evaluated like to practice physical activity and 81.4% perceive themselves to be physically active. Parental encouragement was associated with liking physical activity only for the variable “the mother does not take me to practice physical activity”, for which, 74.3% of those who like physical activity the mother does not take them ($p=0.012$). When comparing the perception of physical inactivity with parental encouragement, more than 70% inactive reported that their mothers encourage them to be active and about 50% said that their fathers encourage them to be active. Parental encouragement was significantly associated with perceived physical activity level.

Keywords: Adolescent. Motor activity. Parents.

RESUMO

Analisar a relação do incentivo parental com o gosto pela prática e a percepção do nível de atividade física (AF) de adolescentes. Trata-se de um estudo descritivo epidemiológico de base escolar. Participaram do estudo 1011 adolescentes. Verificou-se que 90,4% dos adolescentes avaliados gostam de praticar AF e 81,4% percebem-se fisicamente ativos. O incentivo parental teve associação com gostar de AF apenas para a variável “a mãe não levar para fazer AF”, para a qual, 74,3% dos que gostam de AF a mãe não leva para fazer ($p=0,012$). Quando comparado a percepção de inatividade física com a de estímulo dos pais para a prática, mais de 70% dos inativos afirmam que sua mãe estimula a ser ativo e cerca de 50% afirmam que o pai estimula a ser ativo. O incentivo dos pais foi significativamente associado à percepção do nível de AF.

Palavras-chave: Adolescente. Atividade motora. Pais.

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INTRODUCTION

There are several factors related to the practice or not of physical activity (PA). According to Bauman *et al.*¹, individual, social, environmental and political determinants are directly associated with PA. In this perspective, the family, the environment and school physical education are considered as the main influencers in the participation of children and adolescents in the regular practice of exercises under the health bias^{2,3}. Encouraging the practice of PA during childhood and adolescence can generally contribute to the promotion of healthy habits and an active lifestyle in adulthood⁴. Therefore, individuals involved with PA in adolescence were more likely to be sufficiently active in adulthood, with a more significant effect among women⁵.

Among the variables that can interfere with encouraging an active lifestyle and in enjoying the practice of PA is parental encouragement. This is characterized as a facilitating factor since the family can facilitate and provide access to places for PA practice, transport, joint participation, and comments on the activity^{6,7}, playing a social influence, both through modeling behavior, as well as the provision of social support^{6,8}.

When associated with the level of PA, parental encouragement presents differences in relation to sex and age among adolescents. Studies indicate lower levels of PA in female adolescents, partially attributed to less parental encouragement,

as well as greater freedom and encouragement for younger male adolescents, given the possibility of practicing PA on the street and in parks and greater participation in physical education classes^{9,10}.

Thus, studies and interventions with adolescents become fundamental for the identification and prevention of factors related to the levels of physical inactivity and the problems associated with this behavior, with parental encouragement and the level of PA being relevant variables for planning more effective actions in the school environment and outside it^{11,12}. Thus, the objective of the present study was to analyze the relationship between parental encouragement and the taste for the practice and the perception of the level of physical activity of adolescents enrolled in the public school system in Uruguaiana, state of Rio Grande do Sul.

METHODOLOGY

This was a descriptive, school-based epidemiological study that analyzed the population of schoolchildren aged 10 to 17 years enrolled in the public school system of Uruguaiana, state of Rio Grande do Sul, in 2019. The project was approved by the Research Ethics Committee of the institution of researchers under opinion 2961732.

To calculate the minimum sample size, the following procedures were adopted: population of 11,300 adolescents

enrolled in the final years of elementary and high school in the public network in 2018 (Inep); prevalence of 50% (studies with multiple outcomes); 95% confidence interval (95% CI); sampling error of three percentage points. A minimum sample of 936 adolescents was estimated and 20% was added to cover possible losses and refusals. With the adoption of these criteria, we estimated the need to evaluate 1,170 adolescents.

The sample was selected at random, using the probabilistic criterion in multiple stages. To this end, the municipality was divided into five geographic areas, four in the urban area and one in the rural area. The number of schools and students enrolled in each area was identified. From this, three schools were randomly selected in one of the urban areas and two in each of the three remaining areas, considering the number of students, which totaled nine schools located in the urban area of the municipality. For adolescents in the rural area, it was necessary to draw only one school, among all the schools in that area. Thus, all schools participated in the draw, having the same chances of participating in the study according to the number of students enrolled in the age group from 10 to 17 years.

All adolescents in the age group of interest in these 10 schools were invited to participate in the study. At the time of the visit, previously scheduled with representatives of the school boards, the objectives and procedures were presented in the classrooms and the terms of informed

consent and assent were given to the adolescents. The inclusion criteria used were: a) being enrolled in the public school system (state or municipal) in the municipality; and, b) presenting the informed consent form signed by a guardian and expressing willingness to participate (signing the informed assent). Adolescents outside the age group of interest and those who had some type of disability that prevented them from practicing PA and/or understanding how to perform the measures were excluded.

For sample characterization, anthropometric data were collected, in which the body mass was evaluated on a digital scale with precision 100 grams, with the evaluated person barefoot and in an orthostatic position. Height was measured with a stadiometer made with a tape measure fixed to a smooth wall without a baseboard and with the aid of a square for verification, so that the adolescent was positioned standing, barefoot and with the back and heels against the wall following the Frankfurt plan. The Body Mass Index was calculated by dividing the body mass values in kilograms by the height values in meters squared.

Data collection involved the application of a questionnaire composed of questions referring to demographic indicators, perceptions about the PA level and the taste for the practice. The demographic indicators analyzed were sex (male and female) and age (complete years).

To identify the taste for PA practice, the adolescents answered the following question: do you like to do PA (sports, gymnastics, dance, going to the gym)? They also answered questions regarding the perception of their PA level (active or inactive) and the perception of the PA level of the father and mother (active or inactive). Also, they answered questions about the fact that parents take adolescents to practice PA and practice with their sons and daughters, as well as about the perception they have about the fact that parents encourage them to practice PA (Does your mother take you to do PA? Does your mother practice PA with you? Does your father take you to do PA? Does your father practice PA with you? Do you think your mother encourages you to be active? Do you think your father encourages you to be active?). The answer options for these questions were “yes” and “no”, being easy to understand for the students to answer.

The questionnaires were applied in the classrooms of the selected schools, being distributed to the group, and answered individually, following the directive reading of the researchers. All measurements were carried out in places indicated by the schools' principals and

applied by the team of researchers who had previously received training to carry out the measurements and apply the questionnaires.

Statistical analysis was performed using SPSS software (Statistical Package for Social Sciences) for Windows version 16.0. Data were analyzed using descriptive statistics (univariate analysis), with measures of absolute (n) and relative (%) frequencies, mean and standard deviation for each of the study variables. For inferential analysis, bivariate analysis was used through Pearson's chi-square test, and in this analysis each independent variable was associated with the categorical dependent variable. In all analyses, a significance level of 5% was adopted.

RESULTS

Participants were 1,011 adolescents with a mean age of 13.4 (± 1.9) years, of which 53.5% (n=541) were male. Table 1 lists the anthropometric and age characteristics of the sample, showing significant differences in body mass and height of adolescents in relation to sex ($p < 0.001$), but which do not significantly reflect on the Body Mass Index ($p = 0.272$).

Table 1. Results of the analysis of mean and standard deviation for the characterization of the study sample

VARIABLES	MEAN (\pm SD)		
	Total	Girls	Boys
Age (years)	13.4 (\pm 1.9)	13.4 (\pm 1.9)	13.5 (\pm 1.9)
Body mass (kg)	54.2 (\pm 14.2)	53.4 (\pm 12.9)	54.9 (\pm 15.3)*
Height (meters)	1.58 (\pm 0.11)	1.56 (\pm 0.07)	1.60 (\pm 0.13)*
BMI (kg/m ²)	21.2 (\pm 4.4)	21.7 (\pm 4.5)	20.8 (\pm 4.2)

SD = Standard Deviation; BMI=Body Mass Index; *p<0.001 vs girls.

Table 2 lists the frequency distribution of the variables in the general group and by sex, in which it is possible to observe that 90.4% adolescents evaluated like to practice PA and 81.4% perceived themselves to be physically active. When asked about the practice of PA in the last week, it was possible to perceive that the majority (65.5%) practiced some PA (up to 2 times a week) and 40.9% perceived

themselves to be less active than other people of the same age and sex.

Regarding family encouragement, more than 70% answered that their parents do not take them to practice PA, as well as they do not practice with them. However, in the adolescents' perception, 83% of mothers and 70.3% of fathers encourage them to practice PA.

Table 2. Description of the variables studied in adolescents aged 10 to 17 years in Uruguaiiana, state of Rio Grande do Sul, Brazil, 2019

VARIABLES	N (%)		
	Total	Girls	Boys
Do you like to do PA?			
Yes	903 (90.4)	421 (90.5)	482 (90.3)
No	96 (9.6)	44 (9.5)	52 (9.7)
PA level perception			
Active	800 (81.4)	345 (75.8)	455 (86.2)
Inactive	183 (18.6)	110 (24.2)	73 (13.8)
Does your mother take you to do PA?			
Yes	245 (24.7)	132 (28.8)	113 (21.2)
No	747 (75.3)	327 (71.2)	420 (78.8)
Does your father take you to do PA?			
Yes	275 (28.0)	103 (22.5)	172 (32.8)
No	706 (72.0)	254 (77.5)	352 (67.2)
Does your mother practice PA with you?			
Yes	199 (20.1)	116 (25.2)	83 (15.6)
No	793 (79.9)	344 (74.8)	449 (84.4)
Does your father practice PA with you?			
Yes	253 (25.9)	90 (19.9)	163 (31.1)
No	724 (74.1)	363 (80.1)	361 (68.9)
Does your mother encourage you to be active?			
Yes	823 (83.0)	382 (82.9)	441 (83.2)
No	168 (17.0)	79 (17.1)	89 (16.8)
Does your father encourage you to be active?			
Yes	686 (70.3)	291 (64.2)	395 (75.5)
No	290 (29.7)	162 (35.8)	128 (24.5)

n= sample.

Table 3 presents the associations between liking the practice of PA with the other categorical variables. For which the perception of the PA level was associated with liking PA, and about 80% of those who like to practice PA, in both sexes, perceive themselves to be physically active, but when questioned compared to their peers, close to 40% of them consider themselves less active than people of the same age and sex. Parental encouragement was associated with liking PA only for the variable “the

mother does not take me to do PA”, so that, in the total sample, 25.7% of those who like PA the mother takes them to do PA ($p=0.012$) and among girls, 30.8% of those who like it, the mother also takes them ($p=0.001$). Furthermore, it was possible to observe that among adolescents up to 14 years of age, 70.2% reported liking PA, demonstrating that the younger they are, the greater the taste for the practice, regardless of gender.

Table 3. Results of the Chi-Square test between liking PA and the categorical variables studied in adolescents aged 10 to 17 years, Uruguaiiana, state of Rio Grande do Sul, Brazil, 2019

VARIABLES	LIKE TO DO PHYSICAL ACTIVITY					
	Total		Girls		Boys	
	Yes N (%)	<i>P</i>	Yes N (%)	<i>P</i>	Yes N (%)	<i>P</i>
Age						
Up to 14 years	633 (70.2)	0.078	296 (70.5)	0.002*	337 (69.9)	0.636
Over 14 years	269 (29.8)		124 (29.5)		145 (31.1)	
PA level perception						
Active	743 (84.0)	<0.001*	327 (80.0)	<0.001*	416 (87.6)	0.015*
Inactive	141 (16.0)		82 (20.0)		59 (12.4)	
Does your mother take you to do PA?						
Yes	229 (25.7)	0.012*	127 (30.8)	0.001*	102 (21.3)	0.826
No	661 (74.3)		285 (69.2)		376 (78.7)	
Does your father take you to do PA?						
Yes	250 (28.2)	0.517	92 (22.3)	0.956	158 (33.4)	0.424
No	635 (71.8)		320 (77.7)		315 (66.6)	
Does your mother practice PA with you?						
Yes	183 (20.6)	0.207	109 (26.5)	0.063	74 (15.5)	0.876
No	707 (79.4)		303 (73.5)		404 (84.5)	
Does your father practice PA with you?						
Yes	227 (25.9)	0.681	78 (19.2)	0.470	149 (31.7)	0.263
No	650 (74.1)		329 (80.8)		321 (68.3)	
Does your mother encourage you to be active?						
Yes	741 (83.2)	0.856	344 (82.7)	0.664	397 (83.6)	0.519
No	150 (16.8)		72 (17.3)		78 (16.4)	
Does your father encourage you to be active?						
Yes	624 (71.2)	0.064	264 (65.0)	0.231	360 (76.6)	0.151
No	252 (28.8)		142 (35.0)		110 (23.4)	

*significant value.

The associations between the perception of inactivity described by the adolescents evaluated and the variables analyzed are presented in Table 4, demonstrating that, in the general group, the fact that parents take adolescents to do PA was associated with the perception of inactivity, in which more than 80% of those evaluated who consider themselves inactive are not taken by their parents to practice PA

and, still, their parents do not practice PA together with them. However, when comparing the perception of physical inactivity with the perception of parental encouragement, more than 70% inactive adolescents say that their mother encourages them to be active, and about 50% of those who perceive themselves to be inactive say that the father encourages them to be active.

Table 4. Results of the Chi-Square test between the perception of inactivity and the categorical variables studied in adolescents aged 10 to 17 years, Uruguaiana, state of Rio Grande do Sul, Brazil, 2019

VARIABLES	PERCEPTION OF PHYSICAL INACTIVITY					
	Total		Girls		Boys	
	Yes N (%)	<i>P</i>	Yes N (%)	<i>P</i>	Yes N (%)	<i>P</i>
Age						
Up to 14 years	89 (48.6)	<0.001*	49 (44.5)	<0.001*	40 (54.8)	<0.001*
Over 14 years	94 (51.4)		61 (55.5)		33 (45.2)	
Does your mother take you to do PA?						
Yes	21 (11.7)	<0.001*	17 (15.7)	<0.001*	04 (5.6)	<0.001*
No	159 (88.3)		91 (84.3)		68 (94.4)	
Does your father take you to do PA?						
Yes	25 (14.0)	<0.001*	17 (15.6)	<0.001*	08 (11.4)	<0.001*
No	154 (86.0)		92 (84.4)		62 (88.6)	
Does your mother practice PA with you?						
Yes	24 (13.4)	0.011*	18 (16.8)	0.014*	06 (8.3)	0.071
No	155 (86.6)		89 (83.2)		66 (91.7)	
Does your father practice PA with you?						
Yes	18 (10.1)	<0.001*	10(9.2)	<0.002*	08 (11.4)	<0.001*
No	161 (89.9)		99 (90.8)		62 (88.6)	
Does your mother encourage you to be active?						
Yes	134 (74.9)	0.002*	80 (74.1)	0.009*	54 (76.1)	0.090
No	45 (25.1)		28 (25.9)		17 (23.9)	
Does your father encourage you to be active?						
Yes	96 (52.7)	<0.001*	53 (48.2)	<0.001*	43 (59.7)	0.001*
No	86 (47.2)		57 (51.8)		29 (40.3)	

*significant value.

DISCUSSION

The results showed that the evaluated adolescents perceive themselves to be physically active and like to do PA, with liking PA significantly associated with the fact that the mother takes them to do PA, especially in the female group. Parental encouragement was significantly associated with the perception of physical inactivity, so that most adolescents who perceive themselves to be inactive answered “no” to the questions “does your mother take you to do PA?”, “does your father take you to do PA?”, “does your mother practice PA with you?” and “does your father practice PA with you?”. However, when comparing the perception of physical inactivity with the perception of parental encouragement for the practice, most perceive that both the

father and the mother encourage them to be physically active.

According to our findings, no significant differences were detected between the sexes for the Body Mass Index. Boys had significantly higher average body mass and height, differences that are expected among adolescents due to body composition issues at this stage and which are also reported by other authors¹³.

Nevertheless, we opted for the analysis separated by sex, considering aspects present in the literature that can influence the taste for the practice and the perception of the PA level, such as cultural issues that last since childhood and influence the PA behavior of individuals differently between the sexes¹⁴. In the same sense, culturally, girls are more encouraged to do domestic chores close to their homes,

which involve less movement and boys receive greater encouragement and motivation to practice sports activities outside the home and outdoors^{14,15}. In addition, it is worth pointing out the relationship between self-efficacy and PA, which presents distinctions between boys and girls¹⁶.

In view of the data presented in Table 2, there was a certain discrepancy between the perception of the PA level of adolescents participating in this study and the real practice affirmed by this population, in which 81.4% perceive themselves as physically active. When in this same group they are asked about the practice of PA, only 65.5% said they practice up to 2 times a week. Using as a reference the parameters established by the World Health Organization¹⁷, which determines the practice of at least one hour of PA per day as the most appropriate, we can see a clear asymmetry between what these young people perceive as sufficient and what is actually established.

Another important piece of information was that more than 70% participants stated that fathers and mothers do not take them to do PA, nor do they practice with them. An expressive result that can help in understanding the high numbers of inactive adolescents present in the sample of this study. Studies in the scientific literature indicate a positive impact on a more active routine of this population when family members practice together or take these young people to do PA^{7,18}.

In general terms, it was also possible to notice that girls, regardless of age, were less active than boys, in line with Hallal et al.¹⁹, who analyzed different regions of the country and reported that the level of PA is higher among males. In the same study, it was observed that only 31% girls aged 13 to 15 met the recommended levels of PA, while 56% boys in the same age group performed the recommended levels¹⁹.

Although most of the population in this study points to no family participation, this same population reports that 83% mothers and 70.3% fathers encourage them to practice PA. Family support and encouragement constitutes an important factor for the practice of PA, as pointed out by Lisboa et al.⁸, thus, adolescents with good encouragement and support from parents and family members showed higher levels of PA practice. Based on the findings of the present study, it can be thought that, among the population in question, this family encouragement and verbal motivation is more influential in encouraging the practice of PA, compared to the example and monitoring during activities.

Another finding that should be highlighted is the fact that younger adolescents, that is, up to 14 years old, seem to like PA more (70.2%). According to Condessa *et al.*⁹, age is a factor that considerably influences the practice of PA among adolescents. Other studies have found this same tendency for younger age groups to be more active than older ones, as pointed out in the review by Seabra *et al.*²⁰,

and in the study conducted by Condessa *et al.*⁹. This may be related to the evidence that people of an older age group miss more physical education classes than those of a younger age group, which contributes to the sedentary lifestyle of the older ones²¹.

Although there is an association between the taste for the practice and the perception of the PA level, so that those who like to practice perceive themselves to be more active, it is important to consider the evidence that adolescents choose to use their time of leisure with activities in front of screens. Such a fact may be directly related to personal preferences and the fact of liking PA or not, but also strongly related to the influence of peers (going far beyond the family) and self-efficacy to practice²².

Social support, whether it comes from parents, siblings, friends, and people in general, and self-efficacy for PA are considered constructs of important theories and models to explain and seek to understand the PA behavior of individuals¹⁰.

The only variable related to parental encouragement in the study that was associated with the taste for the practice of adolescents, showed an inverse association, so that the fact that the mother does not take to do PA was associated with liking PA. This reinforces that the taste for the practice is associated with other factors in addition to the encouragement from parents alone. It may also be related to the period of adolescence, when the subjects identify more with their peers and share behaviors, observing greater support from friends for

the practice of PA and most of them of a collective nature, which intensifies the coexistence with others besides the family²⁰. Along the same lines, a survey study found the association of social support with the practice of PA in adolescents in Curitiba, state of Paraná, and concluded that the company of friends is the most important type of social support for the practice of PA at this stage of life¹⁶.

The main associations of parental encouragement found in the present study were observed with the perception of physical inactivity, so that the fact that parents do not take or do not practice PA with the adolescent is strongly associated with their perception of physical inactivity. In line with this result, a recent study identified that adolescents who reported receiving social support, sometimes or always, were negatively associated with insufficient PA²². However, Camargo *et al.*¹¹ discuss the bidirectional relationship between PA and social support, where adolescents, both from public and private schools, point to the support from their peers and parents as facilitators in the practice of physical activity during leisure time.

As for the association of parental encouragement and the level of PA by sex, Todisco *et al.*⁶ observed that female adolescents with no support were more likely to be insufficiently active. This differs slightly from the present study, in which the highest percentages of those who perceive themselves to be inactive and do not receive encouragement from their

parents are among boys. Also in this sense, male adolescents report receiving more social support from parents and friends than their female peers. This reinforces the factors that lead to higher levels of PA normally observed in males¹⁰. In the study in question, this data is presented differently for the sexes, with the girls realizing that the mother encourages more the practice of PA, whether taking her or practicing it together, and the boys have the same perception in relation to their father.

Another data that is directly related to parental encouragement for their children to practice PA is the fact that they are physically active. In this context, Christofaro *et al.*²³ infer in their study that the practice of PA by parents is associated with the practice of adolescents ($p < 0.001$) and adolescents whose parents were physically active in the past and are still active today were six times more likely to be physically active compared to those adolescents whose parents were not physically active in the past.

In this perspective, it is believed that the study contributes to the understanding of the importance of parenteral encouragement in the practice of PA by adolescents, providing subsidies for the formulation of public policies to create opportunities for the practice of PA for parents and children. As limitations, we can point out the memory bias when investigating the perception of PA level through questionnaires, and no direct measure of PA was used to make more reliable associations. Further studies should

be carried out from the perspective of analyzing the adolescents' self-efficacy and possible associations with the taste for the practice and the level of PA.

CONCLUSION

Based on the results of the present study, it can be concluded that the fact that mother takes the adolescent to do PA, especially in the female group, can influence the taste for physical activities. In addition, parental encouragement is significantly associated with the perception of PA level, so that the fact that parents do not take or do not practice PA together with adolescents appeared to be associated with the perception of physical inactivity.

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