

*Original article (short paper)*

## **Psychosocial correlates of organized physical activity in Portuguese urban youth**

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**Abstract**—This study aimed to explore the association between psychosocial factors and organized physical activity (PA) in urban children and adolescents. Data on organized PA, psychosocial variables, and demographic characteristics were collected via questionnaires. Logistic regression analyses were used to examine the relationship between psychosocial correlates and organized PA. Analyses were run separately for different age groups. Results showed that children and adolescents with a greater positive attitude toward PA were more likely to be involved in organized PA. Ego orientation was associated with organized PA at the age of 13–15 years. Task orientation was related to PA participation at the age of 13–15 and 16–18 years. Perception of competence was related to participation at the age of 10–12 and 13–15 years. These findings suggest that interventions to increase the level of participation in organized PA in youth should focus on increasing students' perceived physical competence, attitude toward PA, and establishing a strong motivational task/mastery climate.

**Keywords:** adolescents, children, correlates, physical activity

### **Introduction**

Regular participation in physical activity (PA) in childhood is associated with numerous current and future health benefits, including improved bone mineral density, cardiovascular risk profiles, aerobic fitness, mental health, and body composition<sup>1</sup>. Therefore, national and international public health authorities unilaterally recommend that children and adolescents should accumulate at least 60 min or more of moderate-to-vigorous PA (MVPA) every day. However, despite these aforementioned health benefits and well established PA guidelines, recent data shows that the majority of young people are not sufficiently active to benefit their health<sup>2,3</sup>. Alongside, a pervasive finding in the literature is the decline in PA with age from late childhood/early adolescence<sup>4,5</sup>, which may be more marked among girls and those from lower socioeconomic groups<sup>6,7</sup>.

It is clear that participation in PA is an important component of a healthy lifestyle<sup>1</sup>, and therefore a more comprehensive understanding of the factors and contexts associated with participation in PA in young people is a research priority. The study of psychological and social correlates of PA (e.g., self-perceptions, attitude toward PA and physical education, goal orientation—ego and task orientation and parents' and peers' PA) is important because these are potentially modifiable factors, and could form a theoretical base on which to construct and implement effective programs to improve PA levels<sup>8,9</sup>.

A range of psychological variables and their relationship to measures of PA have been extensively examined in the scientific literature<sup>8,9</sup>. For example, review studies in youth populations have shown that attitudes toward PA<sup>10,11</sup> and perception of competence<sup>11,12</sup> are positively correlated with PA in most, but not all cases<sup>8</sup>. Furthermore, positive motivation, best reflected by mastery and task goal orientation<sup>13</sup>, has also emerged as a

consistent correlate of PA in young people<sup>10-12</sup>. Additionally, findings on the relationship between parents' and children's PA are mixed, but there has been shown to be small and positive associations<sup>14,15</sup>. On the contrary, recent and specific reviews have demonstrated that friends' PA levels appear to have a significant influence on children's PA<sup>16,17</sup>.

Acknowledging that PA decreases with age<sup>4,5</sup>, it seems pertinent to examine what particular type or subcomponent of PA is most stable with age, and what psychosocial factors are related to this type of PA. Extant studies have shown that children and adolescents with the most stable PA behaviors are those who participate in greater levels of organized PA<sup>18,19</sup>. These investigations have corroborated the results of a longitudinal study by Telama<sup>20</sup> that monitored participants for 21 years and found that participation in organized PA enhanced the likelihood of being physically active as an adult. Nonetheless, despite the substantial evidence base on psychosocial correlates of PA in children, there is little evidence on correlates of organized PA among urban Portuguese children and adolescents. Considering that in recent decades Portugal has undergone a demographic transition from an eminently rural country to one where most of the population lives in urban areas, it is therefore critical to understand the habits of the young people that now are living in urban areas and the correlates of PA participation. Moreover, Portugal is now within a period of economic crisis and therefore understanding how psychosocial factors might be related to young people's organized PA participation in this national context is important.

Therefore the main aim of this cross-sectional study was to examine associations between hypothesized psychosocial correlates and organized PA in Portuguese urban children and adolescents. Based on extant literature, boys, older adolescents and those with a higher socioeconomic status are more likely to be involved in organized PA. Additionally, perceived competence, attitude toward physical activity, task orientation, and parents' and friends' perceived PA might be positively related to adolescent's organized PA.

## Method

### Participants

The study was conducted in six Portuguese public elementary schools in the urban area of Lisbon. These schools were selected as they are in locations that cover a range of socioeconomic groups, as well as having a range of facilities nearby for the practice of PA. The potential sample included 3315 children and adolescents. Of the 3215 children and adolescents enrolled in schools, 350 did not complete the questionnaire, and 148 were dropped from the analysis for missing gender data and being older than 18 years old. A final response rate of 84.5% was obtained and the sample therefore included 2617 students (1336 boys, 1281 girls) drawn from grade 5 to 12, aged 10–18 years old (13.3±2.5). Informed written consent was obtained from the students and their parents/guardians. The study received institutional ethical approval from the Ethics Committee of Faculty of Human Kinetics of the University of Lisbon.

### Measures

Height was measured using a portable stadiometer (recorded to the nearest 0.5 cm). Weight was measured using electronic weighing scales (recorded to the nearest 0.5 kg), with participants wearing shorts and a t-shirt and without shoes. Body mass index (BMI) was calculated by dividing weight in kilograms by height in meters squared.

Socioeconomic status (SES) was assessed via parental occupation. Parents were classified as lower, middle, and upper class. The lower class category included skilled and unskilled manual workers, farmers, and fishermen; the middle class included service occupations such as non-professional health service workers, office clerks, and salespeople; the upper class consisted of business-owners, executives, university-educated specialists and professionals<sup>21</sup>.

To determine students' participation in PA, a questionnaire listing 21 leisure time activities including participation in organized and non-organized PA was used. This instrument<sup>22</sup>, has been used in a number of national and international studies<sup>23,24</sup>. Responses for participation in leisure time activities were dichotomous (yes or no). Test-retest reliability of the leisure time activity scale was assessed via repeat administrations within a 1-week interval in a sub-sample (n = 100), and was found to be high (ICC = 0.90–0.95). Parents' PA levels were measured using a single item for the mother and father, respectively<sup>25</sup>, and responses were dichotomized as follows: "practice every week" or "do not practice." For the measurement of peer PA, students were asked how often their friends practice PA. Answers were given on a five-point scale (1 = never to 5 = daily).

Attitudes were measured using a single item for physical education and PA, respectively, as used in other studies<sup>26,27</sup>: "What do you think about your physical education lessons?," and "What do you think about practicing PA?" Answers were given on a five-point scale ranging from "I dislike it very much" to "I like it very much." These items have displayed high reliability, with intraclass correlation coefficients (1-week interval) of 0.9.

The importance attributed to being popular at school was assessed via two items: "How important is it for you to be popular among boys" and "How important is it for you to be popular among girls" as used before in another study<sup>25</sup>. Responses were given using a five-point Likert scale. These items displayed high reliability, with intraclass correlation coefficients (1-week interval) of 0.9 for both questions. The internal consistency (Cronbach's alpha) of both items was acceptable ( $\alpha = 0.7$ ) and a new variable was computed to create a popularity index.

Sports goal orientation was measured using the 12-item Task and Ego Orientation in Sport Questionnaire<sup>28</sup>. Answers were given using a four-point scale and good Cronbach's alpha coefficients were obtained for both ego ( $\alpha = 0.9$ ) and task ( $\alpha = 0.9$ ) subscales.

Physical competence was measured by Lintunen's Perceived Physical Competence Scale<sup>29</sup>. The six-items, using a five-point Likert scale, demonstrated good internal consistency ( $\alpha = 0.9$ ). Perception of body image and perception of health were measured by a scale taken from a WHO study<sup>26</sup>. Perception of body

image was assessed via three items, using a five-point Likert scale, and the internal consistency was acceptable ( $\alpha = 0.7$ ). Student's perception of health status was assessed via a four-point scale ranging from "I am not feeling well" (= 1) to "I am very healthy" (= 4).

### Statistical analysis

The sample was divided into three age groups, based on known developmental changes in adolescents<sup>30</sup>. Descriptive statistics were calculated for all variables in each age group, included percentages for nominal variables and mean and standard deviations for ordinal or scale variables. Chi-square and ANOVA tests were used to assess differences among age groups. The effect of the variables on organized PA participation was assessed using binary logistic regression. Adjusted odds ratio (OR) with 95% confidence intervals (CI) were calculated.

Adjustments were performed for all studied variables. An OR greater than 1 reflects an increased likelihood of participation in organized PA. The analyses were stratified by age groups to evaluate potential differences. All statistical analyses were performed using IBM SPSS Statistics 20.0. The level of significance was set at 0.05.

### Results

Table 1 summarizes the sample size and distribution as well as descriptive statistics for all measured variables according to age groups. More than half of the participants (56.5%) reported practicing organized PA. As age increased, the number of physically active participants decreased ( $p < 0.001$ ). There were significant differences among age groups for attitude toward physical education, importance attributed to being popular among peers, and ego and task orientation.

Table 1. Descriptive characteristics by age group.

	Total		10–12 years		13–15 years		16–18 years		<i>p</i> <sup>a</sup>
	n	%	n	%	n	%	n	%	
Gender <sup>b</sup>									
Girls	1281	48.9	592	50.4	434	48.5	255	46.5	0.316
Boys	1336	51.1	583	49.6	460	51.5	293	53.5	
BMI <sup>b</sup>									
< 25	2069	79.1	936	79.7	675	75.5	458	83.6	0.069
25–29.9	145	5.5	56	4.8	44	4.9	45	8.2	
≥30	29	1.1	12	1.0	13	1.5	4	0.7	
SES <sup>b</sup>									
Low	722	27.6	412	35.1	206	23.0	104	19.0	<0.001
Medium	1187	45.4	531	45.2	422	47.2	234	42.7	
High	29	27.1	232	19.7	266	29.8	210	38.3	
Organized PA <sup>b</sup>									
Yes	1478	56.5	712	60.6	496	55.5	270	49.3	<0.001
No	1139	43.5	463	39.4	398	44.5	278	50.7	
Father PA <sup>b</sup>									
Yes	598	22.9	291	24.8	181	20.2	126	23.0	0.004
No	1678	64.1	688	58.6	609	68.1	381	69.5	
Mother PA <sup>b</sup>									
Yes	493	18.8	248	21.1	153	17.1	92	16.8	0.001
No	1839	70.3	750	63.8	664	74.3	425	77.6	
Peers PA <sup>c</sup>									
Never	49	1.9	23	2.0	17	1.9	9	1.6	<0.001
Sometimes	555	21.2	216	18.4	175	19.6	164	29.9	
Usually	1155	44.1	490	41.7	395	44.2	270	49.3	
Frequently	551	21.1	277	23.6	194	21.7	80	14.6	
Daily	291	11.1	162	13.8	106	11.9	23	4.2	
	<b>M ± SD (min–max)</b>								
Attitude toward PE	4.0±1.0 (1-5)		4.2±1.0 (1-5)		4.0±0.9 (1-5)		3.6±1.1 (1-5)		<0.001
Attitude toward PA	4.0±0.9 (1-5)		4.0±0.9 (1-5)		4.0±0.9 (1-5)		4.1±0.8 (1-5)		0.794
Popularity	2.4±0.9 (1-4)		2.4±0.9 (1-4)		2.5±0.8 (1-4)		2.3±0.8 (1-4)		0.004
Ego orientation	2.2±1.2 (1-4)		2.3±1.2 (1-4)		2.1±1.2 (1-4)		1.9±1.2 (1-4)		<0.001
Task orientation	2.7±1.4 (1-4)		2.8±1.3 (1-4)		2.7±1.4 (1-4)		2.6±1.5 (1-4)		0.040
Perception of competence	3.5±0.8 (1-5)		3.5±0.8 (1-5)		3.5±0.8 (1-5)		3.5±0.8 (1-5)		0.231
Perception of body image	3.5±0.8 (1-5)		3.5±0.8 (1-5)		3.5±0.8 (1-5)		3.4±0.8 (1-5)		0.165
Perception of health	3.1±1.0 (1-4)		3.1±1.0 (1-4)		3.1±1.0 (1-4)		3.0±0.8 (1-4)		0.196

BMI, body mass index; SES, socioeconomic status; PA, physical activity; PE, physical education

<sup>a</sup>Analysis of differences among age groups

<sup>b</sup>Tested by chi-square

<sup>c</sup>Tested by ANOVA

Table 2 presents the results for the crude logistic binary regression analysis. Girls were almost 50% less likely to participate in organized PA than boys in every age group. The medium SES was only related to adolescents' organized PA for those in the age 16–18 years group (OR = 2.11, 95% CI: 1.31–3.40,  $p = 0.002$ ), while high SES was related to organized PA participation in the younger (OR = 1.43, 95% CI: 1.03–2.00,  $p = 0.035$ ) and older (OR = 1.88, 95% CI: 1.16–3.05,  $p = 0.011$ ) age groups. Perceived father PA (OR = 1.64, 95% CI: 1.23–2.20,  $p = 0.001$ ) and mother PA (OR = 1.60, 95% CI: 1.20–2.20,  $p = 0.003$ ) was positively

related to organized PA for the younger age group. However, for the age 13–15 years group, only perceived mother PA was related to organized PA of adolescents (OR = 1.77, 95% CI: 1.23–2.56,  $p = 0.002$ ), and in the age 16–18 years group only fathers PA was significantly related (OR = 1.83, 95% CI: 1.21–2.76,  $p = 0.004$ ). As for the rest of the variables, all were positively related to organized PA in all age groups, with the strongest correlations found for attitude toward PA (OR = 2.48, 95% CI: 1.93–3.20,  $p < 0.001$ ) and perceived physical competence (OR = 2.11, 95% CI: 1.64–2.72,  $p < 0.001$ ) in the age 16–18 years group.

Table 2. Unadjusted logistic regression models examining correlates of PA by age groups.

	10–12 years	13–15 years	16–18 years
	Crude OR (95% CI)	Crude OR (95% CI)	Crude OR (95% CI)
Gender			
Boys	1.00 (ref)	1.00 (ref)	1.00 (ref)
Girls	0.51 (0.40-0.65)***	0.54 (0.41-0.71)***	0.53 (0.38-0.74)***
BMI			
< 25	1.00 (ref)	1.00 (ref)	1.00 (ref)
25-29.9	0.70 (0.41-1.21)	0.99 (0.54-1.83)	0.54 (0.29-1.03)
≥30	1.22 (0.36-4.10)	0.88 (0.29-2.64)	0.33 (0.03-3.17)
SES			
Low	1.00 (ref)	1.00 (ref)	1.00 (ref)
Medium	1.19 (0.92-1.54)	0.90 (0.64-1.25)	2.11 (1.31-3.40)**
High	1.43 (1.03-2.00)*	1.30 (0.90-1.90)	1.88 (1.16-3.05)*
Father PA			
No	1.00 (ref)	1.00 (ref)	1.00 (ref)
Yes	1.64 (1.23-2.20)***	1.28 (0.91-1.79)	1.83 (1.21-2.76)**
Mother PA			
No	1.00 (ref)	1.00 (ref)	1.00 (ref)
Yes	1.60 (1.20-2.20)**	1.77 (1.23-2.56)**	1.50 (0.95-2.37)
Peers PA	1.26 (1.12-1.41)***	1.37 (1.19-1.57)***	1.59 (1.28-1.97)***
Attitude toward PE	1.53 (1.34-1.73)***	1.41 (1.22-1.63)***	1.24 (1.07-1.45)**
Attitude toward PA	1.90 (1.64-2.19)***	2.27 (1.91-2.70)***	2.48 (1.93-3.20)***
Importance of being popular	1.20 (1.05-1.37)**	1.29 (1.10-1.52)**	1.38 (1.11-1.71)**
Ego orientation	1.62 (1.50-1.80)***	1.89 (1.67-2.15)***	1.85 (1.57-2.19)***
Task orientation	1.60 (1.45-1.76)***	1.77 (1.58-1.98)***	1.90 (1.63-2.21)***
Perception of competence	1.82 (1.55-2.13)***	2.03 (1.67-2.13)***	2.11 (1.64-2.72)***
Perception of body image	1.31 (1.14-1.51)***	1.33 (1.13-1.51)**	1.56 (1.24-1.95)***
Perception of health	1.19 (1.06-1.34)**	1.30 (1.14-1.50)***	1.60 (1.29-1.99)***

BMI, body mass index; SES, socioeconomic status; PA, physical activity; PE, physical education  
\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 3 shows results of the adjusted logistic binary regression analysis. Biological and demographic variables (gender, BMI and SES) were not related to organized PA participation in all age groups, or father and mother PA participation. Reported peer PA was related to adolescents' organized PA in the age 16–18 years group (OR = 1.35, 95% CI: 1.01–1.81,  $p = 0.045$ ), while there was no relationship in the other two younger age groups. Children and adolescents with higher attitude scores were more likely to be involved in organized PA. This variable was correlated to organized activities in all age groups.

Ego orientation was significantly associated with adolescents' organized PA in the age 13–15 years group (OR = 1.40, 95% CI: 1.00–1.94,  $p = 0.047$ ). Moreover, task orientation was also related to PA participation in the age 13–15 years group (OR = 1.36, 95% CI: 1.03–1.79,  $p = 0.030$ ), and the age 16–18 years group (OR = 2.14, 95% CI: 1.54–2.97,  $p < 0.001$ ). Finally, perception of competence was related to participation in both the age 10–12 years (OR = 1.42, 95% CI: 1.07–1.88,  $p = 0.016$ ) and the age 13–15 years group (OR = 1.72, 95% CI: 1.19–2.47,  $p = 0.004$ ).

Table 3. Adjusted logistic regression models examining correlates of PA by age groups.

	10–12 years	13–15 years	16–18 years
	Adjusted OR (95% CI)	Adjusted OR (95% CI)	Adjusted OR (95% CI)
Gender			
Boys	1.00 (ref)	1.00 (ref)	1.00 (ref)
Girls	0.77 (0.55-1.88)	1.37 (0.91-2.07)	0.86 (0.51-1.45)
BMI			
< 25	1.00 (ref)	1.00 (ref)	1.00 (ref)
25-29.9	0.58 (0.29-1.17)	1.58 (0.71-3.51)	1.06 (0.45-2.46)
≥30	1.52 (0.31-7.46)	0.97 (0.21-4.47)	0.30 (0.02-5.36)
SES			
Low	1.00 (ref)	1.00 (ref)	1.00 (ref)
Medium	1.00 (0.69-1.43)	0.79 (0.49-1.29)	1.70 (0.91-3.17)
High	1.07 (0.69-1.67)	1.11 (0.66-1.87)	1.61 (0.84-3.10)
Father PA			
No	1.00 (ref)	1.00 (ref)	1.00 (ref)
Yes	1.20 (0.80-1.75)	0.82 (0.50-1.33)	1.32 (0.77-2.29)
Mother PA			
No	1.00 (ref)	1.00 (ref)	1.00 (ref)
Yes	1.15 (0.77-1.74)	1.51 (0.89-2.55)	1.14 (0.61-2.11)
Peers PA	1.09 (0.91-1.29)	1.09 (0.89-1.34)	1.35 (1.01-1.81)*
Attitude toward PE	1.14 (0.93-1.39)	0.99 (0.78-1.26)	0.85 (0.67-1.07)
Attitude toward PA	1.45 (1.16-1.82)**	1.95 (1.49-2.56)***	1.89 (1.34-2.67)***
Importance of being popular	0.86 (0.70-1.05)	1.08 (0.83-1.40)	1.18 (0.86-1.62)
Ego orientation	1.17 (0.87-1.58)	1.40 (1.00-1.94)*	0.72 (0.48-1.09)
Task orientation	1.27 (0.97-1.65)	1.36 (1.03-1.79)*	2.14 (1.54-2.97)***
Perception of competence	1.42 (1.07-1.88)*	1.72 (1.19-2.47)**	1.10 (0.70-1.72)
Perception of body image	0.79 (0.61-1.03)	0.91 (0.67-1.23)	1.18 (0.81-1.71)
Perception of health	1.04 (0.88-1.24)	1.00 (0.81-1.23)	1.18 (0.87-1.59)

BMI, body mass index; SES, socioeconomic status; PA, physical activity; PE, physical education

\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

## Discussion

This study examined correlates associated with the children and adolescents' organized PA. Three major findings appeared. First, attitude toward PA was the only variable associated with organized PA across all age groups. Second, perception of physical competence was related to organized PA participation among children and younger adolescents. Third, gender and SES were not related to organized PA participation.

The prevalence of organized PA participation was close to 50% of the total sample. It was also found that PA participation decreased with age, confirming the decline observed in previous studies and so often referred to in the literature<sup>4,5</sup>.

In the initial crude analysis, gender was correlated to organized PA. However, when the model was adjusted for all variables, gender was no longer a significant correlate. The difference in these findings between our study and other studies<sup>9</sup> might be related to the context of PA participation. Most previous studies measured total PA levels, and did not consider participation in a particular context. Specific to the particular context of organized PA, findings from existing literature do not show a pattern, as some studies show gender as a significant correlate<sup>31</sup>, and others show that girls are less involved in organized PA<sup>32</sup>.

Numerous studies report SES as a correlate of youth PA<sup>31,33</sup>, while others conversely show no relationship<sup>11</sup>. The findings are inconsistent and do not present a clear picture regarding SES and PA in children and adolescents. The discrepancies in findings between studies might reflect the organization of sport/leisure activities in different countries. In some countries, participation in certain sporting activities is subject to payment of a fee, whereas in other countries participation is free of charge. Our results demonstrate in the crude analyses at least that medium and high SES was positively related to organized PA. Nonetheless, when the model was adjusted this association was no longer significant. It seems that SES in the presence of other psychosocial variables is not a strong correlate of organized PA.

Based on the social cognitive model<sup>34</sup> it is sensible to suggest that parental behavior presents a model for children's behavior. Crude analysis supported this idea, though it was not observed when the model was adjusted for all other variables. Although parents as role models have influence in their children's behavior, a review of correlates showed that parental PA practice is not related to their child's PA<sup>8</sup>. However, parents can influence their children to practice PA in other ways, such as logistic support, fees payment, and encouragement. These types of family support are likely to be related to the acquisition and maintenance of regular PA participation during childhood and adolescence.

Peers' PA remained a significant as predictor of organized PA participation for the older age group. As children and adolescents grow up, the influence of peers in their lives increases, while conversely, parental influence likely decreases<sup>33</sup>.

In the unadjusted and adjusted model, attitude toward PA was one of the strongest correlates. In a previous study it was reported that attitude toward PA was positively related to school sport participation<sup>36</sup>. It appears therefore that young people who have a positive attitude toward PA are more willing to participate in PA regardless of the context. This is an important finding, and thus programs supporting positive attitudes toward PA are necessary to optimize PA adoption and adherence as a means to combat physical inactivity in childhood and adolescence. Attitude toward physical education was only related to older adolescents' organized PA. Previous research has indicated that adolescents who have positive attitudes toward PA and PE are reported to be more likely to participate in PA outside of school and demonstrate higher PA levels than those with less positive attitudes<sup>37</sup>.

Ego and task orientation were predictors of organized PA. Both goals orientations were positively related to organized PA because they are orthogonal constructs, meaning that an individual can be both ego- and task-oriented. Studies have demonstrated that achievement goals have implications in youth sport involvement<sup>38</sup>. Ego orientation predisposes individuals to use an achievement situation as an opportunity to demonstrate their ability in front of others<sup>39</sup>. Considering that in the crude analysis, perception of competence and the importance attributed to being popular were also predictors of organized PA participation, it is understandable that ego orientation was found to be related to organized PA. However, task orientation is associated with intrinsic motivation and is considered a good predictor of PA involvement<sup>28,40</sup>. Our results showed that adolescents' organized PA participation could be predicted by task orientation. Therefore, educators, coach and parents should encourage adolescents to enhance task orientation, and value participation as much as the outcome. For the two younger age groups, perception of competence was significantly correlated with organized PA. It is considered an important facilitator of PA<sup>41</sup>, and thus physical self-concept should be enhanced among children and adolescents. Physical education teachers and PA professionals should therefore focus their pedagogical interventions on increasing students' perceived competence and establishing a strong motivational task/mastery climate.

Importance of being popular, perception of body image, and perception of health had no relation with organized PA in the adjusted analyses. This suggests that children and adolescents' reasons for participating in organized PA are independent of their self-rated health and body image. However, in the crude analyses these variables were positively related to organized PA participation. It is plausible that when the model was adjusted, the perception of competence and attitude toward PA retained the variance explained by these variables, confirming the importance of these constructs for PA participation among children and adolescents<sup>42</sup>.

Some limitations of the present study should be acknowledged. The cross-sectional design impedes the inference of causality in the relationships examined. Data from participation

in organized PA were collected via self-report rather than via objective methods, e.g., accelerometry. Although the PA questions have previously been demonstrated to be both reliable and valid, they could be subject to bias due to recall error, for example. Participants were from schools in urban areas. This limits the variability in participation in organized PA settings and the ability to generalize to other locations, particularly rural areas. Despite its limitations, this study also contributes data to the literature regarding the prevalence of organized PA participation among children and adolescents from urban areas. Moreover, a strength of this study was the separate analysis of correlates among different age groups that may be related to children and adolescents' developmental changes.

## Conclusion

The present study highlights different correlates of organized PA among different age groups of children and adolescents. Attitude toward PA was a factor correlated with organized PA throughout the different age groups examined. The PA participation of the adolescents aged 13–15 years was related to ego and task orientation, and perception of competence. For older adolescents aged 16–18 years, task orientation and a positive attitude toward physical education predicted organized PA participation. Gender and SES were not related to organized PA participation. These findings suggest that intervention to increase the level of participation in organized PA of children and adolescents should consider different strategies according to age group. The emphasis on which factors to target and the methods by which they are addressed should be modified according to the age groups.

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