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Gender, weight status and socioeconomic differences in psychosocial correlates of physical activity in schoolchildren

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ABSTRACT

Objectives: This study sought to assess differences in attraction to physical activity, perceived physical competence and parental socialization influences across gender, body mass index and socioeconomic status in Portuguese children.
Design: Cross-sectional study.
Methods: 683 children, aged 8–10 years, from elementary schools were participants. Attraction to physical activity, perceived physical competence, parental socialization influences and socioeconomic status were assessed via standardized questionnaires. The prevalence of overweight and obesity was calculated using body mass index, based on the international cut-off points. MANOVA and ANOVA models were conducted.
Results: Boys reported greater enjoyment of games and sports participation than did girls. Boys and normal-weight children perceived themselves as being more successful and physically competent than did girls and obese children. Normal-weight girls enjoyed participation in vigorous physical activity more than did overweight and obese girls. Obese children felt less accepted by their peers in games and sports than did normal-weight and overweight children. High and medium socioeconomic status children perceived physical activity participation as of greater importance than did low-socioeconomic status children. High-socioeconomic status girls reported greater liking of the exertional aspects of physical activity compared to low socioeconomic status girls. High socioeconomic status children were more likely to perceive their parents as positive role models and perceived that they had greater enjoyment of physical activity than did lower socioeconomic status children.
Conclusions: These results suggest that physical activity promotion interventions should focus on girls, obese children and lower socioeconomic status children as these individuals tend to have lower levels of attraction to physical activity, lower perceived physical competence and less parent physical activity support, which puts them at greater risk of being physically inactive.

1. Introduction

Childhood obesity is increasing at an alarming rate, reaching epidemic proportions, and becoming a serious and growing public health problem.[1] According to the CDC reports,[2] the percentage of obese children in the 6–11 year age range in the United States nearly quadrupled from 4% in 1974 to 15% in the year 2000. In Portugal, the prevalence of obesity more than doubled in the group of 9-year-olds (highest prevalence of 47.3% in 2000) and tripled in the group of 10- and 11-year-olds with the greatest changes occurring between 1990 and 2000.[3] This increase in childhood obesity is particularly concerning because, besides being a strong predictor of obesity in adulthood, it is highly associated with disorders that increase the risk of cardiovascular disease.[1]

Regular physical activity (PA) has beneficial effects on children's adiposity, musculoskeletal health, and several components of cardiovascular health.[4] Despite the health benefits of regular PA, the prevalence of inactivity has increased worldwide.[5] In Portugal, specifically, more than 60% of the children did not reach recommended levels of at least 60 min of moderate-to-vigorous PA on five or more days of the week.[6]

The development of effective behavioral interventions to increase the time children spend in PA on a regular basis is a critical public health priority. However, a crucial step in the development

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of effective interventions to better understands the correlates that influence PA in children. A number of correlates have been found to explain the variation seen in PA levels and patterns[7] but it has been difficult to determine how this information can be used for planning interventions. The Youth PA Promotion (YPAP) model has been offered as a social–ecological framework for better understanding the factors contributing to children's participation in PA.[8] A unique feature is that it categorizes key influences into psychological attributes (predisposing factors), social influences (reinforcing factors) and environmental influences (enabling factors).

Predisposing factors in the YPAP model include – attraction to PA and perception of physical competence.[9,10] Reinforcing factors are rewards received or the feedback people receive from others following a behavior that may encourage or discourage adoption and/or continuation of the behavior. Parents are generally considered important social agents who influence children's health-related behaviors, such as an active lifestyle.[11] Enabling factors include the availability of resources, accessibility of programs, or the specific skills that allow children to be physically active. They include environmental factors, including living near or having access to convenient play spaces, sports equipment, and transportation to sports or fitness programs, and having opportunities to participate in physical education classes.[8]

A large body of literature exists about the relationship between predisposing and reinforcing factors and children's participation in PA.[11–13] Several studies highlighted that children who are more attracted to participate in PA and perceive themselves as physically competent will persist longer in current and future PA.[12] Furthermore, parents, who believe in the importance of PA, who are role models through their own levels of participation and who encourage their children to be active, or provide instrumental support tend to have children who are more active than children whose parents are not physically active.[11,13]

To date, there is limited research examining possible demographic (gender and socioeconomic status, SES) and biological (weight status: body mass index, BMI) differences in these predisposing and reinforcing correlates among children. Previous studies have identified the presence of gender differences on PA-related psychological characteristics and which have tended to favor boys.[14,15] To the best of our knowledge, only a few studies have examined SES status and BMI in relation to these psychological and social correlates of children's PA.[16,17] Understanding these differences would be important because some evidence suggest that girls, lower SES, and obese children tend to be less active than boys, non-obese children and children higher in SES.[18] In addition, a better understanding of these differences may lead to identifying more specific and appropriate intervention points to promote children's participation in PA.

Therefore, in the present study, we aimed to extend previous work by examining whether children' attraction to PA, perceived physical competence and parental socialization influences differed by gender, SES and weight status in a sample of Portuguese elementary schoolchildren.

2. Methods

The data was collected from a community-based, cross-sectional sample of children aged 8–10 years selected from 40 public elementary schools, throughout the municipality of Maia in the northern part of Portugal. The study had been previously approved by the research committee at the researchers' university and by authorities at the individual schools, which the children attended. The administrators of 20 of the contacted schools agreed to participate in this study. Four weeks prior to data collection, the families were mailed a passive consent form, which instructed the parents to return the form to the school if they did not want their child to participate. This is a customary protocol for research conducted with children through Portuguese educational institutions and the approach approved for this research. The refusal rate was 45.3% ($n = 566$). This provided a final sample of 683 children (331 girls and 352 boys; 54.7% response rate).

Weight was measured to the nearest 0.1 kg using a Tanita *BC-418MA*. Height was measured with shoes removed to the nearest 0.1 cm using an anthropometer (*Siber Hegner*). Body mass index (BMI) was calculated as the weight (kg) divided height (m) squared. Weight status was classified as normal, overweight or obese using age- and sex-specific BMI cut-off points.[19]

Participation in the subsidized school education material and meal program was used as a proxy for socioeconomic status (SES). In Portugal, children from families with incomes at or below one-half the minimum wage were eligible for free educational materials and meals. Those with incomes more than one-half but less than or equal to the minimum wage were eligible for reduced-price meals. Children from families with incomes above minimum wage are not eligible for the subsidies. The SES was classified into three categories: high (unsubsidized), medium (reduced-price) and low (free). Family income described as total income of the household was determined by school authorities and categories were extracted from official school records.

The shorter version of the Children's Attraction to Physical Activity scale (CAPA) developed by Brustad[10] was utilized and the Portuguese-language version of this instrument includes 14 items designed to measure the extent of children's interest in engaging in PA. The CAPA includes five dimensions of attraction to participation in PA including attraction vigorous PA involvement (VPA); the perceived importance of participating in PA (IPA); liking of games and sports (LGS); assessments of whether physical exertion is perceived to be fun and important (FPE); and attraction due to perceived peer acceptance in games and sports (PAG). Inter-item correlations within the subscales ranged from 0.14 to 0.39.

Perceived physical competence (PPC) was assessed using a five-item scale that reflects the appraisal of one's own competence to perform PA behaviors[10,14,20] Parental socialization influences (PSI) of children into PA were assessed through a nine-item scale that measures three different dimensions of parental support: parental role modeling behavior (PRM), parental encouragement (PEC), and parental enjoyment of physical activity (PEJ).[14] All items were rated on a 4-point scale using Harter's structured alternative approach that has been designed to reduce tendencies for socially desirable responses.[20] These scales were translated from the English versions and modified accordingly into Portuguese versions, and subsequently back translated into English. A pilot study was conducted to assure that the contents of all scales were understood and comprehended by all children. Internal consistency of the instruments was estimated with Cronbach's alphas and ranged from .42 to .66. The psychometric properties of the scales have been supported through previous research.[10,21,22]

A meeting with the coordinators and teachers of each of the schools was conducted in order to present the purpose of the study. Later, the content of the scales was explained to the participants. Students answered the questionnaire in their classroom in about 10–20 min of time through face-to-face interviews. Data were collected between February and March 2010, at various times of their school day and on different weekdays. All the scales were administered by the first author.

Data reliability was assessed in a pilot study of all variables estimated using a test–retest procedure with a random subsample of 41 children. The intra-class correlation coefficients (R) of all variables were high. Height and weight, $0.90 \leq R \leq 0.99$; CAPA, $0.96 \leq R \leq 0.99$; PPC, $R = 0.99$ and between $0.98 \leq R \leq 0.99$ for PSI.

Table 1
Mean values (standard deviations) and proportions for characteristics of the study sample.

Characteristics	Girls (n = 324)	Boys (n = 358)	p-Value
Age (years)	8.82 (.73)	8.83 (.78)	.886[a]
Height (m)	1.36 (.07)	1.36 (.07)	.578[a]
Weight (kg)	35.32 (8.79)	35.14 (7.93)	.778[a]
BMI (kg/m^2)	18.96 (3.28)	18.84 (3.10)	.605[a]
BMI			.591[b]
Normal-weight, n (%)	194 (59.9)	210 (58.7)	
Overweight, n (%)	87 (26.9)	107 (29.9)	
Obesity, n (%)	43 (13.3)	41 (11.5)	
SES			.850[b]
Low, n (%)	82 (25.3)	84 (23.5)	
Medium, n (%)	45 (13.9)	50 (14.0)	
High, n (%)	197 (60.8)	224 (62.5)	

Abbreviation: BMI, body mass index; SES, socioeconomic status.
[a] t-Test.
[b] Chi-square test.

Results were expressed as either means (standard deviations) or proportions. None of the quantitative physical characteristics and psychosocial scales showed significant deviations from a normal distribution (Kolmogorov–Smirnov test). Independent sample t-test and Pearson's chi-square tests were used to identify differences in means and proportions between sexes. Multivariate analysis of variance (MANOVA) models were used to compare values of CAPA and PSI subscales in terms of sex, BMI and SES, analyzing main effects and interactions. The same analytical plan was used for the unidimensional scale (PPC) using a three-way analysis of variance (ANOVA). The Bonferroni test for multiple comparisons was used. Significance level was set at 0.05 throughout the analyses. Statistical analyses were performed using SPSS 18.0.

3. Results

Characteristics of the study sample are shown in Table 1. No significant differences between genders were observed for age, weight, height, BMI and SES. The prevalence of overweight and obesity in girls were 26.9% and 13.3%, respectively. The corresponding values in boys were 29.9% and 11.5%, respectively. The proportion of girls and boys with high, medium and low SES were 60.8%, 13.9%, and 25.3%, respectively. The corresponding values for boys were 62.5%, 14.0%, 23.5%, respectively.

Table 2 shows the results of the MANOVA and the three-way ANOVA models for CAPA, PSI subscales and for PPC scale according to gender, BMI and SES.

The overall MANOVA tests with the CAPA indicated significant differences for gender (F = 3.84; p = .002), BMI (F = 2.86; p = .015), SES (F = 2.32; p = .011) as well as a significant gender by BMI interaction effect (F = 2.25; p = .048) and a gender by SES interaction effect (F = 1.46; p = .015). Subsequent univariate ANOVAs were conducted to examine the relationships for specific CAPA subscales. For the VPA subscale, there were significant main effects for gender (boys had more favorable responses to VPA than girls) and BMI (normal-weight and overweight children had more favorable responses to VPA than obese children). However, a significant gender by BMI interaction effect indicated that this effect was mainly attributable to girls (normal-weight girls had more favorable feelings about engaging in VPA than overweight and obese girls but this effect was not evident in boys (see Fig. 1)). For IPA, there was a significant main effect for SES (high and medium SES children perceived greater importance for PA than did low SES children) for LGS, there was a significant main effect for gender (boys reported greater enjoyment of games and sports than did girls). For PAG, there was a significant main effect for BMI (obese children reported that they felt less accepted by their peers in games and sports than did normal-weight and overweight children). For FPE, there were significant main effects for gender, BMI, and SES (boys, normal-weight children and high SES children reported greater enjoyment of the exertional aspects of PA than girls, obese children and low SES children, respectively). However, a significant gender by SES interaction indicated that the SES effects in FPE subscale are different in boys and girls. High SES girls reported greater liking of the exertional aspects of PA relative to low SES girls, whereas these differences did not occur for boys across SES status (Fig. 1).

The three-way ANOVA for PPC revealed significant main effects for gender (boys perceived themselves as being more successful and physically competent than girls) and BMI (normal weight children had more favorable perceptions than obese children).

The overall MANOVA for the PSI subscales revealed a significant main effect for SES (F = 3.25; p = .004) and a significant gender × BMI interaction (F = 2.49; p = .021). The results of the subsequent univariate ANOVAs showed a significant main effect for SES for PRM. High SES children were more likely to view their parents as role models than were lower SES children. Results for the PEJ revealed a significant main effect for SES with high SES children perceiving their parents as enjoying PA more than lower SES children. A significant interaction gender by BMI interaction revealed differences between boys and girls in the relationship between BMI and PEJ. Overweight boys perceived their parents as having more fun and enjoyment doing PA than obese boys, while in girls this perception was not significantly different across weight status (Fig. 1). Identical results were revealed for the PEN influence (a significant SES main effects and a significant gender by BMI interaction). High and medium SES children were found to perceive more encouragement by their parents than low SES children. Overweight boys perceived more encouragement by their parents than normal-weight boys, whereas in girls, this perception was more constant across weight status (Fig. 1).

4. Discussion

The present findings are consistent with expectations that children's attraction to PA varies in accordance with gender, weight status and SES. An important result was that boys reported greater VPA enjoyment than did girls, which is consistent with Brustad's[14] study. These findings were also anticipated given Pellegrini et al.'s[23] results that boys engage in more PA regardless of the structure of the playground, as their games are generally vigorous and involve more high-intensity running-type activities than do girls' games. Conversely, Pelligrini et al.[23] found that girls seem to have more desire to participate in low intensity activities such as walking or dance. Also, normal-weight children like more to participate in VPA than their overweight peers. Previous research has found that children who are obese are less active and fit[24] and have poorer fundamental motor skill proficiency than those who are normal-weight[25] and, consequently, are more likely to face exclusion from participation in vigorous and competitive activities. An interesting finding in this study is the gender and weight status interaction found relative to the VPA subscale. Normal-weight girls like to participate more in vigorous activities than do overweight and obese girls, whereas in boys, this perception tends to be more constant across weight status. These findings highlight the importance of developing PA programs that target overweight and obese girls with the particular goal of promoting involvement in vigorous physical activities. Competitive activities should be discouraged as previous research indicates that competitive physical activities are not necessarily enjoyable.[26]

Regarding the IPA subscale, prior studies have reported that if children think that PA is beneficial for their health and well-being they will be more likely to participate in PA to achieve these

Table 2
Mean values (standard deviations), *F*-test, and *p* value for multivariate analysis of variance (MANOVA) of different CAPA, PPC and PSI subscales according to gender, BMI and SES.

		CAPA					PPC		PSI		
		VPA	IPA	LGS	PAG	FPE	PC		PRM	PEJ	PEN
Gender											
Males		3.31 (.77)	3.67 (.55)	3.60 (.57)	2.98 (.93)	2.60 (.85)	3.09 (.58)		3.18 (.63)	3.19 (.71)	3.39 (.60)
Females		2.91 (.96)	3.62 (.54)	3.46 (.66)	2.95 (.94)	2.42 (.78)	2.84 (.63)		3.16 (.60)	3.12 (.69)	3.28 (.66)
BMI											
Normal-weight		3.21 (.80)	3.65 (.54)	3.53 (.62)	2.98 (.93)	2.54 (.82)	3.01 (.61)		3.16 (.61)	3.18 (.68)	3.33 (.63)
Overweight		3.08 (.95)	3.69 (.50)	3.53 (.62)	3.05 (.92)	2.52 (.81)	2.96 (.65)		3.21 (.63)	3.16 (.69)	3.38 (.62)
Obesity		2.75 (1.05)	3.50 (.64)	3.53 (.62)	2.70 (.96)	2.35 (.84)	2.81 (.57)		3.09 (.61)	3.01 (.81)	3.27 (.68)
SES											
High		3.15 (.88)	3.68 (.51)	3.53 (.62)	3.00 (.90)	2.58 (.78)	2.97 (.60)		3.21 (.60)	3.20 (.71)	3.40 (.60)
Medium		3.14 (.85)	3.68 (.50)	3.55 (.55)	2.97 (.95)	2.50 (.84)	3.00 (.55)		3.15 (.60)	3.16 (.60)	3.35 (.56)
Low		3.04 (.94)	3.53 (.65)	3.51 (.65)	2.88 (1.00)	2.35 (.88)	2.97 (.69)		3.07 (.66)	3.03 (.74)	3.16 (.71)
Sources of variation	MANOVA	Univariate tests[a]					ANOVA	MANOVA	Univariate tests[a]		
	Overall *F* (*p*)	*F* (*p*)	*F* (*p*)	*F* (*p*)	*F* (*p*)	*F* (*p*)	*F* (*p*)	Overall *F* (*p*)	*F* (*p*)	*F* (*p*)	*F* (*p*)
Gender	3.84 (.002)	28.14 (<.001)	0.20 (.659)	4.14 (.042)	0.38 (.536)	8.69 (.003)	19.18 (<.001)	0.88 (.459)	0.13 (.718)	0.03 (.871)	1.99 (.158)
BMI	2.86 (.015)	11.32 (<.001)	1.97 (.140)	0.75 (.471)	3.88 (.021)	3.37 (.035)	3.17 (.043)	1.28 (.266)	0.61 (.544)	2.14 (.119)	0.43 (.653)
SES	2.32 (.011)	1.62 (.198)	4.97 (.007)	0.37 (.691)	0.49 (.615)	5.20 (.006)	.16 (.849)	3.25 (.004)	4.55 (.011)	5.61 (.004)	8.42 (<.001)
Gender × BMI	2.25 (.048)	3.73 (.025)	0.39 (.680)	1.02 (.362)	0.09 (.910)	0.51 (.602)	0.09 (.914)	2.49 (.021)	1.05 (.350)	4.28 (.014)	4.41 (.012)
Gender × SES	1.46 (.015)	0.77 (.465)	0.16 (.850)	0.39 (.680)	0.28 (.758)	5.91 (.003)	2.55 (.079)	0.99 (.427)	1.47 (.231)	0.07 (.936)	0.43 (.649)
BMI × SES	1.05 (.398)	0.97 (.422)	1.31 (.264)	2.41 (.051)	0.24 (.918)	1.10 (.355)	1.04 (.385)	1.36 (.179)	2.29 (.059)	2.32 (.056)	0.86 (.491)
Gender × BMI × SES	0.98 (.766)	0.96 (.427)	1.49 (.205)	0.54 (.705)	0.82 (.513)	0.46 (.763)	0.21 (.933)	0.73 (.720)	0.68 (.605)	0.13 (.972)	0.72 (.582)

CAPA – childrens' attraction to PA; PPC – perceived physical competence; PSI – parental socialization influences; VPA – attraction to participate in vigorous PA; IPA – importance to PA; LGS – liking games and sports; PAG – peers acceptance in games and sports; FPE – fun of physical exertion; PC – perceived competence; PRM – parent role modeling; PEJ – parent enjoyment; PEN – parent encouragement.

[a] *F* (*p*-value) for each subscale.

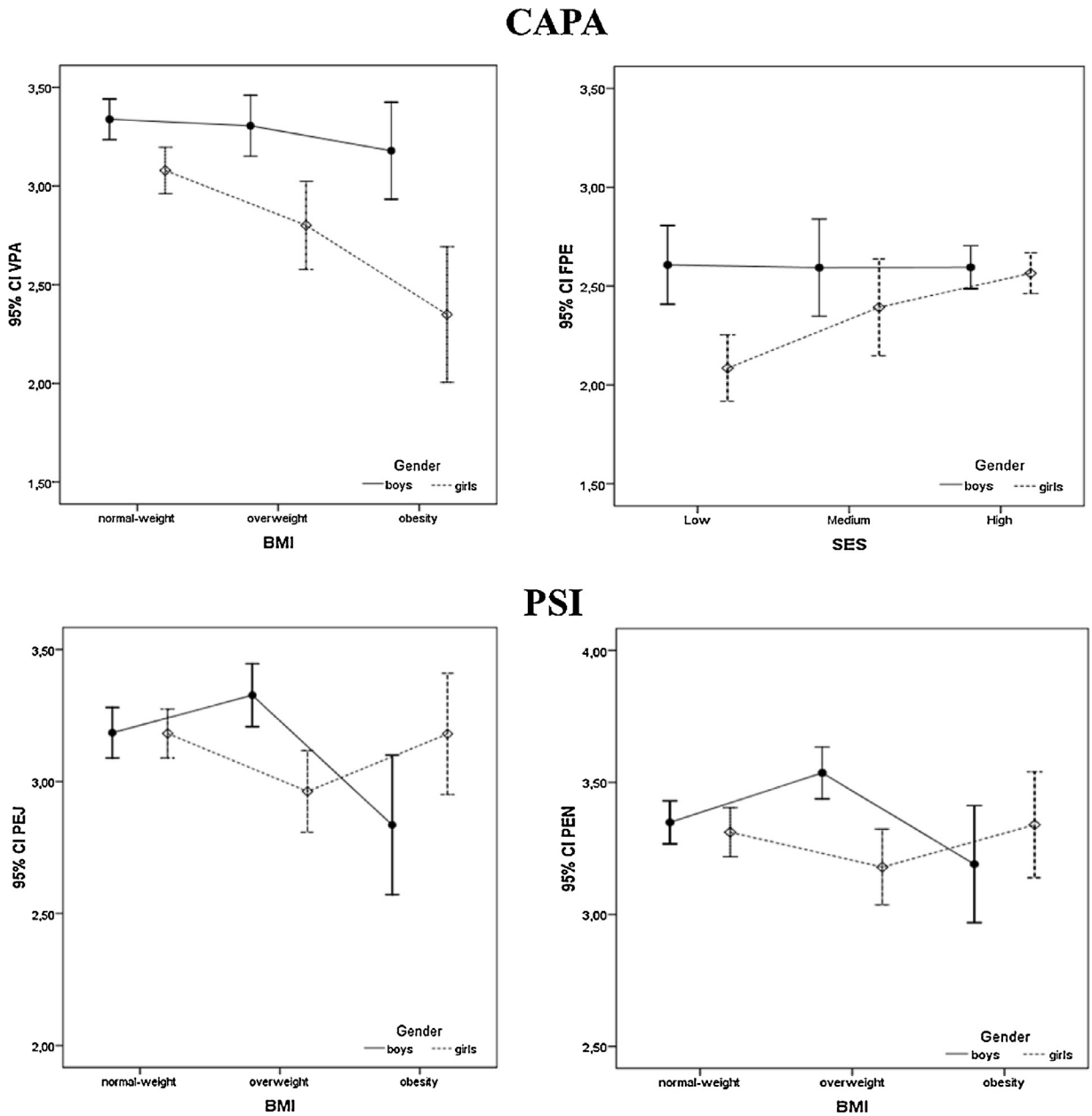

Fig. 1. Mean vigorous PA (VPA) and fun of physical exertion (FPE), parental enjoyment (PEJ) and parental encouragement (PEN) influences scores and 95% confidence intervals (95%) by gender and weight status (BMI)/socioeconomic status (SES).

benefits.[27] This study extends previous research by demonstrating a socioeconomic trend with regard to the IPA. High and medium SES children recognize more benefits of doing PA than do low SES children. This finding can be explained by positive attitudes towards the value of PA and healthy lifestyles in general of family members from higher social classes, which are transferred, to their children's attitudes and health-related behavior. In fact, there is some evidence that socioeconomic inequalities have profound effects on the adoption and maintenance of healthy behaviors including PA participation among children.[28]

The finding that boys liked games and sports more than girls is also consistent with other studies.[14,29] The factors responsible for the larger interest in games and sports by boys are not well understood. A plausible socio-cultural explanation is that males are socialized to more strongly emphasize strenuous and competitive activities than females. Other explanations for this lower involvement of girls in sports compared to boys are the differences in body image, physical abilities and attitudes necessary for the practice of sports activities.[30] Girls' ideal body image seems to favor elegance and beauty that may not fit many acute and chronic requests from training and competition in games and sports. Gender differences and associated socio-cultural factors require special consideration in the design of PA intervention programs. Girls, as a group, appear to be more at risk for insufficient levels of PA; as such, activities need to be more varied and directed to their interests and expectations. In addition, gender differences in LGS may be attributable to the tendency for boys to have higher levels of perceived competence in PA than do girls. Since physical games and sports are skill-based, attraction to these types of PA experiences would logically be contingent upon the favorability of children's competence perceptions. Girls reported more negative perceptions of physical competence which may influence motivation to perform, to develop physical competence, and/or to enjoy participation in

sport and other physical activities and believed themselves more competent in non-physical domains.[30]In this study, obese children reported feeling less accepted by peers in games and sports compared to their normal-weight and overweight counterparts. Previous research suggests that obese children have problematic social functioning and when they are asked about their experiences within the peer environment they self-report social difficulties including victimization, name-calling, and teasing about their appearance.[31] Obese children also tend to be described as less physically attractive, less athletic, unhappy and absent from school than their normal-weight peers, which may explain the lower PAGS.[32]

Interesting results were also observed with the FPE subscale. There was a significant main effect for gender, BMI and SES, and a significant gender by SES interaction effect. Boys and normal-weight and high SES children reported liking the exertional aspects of PA more than girls, obese and low SES children. These results are in accordance with previous studies in which boys, normal-weight and high SES children expressed much more favorable attitudes toward the exertional characteristics of PA at varying socioeconomic levels.[14,15,33] The gender by SES interaction indicated that high SES girls reported a greater liking for the exertional aspects of PA than the low SES girls. This outcome did not occur for the boys. This finding suggests that girls from the low SES groups have less interest in exertional aspects of PA than girls from the highest SES groups putting girls from low socio-economic backgrounds at particular risk of low PA.

PPC has been shown to be a predisposing factor affecting children's participation in PA.[34] In the present study, boys and normal-weight children had higher perceptions of their PA competence than girls and obese children. Several studies have also indicated that boys have more favorable self-perceptions in PA and this may result in a greater willingness to participate in current and future activities.[12,23,29] Conversely, girls with more negative perceptions of their physical competency tend to not be as motivated to perform, obtain competency, or enjoy participating in PA and sports. Differences relative to weight status and PPC have been also reported in a previous study.[35] Normal-weight children perceived themselves as more physical competent compared to obese children. It may be due to overweight and obese children's increased vulnerability to lower self-perceptions of physical appearance and athletic competence and poorer body esteem and perceived cognitive capacities.[36]

It is generally accepted that parents are a critical and decisive factor in the psychological and social well-being of children.[11] In this study, there was a significant main effect for SES and a significant gender by weight status interaction effect for the parental influence scale. High SES children perceived their parents as important influences (providing more role modeling, encouragement and enjoyment for activity) in their PA participation in comparison with low SES children. Examining the gender by weight status interaction and subsequent stratified analyses showed that obese boys reported receiving less encouragement from their parents and perceived that their parents enjoyed PA less than did the parents of overweight boys.Higher SES has been found to coincide with more favorable attitudes towards the value of an active and healthy lifestyle. In addition, low SES children may lack parental support and be unable to benefit from the higher value placed on PA and sports in comparison with more highly educated parents.[37] Children from lower economic strata may also experience greater barriers (financial, location, proximity and access of facilities) to activity than children from higher economic status.[38] Also in accordance with prior research, obese children reported lower levels of adult support for PA than their non-obese counterparts.[39] Thus, the present findings suggest that intervention efforts should be directed toward increasing the level of PA support and encouragement provided by parents of obese boys and for children of lower SES status.

There are several limitations in this study that should be considered when interpreting the results. First, the conclusions that can be drawn should be interpreted specifically in relation to the present sample. Findings may not generalize to other populations and may be specific to the Portuguese cultural context. A second limitation is related to the psychometric characteristics of the CAPA scale, given the limited number of CAPA's items per subscale is prudent to interpret its results with caution. A third limitation is the use of self-report measures, which might lead to potential biases that cannot be controlled. Children could have misinterpreted questions or responded in a socially desirable manner. A fourth and more specific limitation is the use of subsidized school education material and meal program as a marker of SES, which is a multi-faceted construct. Different results might have been observed if a different measure of SES, such as parental education or family income, had been used. These limitations are not unique to this type of study but should be considered when interpreting the results.

5. Conclusions

In summary, this study makes an important contribution to the literature, providing important evidence about the gender, BMI and SES differences in the CAPA, PPC and PSI among elementary schoolchildren, and suggests that public health interventions need to consider these differences in order to tackle physical inactivity and obesity among this population.

6. Practical implications

- PA intervention programs should focus on girls, obese children and lower SES children as these individuals tend to have lower levels of attraction to PA and less favorable self-perceptions in PA.
- Family-based interventions could be developed for the purpose of enhancing positive parental socialization practices toward PA.
- Present findings suggest that intervention efforts should be directed toward increasing the level of PA support and encouragement provided by parents of obese boys and for children of lower SES status.

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