

AGE-GROUP DIFFERENCES IN PERCEPTION OF COMPETENCE, GOAL ORIENTATION, ATTITUDES, AND PRACTICE OF PHYSICAL ACTIVITY OF GIRLS WHO ATTEND MILITARY SCHOOLS

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ABSTRACT: This study analysed the differences in self-perception, goal orientation and participation in physical activity (PA) in girls ($N = 244$) attending military schools. Girls had moderately higher levels of perceived competence, and there were no significant differences between age-groups. The figure for task-orientation was higher than ego-orientation. Girls expressed a positive attitude toward school and PE. Most girls did not practiced PA outside school, but 63,9% were involved in school sports. It seems that the military educational institutions are being successful in helping students to adopt physically active lifestyles. The development of perception of competence, task-orientation, and favourable attitudes seem to be important factors to enhance the levels of PA among students.

KEY-WORDS: Physical Activity, achievement goals, correlates.

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PERCEPCIÓN DE COMPETENCIA, ORIENTACIÓN DE META, ACTITUDES Y LA PRÁCTICA DE LAS ACTIVIDADES FÍSICAS EN LAS NIÑAS QUE ASISTEN LAS INSTITUCIONES EDUCATIVAS MILITARES, SEGÚN LA EDAD

RESUMEN: Este estudio analiza las diferencias en la percepción, orientación de meta y participación en la actividad física (AF) en chicas ($N = 244$) de escuelas militares. Estas chicas tienen niveles moderadamente más altos de competencia percibida, y no hubo diferencias significativas entre los grupos de edad. Las cifras correspondientes de orientación a la tarea fue mayor que la de orientación al ego. La mayoría expresó una actitud positiva hacia la escuela y la Educación Física. La generalidad de las niñas no practicaba AF fuera de la escuela, sin embargo 63,9% participaban en el deporte escolar en la escuela. Parece que las instituciones educativas militares están siendo exitosas en ayudar a los estudiantes a adoptar estilos de vida activos. El desarrollo de la percepción de competencia, orientación a la tarea y las actitudes favorables parecen mejorar los niveles de AF entre las estudiantes.

PALABRAS CLAVE: actividad física, la orientación de meta, correlatos.

PERCEÇÃO DE COMPETÊNCIA, ORIENTAÇÃO DOS OBJETIVOS, ATITUDES E PRÁTICA DE ATIVIDADE FÍSICA DAS RAPARIGAS QUE FREQUENTAM AS INSTITUIÇÕES MILITARES DE ENSINO, DE ACORDO COM A IDADE

RESUMO: O objetivo do estudo foi analisar as diferenças na percepção de competência, orientação dos objetivos, atitudes e prática de atividade física (AF) em raparigas que frequentavam os estabelecimentos militares de ensino em Portugal ($N = 244$). As raparigas tinham níveis moderados e elevados de percepção de competência, não havendo diferenças em relação à idade. De uma maneira geral estavam mais orientadas para a tarefa do que para o ego. A maioria manifestou uma atitude positiva face à escola e à Educação Física. A maioria não praticava AF fora da escola. No entanto, uma grande percentagem (63,9%) participava no Desporto Escolar. Parece que os estabelecimentos militares de ensino promovem a AF e os estilos de vida ativos. O desenvolvimento da percepção de competência, orientação dos objetivos para a tarefa e as atitudes favoráveis melhoram os níveis de atividade física.

PALAVRAS-CHAVE: atividade física, orientação dos objetivos, correlatos.

Researchers have constantly emphasized the importance of regular physical activity (PA) to the health of young people (Janssen & Leblanc, 2010; Strong et al., 2005). PA has been shown to assist in youth wellbeing and might assist in their adherence to regular practice of PA into adulthood. Despite evidence of the health benefits of PA, many young people in Portugal (Baptista et al., 2012) and other countries (Duke, Huhman, & Heitzler, 2003; Hallal et al., 2012) do not exercise enough to benefit their health, especially the girls. This high prevalence of inactivity is a cause of concern, and research has been focused on the demographic, psychological, social, and environmental variables as potential correlates of youth participation in PA (Bauman et al., 2012; Biddle, Wang, Kavussanu, & Spray, 2003; Sallis, Prochaska, & Taylor, 2000). These studies are important because they can provide information that help to understand youth behaviour toward PA and can enlighten the design of intervention studies.

Although studies examining the correlates of PA or physical education (PE) in youth have been done (Guan, Xiang, McBride, & Bruene, 2006; Sleaf & Wormald, 2001), none have examined correlates that are associated with girls' PA who attended military schools. These schools have the same national curriculum as in public schools, but school ethos provide an atmosphere for students' moral, intellectual and physical development, organizing several activities to achieve these goals (Marques, Diniz, & Carreiro da Costa, 2008). Therefore, it seems important to investigate these schools, to understand the importance of the context in some correlates of PA.

Take into account that most girls who attended these institutions are boarding students, spending the entire day at the facilities of the school, it was not possible to investigate environmental correlates of PA outside school, and only psychological correlates, such as perception of competence, goal orientation, and attitudes according to age were targeted for investigation. The study of the psychological correlates related with PA is important because they are potentially changeable factors, and form a theoretical base to construct and implement effective programs to enhance PA (Bauman et al., 2012; Sallis et al., 2000).

The subject of perceived competence has aroused interest by the fact that this evaluation has a key role on young people's behaviour (Sallis et al., 2000). In general, research has consistently found that girls have more negative perceptions of their physical competence than boys (Welk & Eklund, 2005). This can be partially explained by social and cultural factors (Sleaf & Wormald, 2001). Since perception of one's confidence is a correlate factor for the practice of PA (Sallis et al., 2000) this may be the reason why girls are less physically active than boys. Nevertheless, since the difference between genders is based on social and cultural factors (Mota & Sallis, 2002), it seems that a change in the context could raise the levels of perceived competence in girls.

Goal orientation is one way to understand behaviour related with motivation, distinguishing task-oriented individuals from ego-oriented (Wang & Biddle, 2007).

Some studies have shown that girls tend to be more task-oriented (Moreno Murcia, Cervelló Gimeno, & González-Cutre Coll, 2008). However, other studies did not find differences in gender (Guan et al., 2006), but still emphasize the propensity of girls to be task-oriented. Wang and Liu (2008) point out the influence that task-orientation and high perception of competence has, specifically in the amusement and motivation of girls in PE and participation in PA. Goal orientation is related with age (Barkoukis, Ntoumanis, & Thøgersen-Ntoumani, 2010). Younger students tend to be more task-oriented, while older students have a tendency to be ego-oriented (Xiang & Lee, 2002). This suggests that an increase in age initiates a change in goal orientation towards the practice of PA.

Attitude toward school has earned attention due to failure and to the high dropout rates that have been observed (Rumberger, 2011). At the same time, the importance of developing a favourable attitude towards PE represents one of the objectives of the PA promotion programs, emphasizing continuous participation (Trudeau & Shephard, 2005). In general, girls more frequently present positive attitudes towards school (WHO, 2009), which is consistent with the lower dropout rates compared with boys (Rumberger, 2011). On the other hand, they usually do not present very favourable attitudes towards PE, associating the discipline to effort and sweat (Sleap & Wormald, 2001). One aspect to be noted is that as age increases, attitudes tend to worsen (Silverman & Subramaniam, 1999). This is an important factor and is imperative that it be considered by educators, because investigation has shown that girl's participation in PA is related, among other aspects, with the attitude towards PE (Wallhead & Buckworth, 2004).

Summarizing, there are several studies that have shown the existence of a positive and significant relationship between perception of competence, goal orientation and attitudes toward school and PE, and the participation in PA (Biddle et al., 2003; Papaioannou, Bebetos, Theodorakis, Christodoulidis, & Kouli, 2006). Therefore, it is interesting to analyse the relationship between these psychological factors and PA among students who attended schools social recognized for promoting PA (Marques, 2003; Marques et al., 2008). This study aims to analyse the age-group differences in perception of competence, goal orientation, attitudes toward school and PE, and the practice of PA of girls who attended Portuguese military schools.

METHODS

Participants

Study participants were comprised of 244 girls attending from grade 5 to university. The students ranged in age from 10 to 24 (mean 15.6 ± 3.4) and were divided in 4 groups according to their ages: 10-12, 13-15, 16-18, and 19-24 years old (Table 1). The rationale for selecting these ages was based on developmental changes in adolescents (Kail, 2006).

Procedure

Prior to starting the study, institutional consent was asked to carry out the research. In addition, for those who had not reached adulthood at the baseline of the study, informed written consent was obtained from their parents before the study began. Girls responded to a questionnaire assessing their perception of competence, goal orientation, attitudes toward school and PE, and regular practice of PA in several contexts (organized, non-organized, and school sports). The questionnaire was applied at the beginning of the PE session by the researchers with the collaboration of the PE teacher of the class. The investigator made clear to the students that there were no right or wrong answers, assured them of the confidentiality of their responses, and encouraged them to ask questions if necessary. The study received approval from both the National Commission for Data Protection and the institutional review board of the Faculty of Human Kinetics.

Table 1
Distribution of Students by Age-groups

Age	<i>n</i>	%
10-12 years old	53	21.7
13-15 years old	89	36.5
16-18 years old	70	28.7
19-24 years old	32	13.1
Total	244	100.0

Measures

Lintunen's scale (Lintunen, 1990) was translated to Portuguese and was used to measure students' perceived physical competence. Responses were given using a 5-point scale ranging from 1 to 5. Based on these items the internal consistency was calculated ($\alpha = .8$) and then created an index of perception of competence. Students' sports goal orientation was measured via the 12-item from the Portuguese version of the Task and Ego Orientation in Sport Questionnaire (TEOSQ) (Fernandes & Vasconcelos-Raposo, 2010; Fonseca & Biddle, 2001). The answers were given using a 4-point scale and good Cronbach's alpha coefficients were obtained for both ego ($\alpha = .8$) and task ($\alpha = .8$) subscales. The questions concerning students' attitudes toward school and PE were: "What do you think about going to school?", "What do you think about your PE lessons at school?" These questions were the same as the questions used in other studies (Aaro, Wold, Kannas, & Rimpelä, 1986; Delfosse et al., 1997). Answers

were given on a 5-point scale ranging from, “I dislike it very much” to “I like it very much”. When tested before the study, these items have shown high reliability, with intraclass correlation coefficients (one-week interval) of .92 and .93, respectively.

Students’ participation and the importance of leisure time activities were measured using a list of activities adapted from Telama et al. (2002), as well as the questions related to participation in organized PA, non-organized PA, and in school sports: (1) Do you take part in organized PA? (2) How many times a week do you take part in organized PA? (3) Do you take part in non-organized PA? (4) How many times a week do you take part in non-organized PA? (5) Do you take part in school sport? Organized PA was defined as PA guided by a teacher, trainer or other sports authority. Non-organized PA was defined as non-guided PA activities practiced alone or with friends.

Statistical analysis

Descriptive statistics were used to describe the mean value, standard deviation, minimum and maximum. Differences in perceived competence and goal orientation according to age-group were tested with one-way ANOVA followed by post-hoc test Tukey’s HSD. The normality of the distribution for dependent variables was tested by Kolmogorov-Smirnov test, and homogeneity of variances was validated with the Levene test. The comparison of attitudes toward school and PE were performed using the nonparametric test Kruskal-Wallis, followed by the comparison of means of orders. To evaluate whether participation in school sports was dependent or not of the age-group, the Chi-square test of independence was used. All analyses were performed using SPSS 20.0. The level of significance was set at .05.

RESULTS

The means, standard deviation, minimum and maximum of the perception of competence are shown in Table 2. Generally, girls had moderately higher levels of perceived competence. There were no significant differences between age-groups ($F(3,240) = 2.248, p = .083, \eta^2_p = 0.027$).

Table 2

Means, standard deviation, minimum and maximum of girls’ perception of competence

Age-group	Mean	Minimum	Maximum	<i>p-value</i> ¹
10-12 years	3.7±0.83	1.5	5.0	
13-15 years	3.5±0.71	1.6	5.0	
16-18 years	3.5±0.67	2.2	5.0	.083
19-24 years	3.3±0.53	2.0	4.4	
Total	3.5±0.72	1.5	5.0	

¹ Tested by ANOVA.

For all age-groups the figures for task-orientation was higher than for ego-orientation, showing that girls were much more task-oriented than ego-oriented (Table 3). From the analyses of ego orientation, significant differences among age-groups were found ($F(3,214) = 3.934, p = .009, \eta^2_p = 0.052$). *Post-hoc* tests revealed that the differences were between the group of 10-12 years and 16-18 years, with the younger one having the higher values ($p = .004$). Similar results were found in task-ego ratio between the same age-groups ($X^2KW(3) = 12.578, p = .006$) but, in this case, the 16-18 year old girls had the higher ratio. As for task orientation, there were no significant differences between age-groups ($F(3,216)=1.052, p = .370, \eta^2_p = 0.014$).

Table 3
Age-groups goal orientation profile

Age-group	Ego orientation				Task orientation				Ratio task-ego orientatio			
	Mean	Min	Max	<i>p-value</i> ¹	Mean	Min	Max	<i>p-value</i> ²	Mean	Min	Max	<i>p-value</i> ³
10-12 years	2.7±0.6	1	4	.009	3.5±0.4	3	4	.370	1.4±0.4	1	3	
13-15 years	2.5±0.7	1	4		3.6±0.4	2	4		1.6±0.6	1	3	
16-18 years	2.3±0.7	1	4		3.6±0.3	3	4		1.7±0.6	1	4	.014
19-24 years	2.4±0.5	2	4		3.4±0.4	3	4		1.5±0.3	1	2	
Total	2.5±0.7	1	4		3.5±0.4	2	4		1.6±0.5	1	4	

1 Tested by ANOVA. Post-hoc tests revealed that the differences were between 10-12 and 16-18 years age-group.

2 Tested by ANOVA.

3 Tested by Kruskal-Wallis Test. Multiple comparison shows that the differences were between 10-12 and 16-18 years age-group.

Most of the girls expressed a positive attitude toward school and PE (see Table 4). The older students showed higher values in what concerns a positive attitude toward school (“I like it” and “I like it very much”) (84.4%), followed by youngsters (83%). As for the attitude toward PE, the mentioned groups also showed higher values, with 88.7% for youngsters and 84.4% for the older ones that referred they liked the discipline. Although the majority had expressed a positive attitude toward school, significant differences were found among groups ($X^2KW(3) = 22.549, p < .001$). The age-group 10-12 was different from age-groups 13-15 ($p < .001$) years and 16-18 years ($p = .001$). Furthermore it was found that the 13-15 years age-group also is significantly different from the one with 19-24 year-olds ($p = .025$). Concerning PE, it was also found that there are significant differences ($X^2KW(3) = 12.737, p < .005$) between age-groups – the younger girls are different from the others.

Table 4
Girls' attitude toward school and PE

Categories	Attitude toward school (%)				Attitude toward PE (%)			
	10-12	13-15	16-18	19-24	10-12	13-15	16-18	19-24
I don't like it at all		3.5		3.1			4.3	
I don't like it very much	5.7	16.1	10.0	6.3	1.9	4.6	10.0	6.3
It is indifferent	11.3	19.5	22.9	6.3	9.4	16.1	15.7	9.4
I like it	41.5	51.7	54.3	68.8	45.3	56.3	50.0	65.6
I like it very much	41.5	9.2	12.9	15.6	43.4	23.0	20.0	18.8
	$p < .001^1$				$p = .005^2$			

1 Tested by Kruskal-Wallis Test. Multiple comparison shows that 10-12 years was statistical different from the 13-15 and 16-18 years age-group; and 13-15 years age-group was statistical different from 19-24 years age-group.

2 Tested by Kruskal-Wallis Test. Multiple comparison shows that 10-12 years age-group was statistical different from the others age-groups.

The results of PA participation in organized and non-organized PA are quite different (see Table 5). The majority answered not participating in organized PA outside de school. It is important to mention again that the students were living in a boarding system. For this reason, such results would be somewhat expected, since their parents were not present every day to take them to the location to practice PA. In regard to the practice of non-organized PA, most girls reported that they practiced every week or every day (72.2%). The youngest and the oldest ones were more active than the other age-groups. Through comparative analysis among age-groups, there were no significant differences in organized PA ($X^2KW(3) = 3.108, p = .375$). On the other hand, different results were found for non-organized PA ($X^2KW(3) = 13.268, p = .004$), confirming that the 16-18 year-old age-group was different from others.

In school sports, on voluntary basis, 63.9% of the students responded that they participate regularly in this activity (see Table 6). Looking at the different age-groups, a trend can be observed; the number of participants increases with age. Differences between groups are significant, which means that there is a dependency in the relationship between participation in school sports and age ($X^2(3) = 14.908, p = .002$).

Table 5
Participation in organized and non-organized PA

	Organized PA participation (%)				Non-organized PA participation (%)			
	10-12	13-15	16-18	19-24	10-12	13-15	16-18	19-24
Never	73.6	73.0	80.0	59.4	1.9	4.5	4.3	3.1
Occasionally	11.3	4.5	1.4	25.0	18.9	22.5	34.3	15.6
Regularly	15.1	22.5	18.6	15.6	79.2	73.0	61.4	81.3
	$p = .375^1$				$p = .004^2$			

1 Tested by Kruskal-Wallis Test.

2 Tested by Kruskal-Wallis Test. Multiple comparison shows that 16-18 years age-group was statistical different from the others age-groups.

Table 6
Participation in school sports activities

Age-groups	No		Yes		p -value ¹
	n	%	n	%	
10-12 years	30	56.6	23	43.4	.002
13-15 years	32	36.0	57	64.0	
16-18 years	19	27.1	51	72.9	
19-24 years	7	21.9	25	78.1	

1 Tested by Chi-square.

DISCUSSION

This study aims to examine the age-group differences in perception of competence, goal orientation, attitudes toward school and PE, and the practice of PA of girls who attended Portuguese military schools. The present findings, in some aspects, are quite different from what literature describes, which could be explained because the girls investigated attended schools with different characteristics of public or even private schools.

It seems that the educational context in which these students were inserted gave them conditions to practice PA sufficiently to increase the self-perception about their physical competence. This assumption can be supported by the higher number of girls that practice non-organized PA and participate in school sports. Studies have shown that increasing PA among adolescents improve self-concept, because participation of

girls in PA promotes fun, improve skills, encourage a social environment with peers and increase their physical fitness levels despite the fact that there are being successful (Schneider, Dunton, & Cooper, 2008; Spence, McGannon, & Poon, 2005).

Regarding goal orientation, girls reported a higher task-orientation in comparison with ego-orientation in all age groups, corroborating girl's tendency to task-orientation mentioned in other studies (Moreno Murcia et al., 2008). Even though, the ego-orientation's values were considered relatively high. Some investigators have suggested that task and ego-orientation, simultaneously, can have beneficial effects when associated to a high perception of competence (Wang, Chatzisarantis, Spray, & Biddle, 2002). Therefore, these results suggest that these girls may remain physically active, if they keep the same goal orientation and perception of competence.

Concerning the attitude towards school, older and younger girls have presented the most favourable results, separating themselves significantly from the age groups of 13-15 and 16-18 year-old. Perhaps these differences could be related with the fact that girls aged 13-18 were in puberty and they could have different interests. These results indicate that teachers have to be particularly aware of the students in the intermediate age groups. As expected, the majority of the students manifested a favourable attitude towards PE, but this positive attitude decreased with age. Similar results have been found in other studies (Silverman & Subramaniam, 1999; Trudeau & Shephard, 2005). However, the values concerning students from higher education have inverted the decline tendency. Perhaps the older girls, who attended higher education, present a more favourable attitude than adolescent girls due to the perception of the usefulness that the discipline had to their training and lifestyle.

Although most of the girls said they did not practice organized PA outside the school, it is interesting to see the amount of girls who have reported the practice of non-organized PA. The obtained low level of organized PA participation outside schools was inferior to other studies (Aarnio, Winter, Kujala, & Kaprio, 2002; Duke et al., 2003) carried out in samples with different characteristics. In fact it was expected because the girls were living in a boarding school system, and had no opportunities to practice PA outside school. They only left schools on weekends to go home. On the other hand, the high values of girls' participation in non-organized PA, in leisure moments, contrast with the values present by the literature, where the levels of participation are low (Cantera-Garde & Devís-Devís, 2000; Kimm et al., 2002). In non-organized PA it was observed that the girls within the age group of 16-18 presented the lower values, being significantly different from the other age groups. These results indicate that the end of adolescence is a critical period when it comes to the decrease of the levels of PA (Sallis, 2000; Telama & Yang, 2000), becoming an important intervention period to stop this trend. Nevertheless, the trend to reduce the practice of PA in leisure times with the increase of age, previously observed in

other studies (Aarnio et al., 2002; Seabra et al., 2008), was not verified in the present study. The only group that stood out was the group with ages of 16-18. This suggests that context may change the decline tendency.

The values of participation in school sports, a formal activity practiced voluntarily in school environment are also surprising since it was observed that a large majority of the students participated and that the number of participants increased with age. Participating in school sports demonstrated the role that schools can have in the promotion of sports and PA, since organized activities seem to offer greater assurance of stability (Aarnio et al., 2002; Telama, Yang, Hirvensalo, & Raitakari, 2006).

In conclusion, the data showed that girls who attended military schools reported a high perception of competence, task-orientation, and positive attitudes toward school and PE. All these variables seem to be positively related with a regular engagement in PA and sports, as suggested by several investigators (Biddle et al., 2003; Papaioannou et al., 2006). Another fact that deserves special attention is the fact that girls in the age group of 19-24 years reported higher values for the practice of organized and non-organized PA in school context, and have also shown very positive attitudes towards school and PE. This data, despite contradicting the generality of the literature, seem to be the result of an educational context that focuses on the development of the perception of competence, and autonomy, and on the development of task orientation behaviour and positive attitudes towards school and PA.

It seems possible to conclude that the military educational institutions are being successful in helping students to adopt physically active lifestyles. The development of goal orientation to task, of perception of competence and of favourable attitudes towards school and PE, seem important factors to enhance the levels of PA among students. This combination of factors may and should be potentiated by the schools and by the teachers, leading to the development of intrinsic motivation and positive attitudes.

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