ORIGINAL ARTICLE

Self-perception of efficacy and attitudes towards physical activity and sport in schoolchildren: Are there differences between Primary Education and Secondary Education students in Cantabria?

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ABSTRACT

This study aimed to know the self-perception and attitudes towards physical activity and sport in Primary Education (PE) and Secondary Education (SE) schoolchildren from educational centres in Cantabria, depending on sex and educational stage. A total of 1,164 students participated (387 from 5th and 6th years of PE and 777 from SE) aged between 10 and 17 years (M = 12.92; SD = 1.92). An ad hoc questionnaire of 11 questions on self-perception (6 items) and attitudes towards physical activity and sport (5 items) was used. PE students have a better self-perception and attitude towards physical activity and sport than SE students in all the variables studied, except for the attitude that "*The practice of physical-sports activity is good for health*" (p = .197). In the gender factor, boys perceive themselves as having greater physical condition and capacity than girls in terms of physical activity and sports (p < .001) and better performance when compared with boys of the same age and same sex (p < .001). PE students perceive themselves as having better attitudes and more competence than SE students, at the same time that they have more fun and enjoy themselves and would be more willing to practice more physical activity and sport. In terms of gender, boys perceive themselves as better than girls and enjoy and have more fun than girls.

Keywords: Physical education, Schoolchildren, Ages, Adolescents, Perception, Entertainment.

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INTRODUCTION

Self-perception and attitudes towards physical activity and sport in schoolchildren aged 10 to 16 are multidimensional variables that involve perception of health, motivation (Navarro-Patón, Lago-Ballesteros, et al., 2020), enjoyment (Navarro-Patón et al., 2019), self-esteem, and the influence of the environment on the physical and psychological development of young people (Meier et al., 2019). Self-perception refers to how individuals see themselves in relation to their health, physical condition, and sporting abilities (García Cantó et al., 2021; Jiménez Díaz, 2020). Several studies have demonstrated the importance of self-perception for motivation and participation in physical activity (Feliz De Vargas Viñado & Herrera Mor, 2020; Maloney et al., 2023; Revuelta et al., 2016). Additionally, perceived self-efficacy regarding physical activity can influence self-esteem and willingness to participate in sports (D'anna et al., 2021).

The relationship between self-perception and physical activity has been a topic of study in the scientific literature. It has been proven that practicing physical activity can influence the self-esteem and self-perception of adolescents (D'anna et al., 2021; Moral-García et al., 2021). Likewise, the motivation to participate in sports can be related to self-determination and physical self-concept (Isorna Folgar et al., 2015; Navarro-Patón, Pazos-Couto, et al., 2020; Revuelta et al., 2016). These factors are fundamental to understanding how schoolchildren perceive their physical abilities and how this influences their participation in sports activities (Rodríguez-Fernández et al., 2020). Furthermore, the influence of the environment, including factors such as gender, age, and the type of sport practiced, can affect self-perception and attitudes towards physical activity in schoolchildren (Valladarez Herrera et al., 2023).

On the other hand, it has been shown that the perception of competence in the sports field is closely related to participation in physical activities (Hill et al., 2022). Sports participation and perceptions of competition may vary by gender and age of children. For example, perceived competence in sports has been found to be strongly associated with sedentary time in children (Hill et al., 2022). Likewise, participation in organised sports can positively influence children's self-concept and quality of life (Harbec et al., 2021). Studies have shown that the self-perception of physical condition in adolescents is related to their level of physical activity and their quality of life (Pastor-Cisneros et al., 2021) and influenced by their level of physical activity, their self-esteem, and their social environment (Cantero Castrillo et al., 2020). This self-perception can vary depending on factors such as gender, age, and level of motor competence (McIntyre et al., 2015). Likewise, the perception of physical condition can affect the quality of life and psychological well-being of young people (Fernandes & Lemos, 2022).

The beliefs of children aged 10 to 16 about enjoyment and fun in the practice of physical-sports activity are determining factors in their participation and commitment (Navarro-Patón, Pazos-Couto, et al., 2020). The enjoyment integration theory highlights the importance of maintaining children's and adolescents' sports participation through positive and fun experiences (Visek et al., 2015). Fun and enjoyment in physical activity can be key motivating factors to maintain participation over time, improving adherence to physical activity in children and adolescents (Visek et al., 2015), which generates a positive attitude towards physical activity and promotes healthy habits throughout life (Visek et al., 2015).

For all of the above, the objective of this study was to know the self-perception and attitudes towards physical activity and sport in PE and SE schoolchildren from educational centres in Cantabria (Spain), depending on sex and educational stage.

MATERIALS AND METHODS

Study design

To carry out this research, a cross-sectional descriptive study was designed (Ato et al., 2013). Self-perception and attitudes towards physical activity and sport were the dependent variables, compared according to the independent variables of gender (boys vs. girls) and educational stage (Primary Education vs. Secondary Education).

Participants

The sampling of the study was of a non-probabilistic nature, taking into account the subjects who could be accessed from the centres, both PE and SE in Cantabria (Spain).

17 educational centres proposed to participate in this study, with a total of 1,212 students. 48 were excluded for not completing all the questions in the questionnaire. Finally, the sample consisted of 1164 students (387 from the 5th and 6th grades of PE and 777 from SE).

Instrument

An Ad Hoc questionnaire was used to collect data for this research. It is made up of 3 blocks: Block 1 [general data; 3 items (Gender, age, grade and stage)]; Block 2 (Self-perception of effectiveness in physical activity and sport; 6 items) and Block 3 (Attitudes towards physical activity and sport; 5 items). The possible range of values for block 2 (self-perception) is from 1 to 5, with 1 being very bad and 5 being very good. The range of values for block 3 (attitudes) is from 1 to 4, with 1 being totally disagree and 4 being totally agree.

Procedures

After completing the consent form for the students to participate in the research, the form was applied in a single physical education session without the teacher's presence to avoid bias when answering the questions on the form. The students had 25 minutes to answer the questionnaire, and any type of doubt regarding its completion was resolved. The centres that participated in the study followed the same procedure.

The study followed the Declaration of Helsinki and was approved by the Ethics Committee of the European University of the Atlantic with code number CEI21_2022.

Statistical analysis

The possible effect of educational stage (primary vs. secondary) and gender (boy vs. girl) on the questionnaire variables [Attitudes towards physical activity and sport (5 items) and self-perception (6 items)] was analysed using a multivariate analysis of variance (MANOVA), as well as the interaction between both factors using the Bonferroni statistic. Furthermore, the effect size was calculated in terms of eta squared (η^2).

RESULTS

1,164 Primary Education (PE; 387) and Secondary Education (SE; 777) schoolchildren between 10 and 17 years old (M = 12.92; SD = 1.92) answered all the questions of the questionnaire. 590 (50.7%) were girls and 574 (49.3%) were boys. The distribution by stage was: 5th of PE (203; 17.4%); 6th of PE (183; 15.7%); 1st of SE (205; 17.6%); 2nd of SE (216;18.6%); 3rd of SE (184; 15.8%); 4th of SE (173; 14.9%).

Self-Perception results

The results of the self-perception on the effectiveness of Physical Activity and Sport depending on gender and educational stage are presented in Table 1.

Table 1. Self-Perception results on the effectiveness of Physical Activity and Sport depending on gender and educational stage.

	Primary Education		**Secondary Education**	
	Boys (n = 177)	Girls (n = 210)	Boys (n = 397)	Girls (n = 380)
What is your ability when it comes to physical activity and sports (1-5)	4.28 ± 0.77	4.10 ± 0.80	4.15 ± 0.82	3.77 ± 0.90
If you compare yourself with children of the same age and the same sex, how good do you think you are at practicing physical-sports activities (1-5)	3.87 ± 0.82	3.81 ± 0.92	3.84 ± 0.87	3.50 ± 0.94
Currently, how do you consider your condition or physical fitness (1-5)	4.21 ± 0.83	4.02 ± 0.80	3.92 ± 0.92	3.59 ± 0.87
What would you say your current state of health is like (1-5)	4.46 ± 0.69	4.47 ± 0.72	4.31 ± 0.71	4.13 ± 0.73
How do you consider your body image (1-5)	3.85 ± 0.86	3.96 ± 0.85	3.58 ± 0.94	3.49 ± 0.93
How good and healthy do you think your diet is (1-5)	3.98 ± 0.84	4.20 ± 0.84	3.74 ± 0.90	3.65 ± 0.93

Note. Data are presented as mean ± standard deviation.

The results of the MANOVA, depending on the educational stage factor, indicate that there are statistically significant differences in all the self-perception variables studied ("*what is your ability when it comes to physical activity and sports*" [$F (1, 1160) = 19.521$, $p < .001$, $\eta^2 = 0.017$]; "*if you compare yourself with children of the same age and the same sex, how good do you think you are at practicing physical-sports activities*" [$F (1, 1160) = 8.757$, $p = .003$, $\eta^2 = 0.007$]; "*currently, how do you consider your condition or physical fitness*" [$F (1, 1160) = 44.273$, $p < .001$, $\eta^2 = 0.037$]; "*what would you say your current state of health is like*" [$F (1, 1160) = 29.1319$, $p < .001$, $\eta^2 = 0.025$]; "*how do you consider your body image*" [$F (1, 1160) = 42.816$, $p < .001$, $\eta^2 = 0.036$] and "*how good and healthy do you think your diet is*" [$F (1, 1160) = 49.652$, $p < .001$, $\eta^2 = 0.041$]). PE students perceive themselves as better than SE students in all the variables studied.

The results of the MANOVA, depending on the gender factor, indicate that there are statistically significant differences in "*what is your ability when it comes to physical activity and sports*" [$F (1, 1160) = 27.634$, $p < .001$, $\eta^2 = 0.023$]; "*if you compare yourself with children of the same age and the same sex, how good do you think you are at practicing physical-sports activities*" [$F (1, 1160) = 12.457$, $p < .001$, $\eta^2 = 0.011$]; "*currently, how do you consider your condition or physical fitness*" [$F (1, 1160) = 22.532$, $p < .001$, $\eta^2 = 0.019$]. In these variables, boys perceive themselves better and give higher scores than girls.

Regarding the interaction of both factors, there are statistically significant differences in "*if you compare yourself with children of the same age and the same sex, how good do you think you are at practicing physical-sports activities*" [$F (1, 1160) = 6.439$, $p = .011$, $\eta^2 = 0.006$], where girls in PE obtain higher scores than those in SE; "*what would you say your current state of health is like*" [$F (1, 1160) = 4.909$, $p = .027$, $\eta^2 = 0.004$], where boys and girls in PE perceive a better state of health than boys and girls in SE; and "*how*

good and healthy do you think your diet is" [F (1, 1160) = 7.984, p = .005, η^2 = 0.007], where boys and girls in PE perceive a better state of health than boys and girls in SE.

Attitudes results

The results of the attitudes towards Physical Activity and Sport depending on gender and educational stage are presented in Table 2.

Table 2. Attitudes results towards physical activity and sport according to gender and educational stage.

	Primary Education		**Secondary Education**	
	Boys (n = 177)	Girls (n = 210)	Boys (n = 397)	Girls (n = 380)
I like to practice physical-sports activity (1-4)	4.28 ± 0.77	4.10 ± 0.80	4.15 ± 0.82	3.77 ± 0.90
I enjoy and find it fun to practice physical-sports activity (1-4)	3.87 ± 0.82	3.81 ± 0.92	3.84 ± 0.87	3.50 ± 0.94
If I had more free time I would practice more physical-sports activity (1-4)	4.21 ± 0.83	4.02 ± 0.80	3.92 ± 0.92	3.59 ± 0.87
I think that boys do more physical-sports activity than girls (1-4)	4.46 ± 0.69	4.47 ± 0.72	4.31 ± 0.71	4.13 ± 0.73

Note. Data are presented as mean ± standard deviation.

The results of the MANOVA, depending on the educational stage factor, indicate that there are statistically significant differences in all the attitudes variables studied ("*I like to practice physical-sports activity*" [F (1, 1160) = 20.383, p < .001, η^2 = 0.017]; "*I enjoy and find it fun to practice physical-sports activity*" [F (1, 1160) = 30.373, p < .001, η^2 = 0.026]; "*If I had more free time I would practice more physical-sports activity*" [F (1, 1160) = 8.844, p = .003, η^2 = 0.008] and "*I think that boys do more physical-sports activity than girls*" [F (1, 1160) = 27.049, p < .001, η^2 = 0.023]), except in "*The practice of physical-sports activity is good for health*" (p = .197). PE students agree more with these statements about attitudes towards physical activity and sport than SE students, in all the variables studied, except in the thought that the practice of physical-sports activity is good for health, in which the scores are similar.

The results of the MANOVA, depending on the gender factor, indicate that there are statistically significant differences in all the attitudes variables studied ("*I like to practice physical-sports activity*" [F (1, 1160) = 30.929, p < .001, η^2 = 0.028]; "*I enjoy and find it fun to practice physical-sports activity*" [F (1, 1160) = 39.108, p < .001, η^2 = 0.033]; "*If I had more free time I would practice more physical-sports activity*" [F (1, 1160) = 8.504, p = .004, η^2 = 0.007] and "*I think that boys do more physical-sports activity than girls*" [F (1, 1160) = 46.742, p < .001, η^2 = 0.039], except in "*The practice of physical-sports activity is good for health*" (p = .538). Boys score higher than girls in the variables studied, except in the belief that practicing physical-sports activity is good for health, in which both boys and girls present high and similar scores.

Regarding the interaction of both factors, there are statistically significant differences in "*I enjoy and find it fun to practice physical-sports activity*" [F (1, 1160) = 4.195, p = .041, η^2 = 0.004], where boys, both in PE (p = .010) and SE (p < .001), enjoy and have more fun than girls in PE and SE. Significant differences were also found between PE boys and SE boys, since PE boys enjoy and have more fun with physical-sports activities (p = .017). The same occurs when comparing PE girls with SE girls, with greater enjoyment and fun for PE girls (p < .001).

DISCUSSION

The objective of this study was to know the self-perception and attitudes towards physical activity and sport of Primary Education (PE) and Secondary Education (SE) schoolchildren from educational centres in Cantabria.

In view of the results obtained, the students of this research have a high self-perception of their level of skill in the practice of physical-sports activities, physical condition, current state of health, body image and healthy eating, which is similar to the results found in other previous studies (Moral-García et al., 2021; Ramos-Díaz et al., 2017; Urrutia Medina et al., 2024). On the contrary, authors such as (Ren et al., 2023) found results with a tendency towards a negative self-perception on the part of the students in terms of levels of sporting ability and physical condition. It is important to highlight that at this stage, the configuration of a positive physical self-concept is essential for the correct social development of the person, the consolidation of one's personality (Palenzuela-Luis et al., 2022; Pérez-Mármol et al., 2021), adequate psychological well-being (Penado Abilleira & Rodicio-García, 2017), and, above all, for the adoption of a healthy lifestyle, which has as a key element the practice of physical activity by the youngest (Fernández-Álvarez et al., 2020; Zurita-Ortega et al., 2018).

In relation to the educational stage factor, the students' self-perception regarding the level of ability to carry out physical and sports activity, physical condition, consideration of their body image, and nutrition is higher in PE students than in SE students. These findings are consistent with those of previous studies (Galán-Arroyo et al., 2023; Navarro-Patón, Lago-Ballesteros, et al., 2020; Navarro-Patón, Pazos-Couto, et al., 2020), where, as the age of the students increases, their physical self-concept worsens, as well as their perception of their own body image. However, research such as that of Mamani-Ramos (2023) do not show significant differences in relation to the age of the students. In other studies, such as that of Fernández-Guerrero et al. (2020) the opposite is observed, since their results show how physical self-perception improves in adolescents as the years go by.

The explanation for this decrease as age advances mainly has to do with the fact that both perceived self-efficacy (Gouveia et al., 2019; Pérez Alaejos et al., 2021), physical condition (Gouveia et al., 2019; Kovalevskaya et al., 2020) and body image (Navarro-Patón et al., 2021; Ren et al., 2023) are dimensions that become more socially and culturally pressure over time (Zeferino et al., 2021). Self-perceived competence and physical fitness are revealed daily in physical education classes, since students have to expose themselves in front of their classmates throughout the different activities and physical-sport proposals, as well as in certain tests of specific skills (Gouveia et al., 2019; Kovalevskaya et al., 2020). For its part, in relation to body image, the search for an aesthetically muscular model in men and thinness in women has become more notable over the years and can lead to the appearance of possible related eating disorders (Zeferino et al., 2021). In any case, the perception that adolescents have of themselves undergoes changes and oscillations over the years (Camacho Ruiz et al., 2023).

In reference to the gender factor, there are statistically significant differences in relation to the self-perception of ability when carrying out physical activity and sports, as well as in the perception of their physical condition, with higher levels being obtained in boys than in girls. These results coincide with other recent studies in which women obtain lower levels of physical self-concept (Cadena-Duarte & Cardozo, 2021; Fernández Guerrero et al., 2020; Poblete-Valderrama et al., 2023; Tapia López, 2019), while men reach higher values (Márquez-Barquero & Azofeifa-Mora, 2019; Sánchez-Alcaraz et al., 2018), although, in other studies, no significant differences were found in relation to the gender variable (Den Uil et al., 2023). In this sense, it is

interesting to plan and implement physical education sessions and activities that take into account the tastes, preferences, motivations and perceptions of girls, with the aim of improving their physical self-concept, avoiding stereotypical or exclusive content. to gender (Urrutia Medina et al., 2024).

Likewise, the PE area must promote a series of strategies and methodologies based, mainly, on motivation and personal improvement so that students can improve their levels of perceived competence (Karlinsky et al., 2021). Therefore, it is necessary to design scenarios so that this need is covered (Trigueros-Ramos et al., 2019). In this way, improving students' physical self-concept will lead to the adoption of healthy behaviours through physical activity in their free time, given the strong relationship between both factors (Fernández-Álvarez et al., 2020; Pérez-Mármol et al., 2021).

In relation to the students' attitudes towards physical activity and sport, the results show a high assessment in relation to taste, enjoyment, and fun with the practice of physical-sports activity, if they had more free time, they would practice more physical activity, and its consideration as good for health. These data are in line with those found in other research such as that of Alpkaya (Alpkaya, 2019) where similar results are obtained, highlighting the positive trend in relation to the taste, enjoyment, and fun of students with the practice of physical activity. Knowing the important role that satisfaction and enjoyment of physical activity play during the school stage for the creation of an active lifestyle, where true adherence to physical exercise is generated (Baena-Extremera et al., 2016), and knowing that, as the World Health Organization (WHO) (2020) points out, more than 80% of adolescents between 12 and 18 years old do not remain physically active because they do not meet the global recommendations for physical activity, physical education classes are increasingly becoming more fundamental (Maksimović & Lazić, 2023). In this sense, it is necessary that, in the area of physical education, through the intervention of teachers, positive environments are generated through the application of methodologies and content appropriate to the interests of the student, to increase their feelings of enjoyment and fun (Morales-Sánchez et al., 2021). Thus generating an increase in their levels of physical activity practice in their free time (Baños et al., 2019; Zueck Enríquez et al., 2020).

In relation to the educational stage, the results show significant differences in reference to the taste for physical activity, enjoyment, and fun with its practice, that if they had more free time they would practice more physical-sports activities, and the perception that children practice more physical activity than girls, finding that PE students have higher perceptions than SE students. These results are in line with the findings of Romanova & Solar (2019), where students also declare a high initial tendency, which decreases as age advances. This is mainly due to the fact that as the courses progress, students experience certain partial failures in different social, family, and academic situations, which, together with a greater capacity for self-criticism, contribute to reducing the related emotional, affective, and motivational factors. to interest in physical-sports activities (Ha et al., 2024; Morales-Sánchez et al., 2021). Likewise, another important element is the levels of motivation and influence that physical education classes generate in students, since positive attitudes towards physical education classes progressively decrease as the age of the students increases (Navarro-Patón, Lago-Ballesteros, et al., 2020). In such a way that the influence of these classes on your physical activity practice will also decrease; in fact, physical education classes classified as not very fun have a directly negative relationship with the intention to practice physical activity in the future (Baños et al., 2019). This progressive decrease with age in taste, enjoyment and interest in physical activity corresponds with a parallel decrease in their levels of practice (Suga et al., 2021) confirming a pronounced abandonment in this adolescent stage (Baños et al., 2019).

Finally, regarding the gender factor, boys obtain higher scores than girls in all the variables studied (taste and enjoyment of physical activity, greater practice of physical activity in free time if they have more time,

and thinking about more physical exercise), except in the belief that practicing physical-sports activity is good for health, since both boys and girls have equally high scores. These results are related to those of Lago et al. (2018), where the resulting values in boys were higher than in girls, due to a less favourable perception towards physical activity and towards the physical education subject, an aspect that is accentuated with age (Sánchez-Alcaraz et al., 2018), the very non-coeducational stereotypes that have historically been attributed to physical education classes (Jiménez Lozano & González-Palomares, 2023), the greater number of non-positive experiences on the part of girls (Navarro Patón et al., 2022), and, most especially, the type of proposals and activities proposed in which the contents are more adjusted to the children's preferences (Serena Montañana et al., 2022). The lower self-perception of competence and capacity on the part of girls are other arguments to consider regarding the lower levels found in girls (Serena Montañana et al., 2022). Consequently, there are differences in relation to the levels of physical activity practice depending on gender, with lower levels manifesting in female students (Tapia López, 2019).

CONCLUSION

Primary Education students perceive themselves as more competent in physical and sports activities, even when compared to children of the same age and sex. Furthermore, they perceive themselves as having a good body image, physical condition, and state of health, better than Secondary Education students, in addition to thinking that their diet is healthy. Regarding gender, boys perceive better physical condition and capacity for physical and sports activity than girls. Furthermore, if they are compared with children of the same age and of the same sex, they perceive themselves to be better at practicing physical sports activities than those with whom they are compared.

On the other hand, Primary Education students agree more than Secondary Education students that they like it more, have more fun, and enjoy practicing physical activity and sports more, to the point that if they had more free time, they would practice more. Depending on sex, boys like physical and sports activities more, they have more fun, they enjoy it more, and they would practice more if they had more free time.

After the analysis of this study, the need to continue conducting research related to self-perceived efficacy as well as attitudes towards the practice of physical-sports activity by students is evident. For all of the above, it is important that professionals in the field of physical education design and implement proposals aimed at helping students improve their levels of physical self-perception as well as their tastes, attitudes, and feelings of enjoyment towards physical exercise. Thus, it would be necessary to adapt the units and contents to the tastes and interests of the students, taking special consideration of gender and educational stage, and develop motivation strategies through the implementation of methodologies that awaken enjoyment and interest in the approaches addressed. The objective is for students to see themselves as more competent, consider physical activity more attractive, and thus be able to achieve an active and healthy lifestyle.

AUTHOR CONTRIBUTIONS

Iván González-Gutiérrez: Conceptualization, methodology, validation, investigation, data curation, writing—original draft preparation, writing—review and editing, visualization, supervision, project administration. Sergio López-García: conceptualization, methodology, validation, investigation, writing—original draft preparation, writing—review and editing, visualization, supervision, project administration. Martín Barcala-Furelos: Conceptualization, methodology, validation, investigation, writing—original draft preparation, writing—review and editing, visualization, supervision, project administration. Marcos Mecías-Calvo: Conceptualization, methodology, validation, investigation, writing—original draft preparation, writing—review

and editing, visualization, supervision, project administration. Rubén Navarro-Patón: Conceptualization, methodology, validation, formal analysis, investigation, writing—original draft preparation, writing—review and editing, visualization, supervision, project administration. All authors have read and agreed to the published version of this manuscript.

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