

Original Research

Do role models (parents and friends) influence the practice of physical activity and sport in Cantabrian students aged 10 to 12?

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Abstract: The aim of this study was to understand and analyze the influence of parents and friends of primary school children on the practice of physical activity and sport (PA&S), based on gender and age. This descriptive observational study included 295 children in fifth and sixth grade of primary education [147 girls (49.8%) and 148 boys (50.2%)], aged 10 to 12 years ($M = 10.77$; $SD = 0.69$). For data collection, the Questionnaire of Influences on Physical Activity and Health was used. The results revealing significant differences in terms of the influence of parents on the age factor in the importance that the father gives to PA&S ($SI_Importance$; $p = 0.016$). Mothers influence daughters in the frequency of communication about PA&S ($SS_Communication$; $p = 0.028$), the importance of her influence for participation in PA&S ($SS_Participation$; $p = 0.023$), the encouragement to perform PA&S ($SI_Encourage$; $p = 0.018$), importance ($SI_Importance$; $p = 0.041$), the frequency of practice of PA&S of the model ($MI_Frequency1$; $p = 0.025$) and the joint frequency of PA&S ($MI_Frequency2$; $p = 0.018$). Friends influence boys more than girls in $MI_Frequency2$ ($p = 0.017$). In the age factor, the oldest are influenced in $SS_Communication$ ($p = 0.001$), $SS_Participation$ ($p = 0.010$), $SI_Importance$ ($p = 0.035$). A greater identification with the paternal model at earlier ages and the importance of the maternal role, especially in girls, in the promotion of PA&S, and of friends in boys are highlighted.

Keywords: Schoolchildren; Social influence; Model influence; Social support; Family; Friendships

1. Introduction

Physical activity and sports (PA&S) in the early stages of life is essential for the comprehensive development of the individual (Rodríguez Torres et al., 2020), improving their physical condition (Bates et

al., 2020) and promoting their mental, emotional, and social health (Vargas Arreaga & Merchán Carvajal, 2024). Scientific evidence indicates that in recent years there has been an increase in sedentary lifestyle in the child population (WHO, 2020); more than two-thirds of the child and adolescent population



worldwide do not reach the recommended minimum of 60 minutes of moderate to vigorous PA per day (García Ordóñez & Pampín Blanco, 2022; Gasol Foundation, 2023; Steene-Johannessen et al., 2020). This fact manifests itself differently depending on gender (Steene-Johannessen et al., 2020). As a general rule, boys are more active and girls show a greater tendency towards sedentary behaviour (Suga et al., 2021; Ventura-Cruz et al., 2023; Zapatero Ayuso et al., 2024). Despite this, neither sex meets the minimum recommended physical activity (García Ordóñez & Pampín Blanco, 2022; Gasol Foundation, 2023).

The absence of widespread physical activity (AESAN, 2024; Álvarez-Ibáñez & Fernández-Hawrylak, 2022), together with the emergence of new technologies and their excessive use in childhood, occupy a large part of their leisure time (Fernández-Álvarez et al., 2020; Jiménez-Marín et al., 2020). These facts are having an impact on an increase in childhood overweight and obesity (AESAN, 2024; Aranceta-Bartrina et al., 2020; Burgueño et al., 2020; Cisneros Caicedo et al., 2021; Lumish et al., 2020), the most critical period being the transition that occurs between childhood and adolescence (Corder et al., 2020).

On the other hand, girls' and boys' PA&S preferences depend on social constructs, which in turn determine the type and habit of practice (Graham et al., 2022). Some of the main variables that determine the adoption of an active and healthy lifestyle are the motivation to practice PA&S, the satisfaction it produces (Ferriz et al., 2020), social models (Zamora-Mota et al., 2022), and the social agents of reference, these being families, friends, teachers (Gómez Rijo et al.,

2023; Lluna-Ruiz et al., 2020; Ventura-Cruz et al., 2023), and classmates (Ferriz et al., 2020). Therefore, it is necessary to know how the different social agents contribute to the formation of an active and healthy lifestyle (Sevil-Serrano et al., 2020) in the Primary Education stage, either through the support provided, the influence they exert on the practice (Gómez Rijo et al., 2023; Sanz-Martín et al., 2020), or through the influence of the habits of their environment (Lluna-Ruiz et al., 2020).

Social support is understood as the influence that reference figures exert on the practice of PA&S in students; the social influence on the importance that these figures give to the practice; and the influence of the model on the conduct or behavior of the reference figures (Ayala et al., 2021; Ventura-Cruz et al., 2023). Regarding the social support that students receive from their families and friends, this is positively related to performance in PA&S (Sanz Martín et al., 2024). Thus, boys perceive greater support from their fathers, and girls, from their mothers (Vendramini, 2021). Regardless of age, boys perceive greater support, in general (Vendramini, 2021). An equivalent to the figure of friendships is that of schoolmates in the Primary Education stage (Franco Arévalo et al., 2017). Thus, social support from peers represents a predictor of satisfaction with PA&S and the adoption of a healthy lifestyle, being more pronounced in the ages between 11-12 years (Ferriz et al., 2020). Furthermore, boys are more influenced by active friendships, and girls by their parents, regarding the joint practice of PA&S (Ventura-Cruz et al., 2023). Regarding social influence, it is observed that it is the variable with the least weight, both among

parents and among friends or peers. Students consider the practice of PA&S by the model to be more important than the importance and encouragement transmitted towards the practice of PA&S (Marques et al., 2017), as it occurs among friends or peers, since the influence of the model through joint practice is valued more than the importance and encouragement transmitted towards the practice of PA&S (Sanz Martín et al., 2024). Regarding the influence of the model, it is observed that the level of physical activity of the parents, whether they are the father and mother or just one of the two, directly influences the students, with students who have active parents being more active (Franco Arévalo et al., 2017), while when the practice of PA&S is carried out with friends, it has a greater effect (Sanz Martín et al., 2024).

While there is evidence of the influence of social agents (family, friends, teachers) on children's adoption of active lifestyles, how these variables interact according to gender and age in the context of primary education remains unknown. Therefore, the objective of this study was to analyze the influence that reference figures (parents and friends) have on the practice of PA&S in children in Primary Education in Cantabria, based on gender and age.

2. Materials and Methods

Subjects — Seven schools in Cantabria (Spain) that provide primary education were invited to participate. Selection was made using non-probabilistic and convenience sampling, based on the accessibility of the centres and the geographical proximity of the researchers. A total of 387 students aged 10 to 12 answered the questionnaire. The inclusion

criteria were: a) Being enrolled in the third cycle of primary education; b) Not having physical or mental health problems that would influence the completion of the questionnaire used; c) Providing informed consent signed by their parents or legal guardians; d) Performing physical activity and/or exercise during the data collection process. Taking into account the inclusion criteria, a total of 295 students answered the questionnaire correctly.

Design — This is a descriptive observational study, where the opinions of a sample of primary school students from schools in Cantabria were collected using a questionnaire (Ato et al., 2013). Social support (SS), social influence (SI), and model influence (MI) were the dependent variables, comparing them based on the independent variables gender (boys vs. girls) and age (10 vs. 11 vs. 12 years).

Methodology — The Questionnaire of Influences on Physical Activity and Health by Taylor et al. (1994), adapted by Aznar (1998), was used to find out the perception and opinion that students have about the influence that reference figures—parents, friends, and/or peers—have when practicing PA&S. The original questionnaire also includes physical education teachers, but this figure was not included in this research. The questionnaire has a Likert-type rating scale with 1 being “never” or “not at all” and 6 being “always” or “a lot” and is composed of different questions that evaluate social support (SS): (1) How often do different people talk to you about physical activity? and (2) Are different people important in helping you participate in sports and physical activity?; Model influence (MI): (1) How often does each of these people do

physical activity? and (2) How often do each of these people do physical activity with you?; Social influence (SI): (1) How often does each of these people encourage you to be physically active? and (2) How much importance does each of these people place on physical activity?.

The principals of seven primary schools in Cantabria were contacted and granted access. After detailing the objective, particularities, and purpose of the research, they were invited to collaborate and participate in the study. The information sheet and informed consent were then distributed to the parents or legal guardians of the students, detailing the purpose of the study, ensuring the privacy and confidentiality of the data, indicating voluntary participation, and the option to leave the study at any time, without the need for justification. Dates and times were then set for the application of the questionnaires, generating the least possible harm to the development of the sessions. After receiving the informed consent signed by the parents or legal representatives of the students, the questionnaire was administered in the presence of the teachers responsible for each group. A time of 20 minutes was given for its completion, and any doubts were resolved so that they could answer and complete the questionnaire correctly. The research has complied with the protocols of the Declaration of Helsinki (World Medical Association, 2025) and was carried out under the ethical standards established for research in sport and exercise science (Harriss et al., 2017). The approval of the Ethics Committee of the European University of the Atlantic with the code CEI21_2022 was obtained.

Statistical Analysis — Data analysis was performed using SPSS 28.0 statistical software (SPSS v.28, IBM Corporation, New York, NY, USA), setting the significance level at $p < 0.05$.

The variables were described using descriptive statistics (mean and standard deviation). McDonald's Omega test was used to analyze the reliability of the instrument used. In addition, the normality of the data was determined using the Kolmogorov-Smirnov statistical test. The relationships between the study variables were determined using Pearson's correlation coefficient. Subsequently, a multivariate analysis (MANOVA) was performed for each variable studied (i.e., social support, social influence, and model influence), including the age of the students (10, 11, and 12 years) and gender (boy; girl) as factors. The Bonferroni statistic was used to analyze the main effects and interactions between these factors. Statistical power was expressed using eta squared (η^2). The effect size was determined as small (0.01), medium (0.06), or large (0.14 or more) (Cohen, 2013).

3. Results

The study involved 295 primary school students aged between 10 and 12 years ($M = 10.77$; $SD = 0.69$) who, at the time of this research, declared that they regularly practiced PA&S. Of the total sample, 147 were girls (49.8%) and 148 were boys (50.2%).

Reliability, correlations and descriptive statistics - Among the participating students (Table 1), high positive correlations were found between social support, social influence, and model influence, as well as high positive correlations between social influence and model influence. In addition, the reliability analysis yielded adequate results for the

variables studied (McDonald's Omega; > 0.700). The Kolmogorov-Smirnov statistical

test indicated the normality of the data ($p > 0.05$).

Table 1. Bivariate correlations, asymmetry, kurtosis and McDonald's Omega between the studied dimensions of the questionnaire of influences on Physical Activity and Health of the participating students.

Dimensions	M	SD	Omega	A	K	1	2	3	4	5
1. Social support	4.25	0.83	.707	0.165	0.126	1	.726**	.575**	.120*	.055
2. Social influence	4.49	0.90	.703	0.086	0.137		1	.586**	.162**	-.007
3. Model influence	3.51	0.88	.746	0.165	0.278			1	.075	.085
4. Age	10.77	0.69	-	-	-				1	-.144*
5. Gender	-	-	-	-	-					1

Note: M: Mean; SD: Standard deviation; A: Asymmetry; K: Kurtosis; ** The correlation is significant at the 0.001 level (Bilateral). * The correlation is significant at the 0.05 level (Bilateral).

Table 2. Results of parental influence perceived by schoolchildren based on gender and age.

		10 (n=111)	11 (n=140)	12 (n=44)
Social support - Frequency of communication about physical activity and sport.	Boys (n=148)	3.79 ± 1.44	4.34 ± 1.84	4.37 ± 1.75
	Girls (n=147)	3.86 ± 1.92	4.18 ± 1.67	3.76 ± 1.72
	Total (n=295)	3.83 ± 1.83	4.26 ± 1.80	4.19 ± 1.79
Social support - Importance of his influence for participation in physical activity and sports	Boys (n=148)	4.95 ± 1.74	4.92 ± 1.87	5.37 ± 1.92**
	Girls (n=147)	5.14 ± 1.77	5.32 ± 1.60	4.46 ± 1.91
	Total (n=295)	5.06 ± 1.75	5.13 ± 1.76*	5.09 ± 1.91
Social influence - Promotes physical activity and sports	Boys (n=148)	4.52 ± 1.91	4.71 ± 1.97	4.34 ± 1.52
	Girls (n=147)	4.36 ± 2.02	4.88 ± 1.71	4.15 ± 1.89
	Total (n=295)	4.43 ± 1.96	4.80 ± 1.83	4.28 ± 1.62
Social influence - Importance that the father gives to physical activity and sports	Boys (n=148)	4.93 ± 1.61	5.09 ± 1.70	5.00 ± 1.27**
	Girls (n=147)	4.77 ± 1.51	5.22 ± 1.26	4.07 ± 1.88
	Total (n=295)	4.84 ± 1.55	5.16 ± 1.50	4.71 ± 1.47
Model influence - Frequency of physical activity and sports practice of the model	Boys (n=148)	3.56 ± 1.44	3.15 ± 1.75	3.73 ± 1.54
	Girls (n=147)	3.29 ± 1.55	3.85 ± 1.15***	3.30 ± 2.00
	Total (n=295)	3.41 ± 1.50	3.52 ± 1.56	3.50 ± 1.66
Model influence - Frequency of physical activity together	Boys (n=148)	3.16 ± 1.56	2.95 ± 1.64	3.24 ± 1.98
	Girls (n=147)	2.96 ± 1.83	3.38 ± 1.78	2.53 ± 1.85
	Total (n=295)	3.05 ± 1.71	3.17 ± 1.73	3.02 ± 1.92

Note. Data are presented as mean ± standard deviation. * $p < 0.05$ different to 12 years old; ** $p < 0.05$ different to 12 years old girls; *** $p < 0.05$ different to 12 years old boys.

Paternal influence results - The results of the MANOVA, regarding paternal influence, indicated that there is a significant main effect of the age factor on the social influence-importance that the father gives to physical activity and sport [$F(2, 272) = 4.173$, $p = 0.016$, $\eta^2 = 0.029$], with higher scores in 11-year-old students than in 12-year-old students ($p = 0.025$).

In the interaction of both factors (age and gender), significant differences were

found in social support—importance of its influence for participation in physical activity and sport [$F(2, 272) = 3.208$, $p = 0.042$, $\eta^2 = 0.022$], with higher scores in 12-year-old boys than in girls ($p = 0.049$).

In pairwise comparisons, significant differences were found in the perception of role model influence—frequency of physical activity and sport practice of the role model (father), where 11-year-old girls perceive that their fathers do more physical activity than boys of the same age ($p = 0.019$); in the

perception of social influence—importance that the father gives to physical activity and sport ($p = 0.027$); and in social support—importance of their influence for participation in physical activity and sport ($p = 0.049$), where 12-year-old boys perceive that their parents give it greater importance than girls of the same age.

No significant main effect was found for the gender factor ($p > 0.05$) in any of the variables studied (Table 2).

Maternal influence results - The results of the MANOVA, regarding maternal influence, indicated that there are significant differences in the gender factor (Table 3) in social support — frequency of communication about physical activity and sport [$F(1, 277) = 4.857, p = 0.028, \eta^2 = 0.017$]; social support — importance of its influence for participation in physical activity and sport [$F(1, 277) = 5.209, p = 0.023, \eta^2 = 0.018$]; social influence — encourages physical activity and sport [$F(1, 277) = 5.634, p = 0.018, \eta^2 = 0.020$]; social influence — importance that the mother gives to physical activity and sport [$F(1, 277) = 4.200, p = 0.041, \eta^2 = 0.015$]; model influence — frequency of physical activity and sport practice of the model [$F(1, 277) = 5.073, p = 0.025, \eta^2 = 0.018$], and model influence — frequency of physical activity practice together [$F(1, 277) = 5.685, p = 0.018, \eta^2 = 0.020$]. The ratings are higher in the perception of girls than in that of boys, in all variables.

No significant main effect of the age factor ($p > 0.05$) was found in any of the variables studied, nor in the interactions between gender and age ($p > 0.05$) (Table 3). The text following an equation need not be a new paragraph. Please punctuate equations as regular text.

Friendships influence results - The results of the MANOVA, regarding the influence of friendships, indicated that there are significant differences in the gender factor (Table 4) in the influence of the model—frequency of physical activity as a whole [F

(1, 277) = 5.822, $p = 0.017, \eta^2 = 0.022$], with higher scores in boys than in girls.

Regarding the age factor, statistically significant differences were found in social support — frequency of communication about physical activity and sport [$F(2, 277) = 6.692, p = 0.001, \eta^2 = 0.048$], where the 12-year-old student presented higher grades than those of 11 ($p = 0.021$) and those of 10 ($p = 0.001$); social support — importance of its influence for participation in physical activity and sport [$F(2, 277) = 4.654, p = 0.010, \eta^2 = 0.034$], where the 12-year-old student presented higher scores than those of 10 years ($p = 0.008$); social influence — promotes physical activity and sport [$F(2, 277) = 11.329, p < 0.001, \eta^2 = 0.079$], where 12-year-olds have higher scores than 11-year-olds ($p = 0.001$) and 10-year-olds ($p < 0.001$); social influence — importance that friends give to physical activity and sport [$F(2, 277) = 3.390, p = 0.035, \eta^2 = 0.025$], where 12-year-old children present higher scores than 10-year-old children ($p = 0.033$); and model influence — frequency of physical activity together [$F(2, 277) = 5.411, p = 0.005, \eta^2 = 0.040$], where 11-year-old children present higher scores than 10-year-old children ($p = 0.004$).

4. Discussion

The aim of this study was to understand and analyze the influence that role models (fathers, mothers, and friends) have on the practice of physical and sporting activity in primary school children in Cantabria, based on gender and age.

In the present study, positive and high correlations were found between social support, social influence, and model influence, highlighting the importance given to PA&S by role models, whether parents or friends (Gómez Rijo et al., 2023; Lluna-Ruiz et al., 2020; Ventura-Cruz et al., 2023). These figures constitute some of the most determining reasons in the perception of students when it comes to adopting an active and healthy lifestyle (Bennàsser Torrandell &

Vidal Conti, 2021; Ferriz et al., 2020), either by encouraging or providing help towards the practice of PA&S (Ayala et al., 2021; Bennàsser Torrandell & Vidal Conti, 2021; Ventura-Cruz et al., 2023). On the other hand, there are also high correlations between social influence and the influence of the model, as in the study by Bennàsser Torrandell & Vidal Conti (2021), finding a correlation between the influence of the model, regarding active friendships, and social influence on the part of families that encourage the practice, making it clear that social agents must accompany and encourage students to practice PA&S (Rodríguez-Fernández et al., 2017).

Parents' influence - Regarding social support, the results obtained indicate that

one of the main reasons for boys to practice PA&S as they grow up is the influence of the father on the practice of PA&S, as well as for girls regarding their mother, regardless of the age of the schoolchildren (Vendramini, 2021), eradicating the social cliché that fathers have greater influence on sons than on daughters, seeking to equalize the influence exerted by the maternal role.

On the other hand, girls report a lack of parental support when practicing PA&S, which increases with age (Betancourt Ocampo et al., 2022). Therefore, it is necessary for girls to talk about this topic often with their mother, and for her, in turn, to give importance to PA&S and to be physically active.

Table 3. Results of maternal influence perceived by schoolchildren based on gender and age.

		10 (n=111)	11 (n=140)	12 (n=44)
Social support - Frequency of communication about physical activity and sport.	Boys (n=148)	3.13 ± 1.37	3.23 ± 1.53	3.37 ± 1.54
	Girls (n=147)	3.75 ± 1.60*	3.78 ± 1.64*	3.64 ± 1.59*
	Total (n=295)	3.49 ± 1.53	3.52 ± 1.61	3.46 ± 1.54
Social support - Importance of her influence for participation in physical activity and sports	Boys (n=148)	4.75 ± 1.36	4.51 ± 1.65	4.93 ± 1.43
	Girls (n=147)	5.18 ± 1.20*	5.27 ± 1.25*	5.07 ± 1.38*
	Total (n=295)	5.00 ± 1.28	4.91 ± 1.49	4.97 ± 1.40
Social influence - Promotes physical activity and sports	Boys (n=148)	4.22 ± 1.64	4.35 ± 1.53	4.24 ± 1.37
	Girls (n=147)	4.63 ± 1.62*	5.04 ± 1.35*	4.64 ± 1.49*
	Total (n=295)	4.46 ± 1.63	4.71 ± 1.47	4.37 ± 1.41
Social influence - Importance that the mother gives to physical activity and sports	Boys (n=148)	4.37 ± 1.35	4.56 ± 1.18	4.48 ± 1.02
	Girls (n=147)	4.65 ± 1.30*	5.17 ± 1.12*	4.64 ± 1.44*
	Total (n=295)	4.53 ± 1.32	4.88 ± 1.18	4.53 ± 1.16
Model influence - Frequency of physical activity and sports practice of the model	Boys (n=148)	2.55 ± 1.53	2.56 ± 1.42	2.86 ± 1.57
	Girls (n=147)	2.95 ± 1.52*	3.30 ± 1.68*	3.21 ± 2.04*
	Total (n=295)	2.78 ± 1.53	2.94 ± 1.60	2.97 ± 1.72
Model influence - Frequency of physical activity together	Boys (n=148)	2.15 ± 1.22	2.10 ± 1.39	2.41 ± 1.26
	Girls (n=147)	2.52 ± 1.50*	2.97 ± 1.64*	2.64 ± 1.78*
	Total (n=295)	2.36 ± 1.39	2.55 ± 1.58	2.48 ± 1.43

Note. Data are presented as mean ± standard deviation. * $p < 0.05$ different to boys.

Table 4. Results of the influence of friends perceived by schoolchildren based on gender and age.

		10 (n=111)	11 (n=140)	12 (n=44)
Social support - Frequency of communication about physical activity and sport.	Boys (n=148)	3.54 ± 1.73	3.86 ± 1.57	4.53 ± 1.34
	Girls (n=147)	3.07 ± 1.62	3.37 ± 1.73	4.35 ± 1.33
	Total (n=295)	3.27 ± 1.67	3.61 ± 1.67	4.47 ± 1.32**+ †
Social support - Importance of their influence for participation in physical activity and sports	Boys (n=148)	4.84 ± 1.46	4.78 ± 1.40	5.10 ± 1.22
	Girls (n=147)	4.03 ± 1.66	4.66 ± 1.38	5.42 ± 0.64
	Total (n=295)	4.38 ± 1.62	4.72 ± 1.38	5.21 ± 1.07 †
Social influence - Promotes physical activity and sports	Boys (n=148)	3.40 ± 1.74	4.16 ± 1.71	4.10 ± 1.39
	Girls (n=147)	2.75 ± 1.65	3.60 ± 1.75†	4.78 ± 1.18**+ †
	Total (n=295)	3.03 ± 1.71	3.87 ± 1.75	4.33 ± 1.35
Social influence - Importance that friends give to physical activity and sports	Boys (n=148)	4.93 ± 1.22	5.08 ± 1.19	5.17 ± 0.98
	Girls (n=147)	4.29 ± 1.54	4.63 ± 1.23	5.28 ± 0.72†
	Total (n=295)	4.57 ± 1.44	4.84 ± 1.23	5.21 ± 0.89
Model influence - Frequency of physical activity and sports practice of the model	Boys (n=148)	4.86 ± 1.13	4.96 ± 1.22	4.78 ± 1.19
	Girls (n=147)	4.21 ± 1.39	4.75 ± 1.26	5.07 ± 1.14
	Total (n=295)	4.49 ± 1.32	4.85 ± 1.24	4.88 ± 1.17
Model influence - Frequency of physical activity together	Boys (n=148)	4.40 ± 1.52*	4.96 ± 1.36*	4.28 ± 1.43*
	Girls (n=147)	3.40 ± 1.56	4.15 ± 1.52	4.57 ± 1.74
	Total (n=295)	3.84 ± 1.62	4.53 ± 1.50†	4.38 ± 1.52

Note. Data are presented as mean ± standard deviation. * $p < 0.05$ different to girls; ** $p < 0.05$ different to 11 years old; † $p < 0.05$ different to 10 years old.

On the other hand, taking into account social influence, the results of this study, based on the interaction between sex and age, show that the importance that the father gives to PA&S influences 12-year-old boys more than 12-year-old girls. Depending on age, 11-year-old students perceive that their parents give more importance to PA&S than 12-year-old students, unlike the results obtained by Sanz-Arazuri et al. (2017), which indicate that, as children grow older, parents tend to give less importance to PA&S, as also happens in the study by Betancourt Ocampo et al. (2022), where it is found that the fact that families feel proud of their children's PA&S practice denotes the importance they give to PA&S, showing that boys aged 8 to 10 are the ones who are more influenced by their parents than girls aged 11 to 13, and that boys, regardless of age, feel more influenced

by families than girls. Therefore, parents should emphasize PA&S, valuing its positive effects and regularly discussing its importance with their children.

Finally, and in relation to the influence of the role model, in the present study there are differences in the perception of the influence of the father as a role model, depending on the frequency with which he performs PA&S. For this reason, mothers should establish active communication, emphasizing healthy lifestyle habits or acting as an active role model. Thus, 11-year-old girls perceive that their fathers perform more physical activity than boys of the same age. This could be explained by taking into account the students' initial level of physical activity, since the result may vary, as reflected in the study by Jaimes Reyes et al. (2021), where physically active girls perceive

the father as more influential than the mother, while inactive girls point to the mother as their greatest exponent. However, and in general, there is a higher percentage of physically active fathers and mothers who have children who are not (Jaimes Reyes et al., 2021).

Friendships' influence - Regarding perceived social support from friends, the present study shows that 12-year-old students feel more influenced by the frequency with which their friends communicate with them about practicing PA&S, similarly to what was reported in the study by Betancourt Ocampo et al. (2022), where older students (11 to 13 years old) are more likely to give or feel support from friends. Likewise, in the study by Betancourt Ocampo et al. (2022), there are differences based on sex, since girls aged 8 to 10 years claim to need more support to practice PA&S, contrary to the results found in our study. Therefore, it's necessary to create activities they can participate in with their friends, giving them the opportunity to practice together in a fun way and taking into account each other's interests.

Regarding the social influence that friends exert when encouraging the practice of PA&S, it is observed that 10-year-old students have lower scores than 12-year-old students. Despite the importance of friends for the practice of PA&S throughout the Primary Education stage, family support is what younger students perceive as most decisive (Moreno et al., 2020). Therefore, workshops or activities should be created for younger students in which they can participate jointly with their parents, taking into account their needs and interests. On the other hand, 12-year-old students feel more influenced by the importance and encouragement that friends give to the practice of PA&S, as occurs in the study by Betancourt Ocampo et al. (2022).

Finally, regarding the influence of the model, one of the reasons for the frequent practice of PA&S is practice with friends

(Zamora-Mota et al., 2022), observing that boys give higher scores than girls, as in the study by Betancourt Ocampo et al. (2022). Taking into account the age factor, 11-year-old students have higher scores than 10-year-olds, as in the study by Betancourt Ocampo et al. (2022). Therefore, it is necessary to study which types of physical and sports activities have the greatest impact on the influence of friendships on girls. Taking into account the interaction between the variables sex and age, friendships become one of the most representative figures as the age of the students advances (Ventura-Cruz et al., 2023), unlike the study by Betancourt Ocampo et al. (2022), which indicates that girls aged 8 to 10 have a slightly greater influence on joint practice with their friends than on girls aged 11-13.

Limitations - This study presents several limitations that must be considered when interpreting the results. On the one hand, non-probability convenience sampling was used, but the number of subjects needed to extrapolate the data to the general population was insufficient. This strategy compromises the generalizability of the results and is therefore explicitly considered a methodological limitation. Besides this the data are based on self-reports, using a questionnaire for students, which may introduce biases of social desirability or of responding in ways that are socially expected. Therefore, students may have responded in ways that they consider more socially acceptable, rather than reflecting their true experiences. The second limitation may be the sample used, which, although it can be considered large, is limited to students from a specific region, which may not be representative of the general population, thus limiting the ability to generalize the findings to other geographical or cultural contexts. On the other hand, as it is a cross-sectional study, the data were collected at a specific time, which prevents establishing causal relationships between the variables studied and limits the understanding of how

social support and the influence of role models can change over time.

5. Practical Applications.

Based on the results of the study, the following practical applications are proposed to improve adherence to physical activity and sport (PA&S) by integrating the influence of key figures: parents and friends of students. (1) Awareness campaigns: Develop campaigns to educate parents of primary school students about the benefits and good practices of PA&S. Highlight the influence of the parental role based on the gender and age of the children. Parents should value PA&S, discuss it regularly with their children, and be role models. In the case of girls, mothers are the main influence, so joint PA&S activities are encouraged. (2) Leisure activity programs: Create workshops or activities (e.g., hiking trails, orienteering races, cooperative games) that involve families and friends. These should be aligned with the interests of all participants, promoting fun and inclusive experiences. (3) School policies: Involve families as key stakeholders in promoting healthy lifestyles through personalized training and tools. This includes encouraging dialogue, communication, support, and parental role modelling to instill healthy habits in students. (4) Guidelines for specific interventions: (4.1.) Raise awareness among parents about the importance of PA&S from an early age, encouraging participation, especially at later stages, and challenging the stereotype that fathers influence sons more than daughters, promoting equal maternal influence. (4.2.) For mothers, address gender stereotypes, emphasizing their positive impact on daughters through active communication, valuing healthy habits and serving as active role models. (4.3.) For friends, create positive social environments with trust, empathy, respect, and encouragement. Provide targeted support to girls to strengthen their peer influence by exploring which PA&S activities most impact

their participation. (5) Openness to the community: Offer extracurricular activities for parents (e.g., running groups, yoga) based on their practice preferences, and promote joint community activities (e.g., open days with traditional games) to involve families and friends, making schools a hub for PA&S.

6. Conclusions

This study reveals that the influence of parents and friends on primary school students' participation in physical activities and sports in Cantabria is modulated by age and gender. Boys perceive greater paternal influence at age 12, while girls report greater maternal communication and shared activities, suggesting a gender role modelling dynamic. Peer influence peaks at age 12, and boys more frequently participate in physical activities and sports with friends.

The results of this study highlight the importance of parental, maternal, and friends' influence on children's perception and involvement in PA&S, with significant variations according to age and gender.

Regarding paternal influence, it was found that 11-year-old students perceive a greater importance that their parents give to physical activity compared to 12-year-olds. In addition, 12-year-old boys consider that their parents have a greater influence on their participation in physical activities than girls of the same age. This suggests that the perception of paternal influence decreases with age and varies between genders, being more noticeable in older children. 11-year-old girls perceive that their fathers do more physical activity than boys of the same age, which could indicate a greater identification or connection with the paternal model at earlier ages.

Regarding maternal influence, girls report a higher frequency of communication, importance of influence for participation in physical activities, and perception of physical activity practice, both from the mother and together with them. This highlights the

importance of the maternal role in promoting physical activity, especially in girls.

Regarding the influence of friends, it was observed that boys perceive a higher frequency of physical activity practice with their friends compared to girls. In addition, 12-year-old students report a higher frequency of communication about physical activity and sport, as well as a greater importance of the influence of their friends for participation in these activities, compared to 10 and 11-year-olds.

These findings underline the need to consider that strategies used to promote physical activity and sport should be tailored to effectively harness parental and peer influences, recognizing the differences in how boys and girls perceive and respond to these influences. Future studies could further explore the reasons behind these differences and how they can be used to encourage healthy lifestyle behaviors from an early age.

As future lines of research, we propose conducting studies that employ mixed methods to explore the sociocultural mechanisms underlying these gender- and age-specific perceptions, as well as their long-term impact on adherence to physical activity and sport during adolescence.

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