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Differences on Habitual Physical Activity Index in Primary Schoolchildren according to Age and Gender

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Abstract: The World Health Organization (WHO) has warned that a large majority of children do not reach its recommendations on physical activity for health, i.e., 60 min a day of moderate to vigorous physical activity. The objective of this study was to know the index of habitual physical activity in different contexts where the child interacts: school index (SCHOOL-I), extracurricular/sports activity index (SPORT-I), free time index (LEISURE-I) and the total habitual physical activity index (GLOBAL-I) based on age and gender. 900 Primary Education schoolchildren from Galicia (Spain) aged 10–12 years (M = 10.84; SD = 0.67) participated, of which 454 (50.40%) were boys and 446 (49.6%) girls. For data collection, the validated Inventory of Habitual Physical Activity in Schoolchildren (IAFHE) questionnaire was used. The results show a significant main effect on the age factor in SCHOOL-I ($p < 0.001$), and in GLOBAL-I ($p = 0.034$), the rates being higher in 10-year-old children compared to 11 and 12. A significant main effect has also been found in the gender factor in SCHOOL-I ($p < 0.001$), SPORT-I ($p < 0.001$) and in GLOBAL-I ($p < 0.001$), being greater in boys than in girls. It is concluded that, as school age increases, a lower index of physical activity is registered, this being higher in boys compared to girls. It is necessary to establish strategies to promote the practice of physical activity from different agents and in different contexts.

Keywords: physical activity; children; schools; healthy habits; sport

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1. Introduction

Data published by the World Health Organization (WHO) [1] in reference to overweight, obesity and physical activity rates in children and adolescents worldwide show that 85% of girls and 78% of boys of school-age do not engage in the minimum amount of physical activity established for their age range. This institution establishes that the minimum daily amount to be performed by the school population is 60 min a day. in physical activities of moderate to vigorous intensity (MVPA), and that any longer time will result in an even greater benefit for health [1,2]. The rapid advance and overuse of technology is one of the main causes of this decrease in the daily physical activity of children and adolescents [3], that could favor an obesogenic environment related to the abundant intake of foods, especially ultra-processed foods, and a sedentary lifestyle [4–6]. This irruption of technological devices in homes and the consequences they have on the levels of physical activity of children and adolescents has led to the adoption of the new term "technological sedentary lifestyle" [7]. The excessive use of new technologies can generate, in addition to

higher rates of overweight and obesity, isolation of minors, poor social relationships, sleep disorders, skeletal muscle injuries and/or endocrine and cardiovascular diseases [5].

It is for this reason that the WHO has also issued recommendations for time of exposure to screens for children. It establishes three main age ranges; between 2 and 5 years old it recommends a maximum of 30 min a day of screen time, between 5 and 12 years 60 to 90 min, and for over 12 years a maximum of 2 h a day [1].

Another aspect to highlight is that, within this obesogenic environment, between 9 and 15 years there is an increase in sedentary time and a notable decrease in physical activity once the school day is over, this decrease in activity being more significant in girls, as well as in young people who are overweight or obese compared to young people with normal values of body mass index [8]. The consequence that a sedentary lifestyle has on the health of children and adolescents has a direct relationship with physical inactivity, and low physical condition with a higher risk of mortality [9].

This lack of physical activity and the high rates of childhood obesity and overweight [10] lead to cardiovascular problems, diabetes or non-communicable diseases in children and adolescents [11]. In addition, a 23% prevalence of overweight and 17.3% of obesity is confirmed, of which 4.2% is severe obesity, in children between 6 and 9 years old and with an upward trend of these values over the course of the school stages. The combination of not following the recommendations for daily physical activity and high rates of obesity and childhood overweight in schoolchildren makes this one of the major concerns of the WHO and its different regions [4,12].

The WHO emphasizes that it is especially in developed countries, such as Spain, where overweight and obesity constitute the most worrying and incident metabolic problem among the population, calling it the "21st century epidemic". This aspect highlights the need to make a change in eating habits and levels of physical activity practiced in school-age children, since obesity in children and adolescents has a 70% probability of moving to adulthood, or 80% if one or both parents are overweight or obese [4,6].

To reverse these data, it is known that an active lifestyle will have positive consequences on the health of children and adolescents [13]. These consequences not only occur in body composition and physical condition, but also translate into a better state of mental health, decreasing depressive behaviors and anxiety values, increasing self-esteem, motivation and self-control. Therefore, a healthy body mass index is associated with higher levels of psychological well-being in schoolchildren [5]. For this, the school must play a leading role, not only in the area of Physical Education (PE), but also in the role of the school as an institution. Quality PE will allow for greater adherence to physical activity [11] and for a movement towards healthy habits which improve the health and quality of life of schoolchildren [12] and will promote a transfer of physical activity practice from the classroom to leisure time, becoming an indicator of the health status of children and adolescents [5]. For this reason, the specialist teacher of PE is one of the agents of socialization, together with the family, that can have the most influence on the acquisition of an active lifestyle in children, and this lasts over time [14,15]. That is why the promotion of physical activity in the school environment is fundamentally the responsibility of PE programs [16,17], in addition to other agents involved in the practice of school sports such as city councils, state and national governments, or the families of children [18].

This is one of the main objectives that the Spanish PE curricula has for students, providing them with different health benefits such as improvements in physical condition, cardiovascular level, better bone health and greater psychological well-being [15,19].

However, this responsibility is not only part of the PE area, but educational centres in Spain have become the ideal environment for the promotion of healthy lifestyles and the implementation of programs to reduce the high levels of overweight, obesity and the low levels of physical activity. These programs in primary schools, based on cooking classes, health education, and work on eating disorders, have been shown to be effective in changing the behaviour of school-age children, making the school the best setting to intervene and decrease childhood obesity rates [20,21]. On the other hand, strategies and

programs focused on increasing levels of physical activity both inside and outside the school context should favor or develop an increase in the enjoyment of the physical activity carried out and the appearance of feelings of self-efficacy [22–25]. Active recesses, active learning in the classroom, and complementary activities related to physical activity or activities that require the participation of the educational community, have also confirmed an increase in levels of physical activity in non-teaching moments and in the leisure time of schoolchildren [15,26].

Therefore, the objective of this study is to determine the indices of physical activity, depending on age and gender, of a sample of the school population aged 10 to 12 years. The index of habitual physical activity during school time (SCHOOL-I), index of habitual sports physical activity (SPORT-I), index of habitual physical activity during free or leisure time (LEISURE-I) and index of total habitual physical activity (GLOBAL-I) will be determined.

2. Materials and Methods

2.1. Study Design

To carry out this research, a descriptive cross-sectional study was carried out [27]. The physical activity indices of the Inventory of Habitual Physical Activity in Schoolchildren (IAFHE) [28] were the dependent variables, comparing to the independent variables of age and gender.

2.2. Participants

The selection of the sample for this study has been of a non-probabilistic nature according to the subjects, who were accessed from Primary Education centres in the seven large cities of Galicia (Spain).

A total of 24 schools were invited to participate in the research (1200 students), of which four schools (200 students) did not want to participate for different reasons (i.e., insufficient time). Seventy schoolchildren were excluded for not having the informed consent of their parents or legal guardians and 30 schoolchildren for not completing all the inventory questions. Finally, the sample consisted of 900 schoolchildren in the 5th and 6th grades of Primary Education (children from 10 years and 0 months to 10 years and 11 months were considered as 10 years; those of 11 years and 0 months to 11 years and 11 months as 11; and from 12 years and 0 months to 12 years and 11 months as 12).

2.3. Tools

The Inventory of Habitual Physical Activity in Schoolchildren (IAFHE) [28] was used for data collection. This instrument has proven to be feasible and reliable in identifying the level of physical activity in primary school students between 9 and 12 years old. The inventory is made up of three blocks: Block 1, sports activity (three items); Block 2, activity in the school center (eight items) and Block 3, activity outside the school (five items). Through this, four indices of the habitual physical activity of schoolchildren can be obtained: (1) Index of physical activity during the stay in school (SCHOOL-I); (2) Index of physical-sports activity (SPORT-I); (3) Index of physical activity during leisure time (LEISURE-I), and (4) global index of habitual physical activity (GLOBAL-I). To obtain the index of habitual physical activity in sports exercise, SPORT-I = (i1 + i2 + i3)/3; to obtain the index of habitual physical activity during school time, SCHOOL-I = (i4 + i5 + i6 + i7 + i8 + i9 + i10 + i11)/8; to obtain the index of habitual physical activity during free or leisure time, LEISURE-I = (i12 + i13 + i14 + i15 + i16)/5. Finally, to obtain the index of total habitual physical activity, GLOBAL-I = (SPORT-I + SCHOOL-I + LEISURE-I)/3. The possible range of values for the four indices is 1–5.

2.4. Procedures

The Directorate of the 24 educational centres was contacted and the objective of the study and its process were explained to them. Once this was done, the PE teachers of the centres who decided to participate voluntarily were contacted and the procedure and

object of study were explained to them. The informed consent forms were sent to the parents or legal guardians of the schoolchildren explaining the objective and purpose of the study, as well as the procedure to follow (data collection, analysis techniques and use of the data collected), confidentiality, voluntary participation and the possibility of their children leaving the study at any time they wished without giving any kind of explanation.

Once the families or legal guardians gave consent for their children to participate, the instrument was administered in a PE session without the presence of the teacher to avoid interference in the responses. To respond to the inventory, the schoolchildren were given a time of 20 min and all doubts that might arise during completion were answered. The researchers followed the same procedure in all educational centres.

After the inventory was answered by all the students, the four indices were calculated (SCHOOL-I; SPORT-I; LEISURE-I; GLOBAL-I).

2.5. Statistical Analysis

The SPSS statistical package (SPSS v.25, IBM Corporation, New York, NY, USA) was used for all analyses. The level of statistical significance was $p < 0.05$ in all the analyses.

Sociodemographic data (age, gender and sports practice) were expressed using frequencies for categorical variables and measures of central tendency for quantitative variables (mean and standard deviation). The differences in the variables of the Inventory of Habitual Physical Activity in Schoolchildren (IAFHE) for the categories age (10 vs. 11 vs. 12) and gender (boys vs. girls) were evaluated using a multivariate analysis of variance (MANOVA). The effect size was calculated using the eta squared (η^2), and the interaction between the variables was calculated using the Bonferroni statistic to determine the significance.

2.6. Ethical Aspects

During all phases of the research, the ethical and deontological principles established by the American Psychological Association [29], as well as the ethical recommendations for educational research, were followed [30]. The research protocol was approved by the EDUCA Ethics Committee with code 7-2020.

3. Results

A total of 900 primary school students aged between 10 and 12 years (M = 10.84; SD = 0.67) answered the inventory. Of these, 446 schoolchildren (49.60%) were girls and 454 (50.4%) were boys. The distribution according to the age of the participants was as follows: 10 years [n = 286 (31.8%)], 11 years [n = 470 (52.2%)] and 12 years [n = 144 (16.0%)], respectively. 780 (86.7%) participated in extracurricular sports activities and 120 (13.3%) did not. In addition, the distribution of participants by gender ($p = 0.693$) and by sports practice ($p = 0.556$) was similar in all age groups.

The results of the MANOVA as a function of the age factor (Table 1; Figure 1) indicate that there are statistically significant differences in SCHOOL-I [F (2, 894) = 11.735, $p < 0.001$, $\eta^2 = 0.026$]; specifically, these differences occur between 10-year-old and 11-year-old schoolchildren ($p < 0.001$) and between 10-year-old and 12-year-old ($p < 0.001$). The rates are higher in 10-year-old schoolchildren and the rates of school physical activity decrease as age increases.

Table 1. IAFHE results according to age and gender.

	10 Years Old		11 Years Old		12 Years Old	
	Boys (n = 147)	**Girls (n = 139)**	**Boys (n = 231)**	**Girls (n = 239)**	**Boys (n = 76)**	**Girls (n = 68)**
SCHOOL-I (1-5)	3.83 ± 0.46	3.72 ± 0.44	3.72 ± 0.61	3.54 ± 0.47	3.66 ± 0.56	3.47 ± 0.59
SPORT-I (1-5)	3.48 ± 0.98	2.93 ± 1.03	3.58 ± 1.02	2.90 ± 1.07	3.48 ± 1.18	2.76 ± 1.02
LEISURE-I (1-5)	2.90 ± 0.38	2.86 ± 0.35	2.88± 0.39	2.83 ± 0.38	2.81 ± 0.41	2.85 ± 0.38
GLOBAL-I (1-5)	3.41 ± 0.40	3.17 ± 0.41	3.39 ± 0.44	3.09 ± 0.46	3.32 ± 0.48	3.03 ± 0.45

Note. Data is presented as mean ± standard deviation. SCHOOL-I: index of habitual physical activity during school time; SPORT-I: index of habitual physical activity in sports exercise; LEISURE-I: index of habitual physical activity during free or leisure time; GLOBAL-I: total habitual physical activity index.

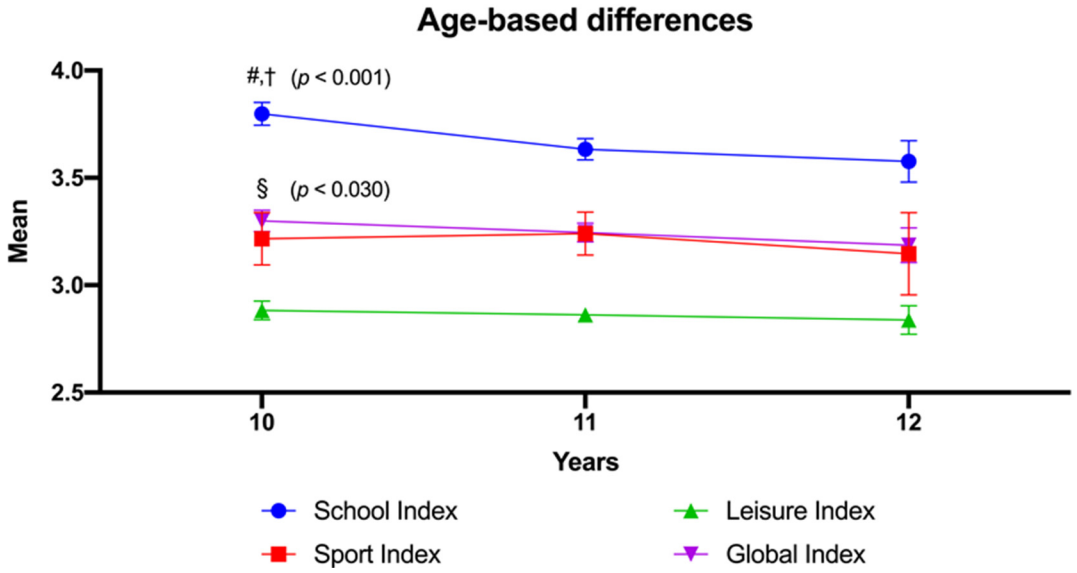

Figure 1. Age-based differences from the physical activity indexes. # $p < 0.001$ different between 10 and 11 years old; † $p < 0.001$ different between 10 and 12 years old; § $p < 0.050$ different between 10 and 12 years old.

Regarding GLOBAL-I, statistically significant differences have also been found (F (2, 894) = 3.386, $p = 0.034$, $\eta^2 = 0.008$), specifically between 10 and 12-year-old schoolchildren ($p = 0.030$), the rates of total physical activity decreasing as age increases. No statistically significant differences were found in SPORT-I ($p = 0.480$) or in LEISURE-I ($p = 0.539$).

Regarding the results based on the gender factor (Figure 2), differences were found in the SCHOOL-I (F (1, 894) = 18.572, $p < 0.001$, $\eta^2 = 0.020$). Specifically, there are statistically significant differences between 10-year-old girls and boys ($p = 0.021$); between 11-year-old boys and girls ($p < 0.001$); and between 12-year-old girls and boys ($p = 0.034$) with higher rates in boys (Table 1).

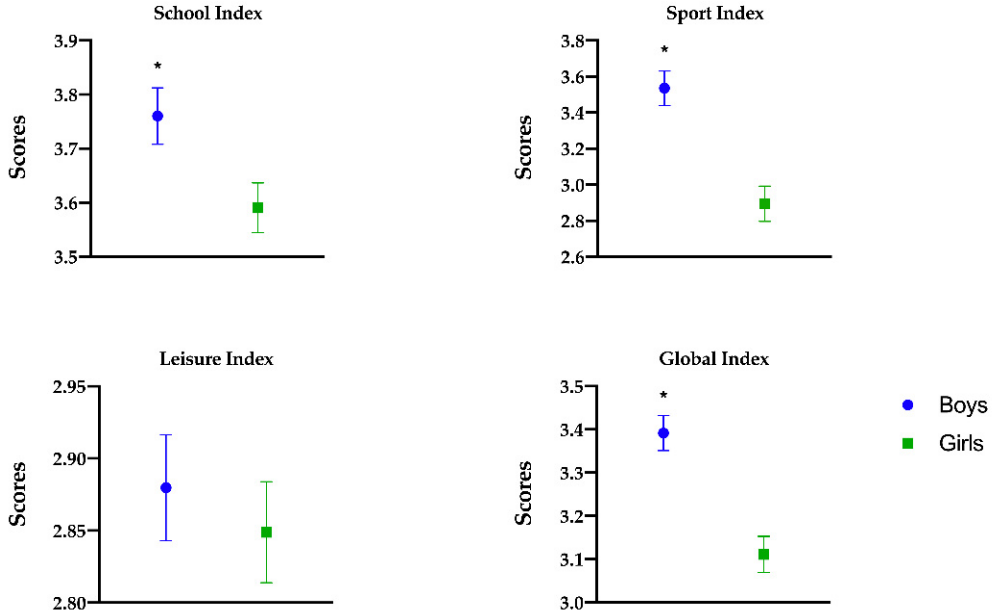

Figure 2. Gender differences in all physical activity indexes. Scores comparison between girls and boys. Note: * $p < 0.001$.

The results also show statistically significant differences in the SPORT-I (F (1, 894) = 68.574, $p < 0.001$, $\eta^2 = 0.071$). Specifically, these differences occur between 10-year-old boys and girls ($p < 0.001$), between 11-year-olds ($p < 0.001$) and between 12-year-olds ($p < 0.001$), with the rates being higher in boys than girls (Table 1).

Finally, statistically significant differences have been found in the GLOBAL-I (F (1, 894) = 70.549, $p < 0.001$, $\eta^2 = 0.073$), specifically between 10-year-old boys and girls ($p < 0.001$), between 11-year-olds ($p < 0.001$) and among 12-year-olds ($p < 0.001$), these indices being again higher in boys than in girls (Table 1).

Regarding the interaction between both factors (age x gender; Table 1), statistically significant differences were only found in the SCHOOL-I between boys aged 10 and 11 ($p = 0.029$) and those aged 12 ($p = 0.019$), the rates being higher in 10-year-olds. These differences also appear between 10-year-old girls and 11-year-olds ($p = 0.004$) and between 10 year-old girls and 12-year-olds ($p = 0.005$), being higher in younger girls.

4. Discussion

The objective of this study was to identify the levels of physical activity carried out in different environments by a sample of children aged 10 to 12 years-old, analyzing the variables of gender and age, and their relationship with habitual physical activity within the school environment, physical activity in the extracurricular environment/sports, physical activity in free or leisure time and total habitual physical activity.

In general, boys perform more physical activity than girls, and younger students more than older ones. These results coincide with other studies that analysed the levels of physical activity in primary school children, as in a study [31] carried out with a sample of 75 primary school children, where higher levels of physical activity practice in boys compared to girls were found.

However, the levels of physical activity recorded are different depending on the context, so each context is discussed independently for better analysis and debate.

4.1. Physical Activity in the School (SCHOOL-I)

This term is used to identify the physical activity carried out by the child within the school environment, i.e., during the time spent in the center itself [28]. This includes time in PE classes, physical activity carried out during recess, or participation in school competitions organized by educational centres.

A recent systematic review and meta-analysis [32] suggests that physical activity interventions in the school environment may be effective in promoting student motivation towards physical activity. However, the evidence was limited in most of the results, the authors concluding that there is a need to carry out more studies in order to identify effective intervention strategies that increase the motivation of students towards physical activity. In the present study, it was observed that the highest levels of physical activity practice in children occur in the school environment, these being higher in boys than in girls; and in the first years of the Primary Education stage compared to the last years. In another systematic review [33] it was confirmed that interventions within the school setting, specifically the so-called active playgrounds, are effective in increasing the levels of school physical activity in children. These interventions can offer different types of game to stimulate students' physical activity, from folk games and cooperative games to small competitions [34]. In addition, some studies confirm that active playgrounds can lead to improvements in cognitive performance, which could contribute to the well-being of children and favor teaching–learning processes [35,36]. In another work [37] where an intervention was established offering schoolchildren the opportunity to engage in physical activity at recess and at lunchtime in addition to PE classes, it was found that 50% of the children in the intervention group complied with the MVPA recommendations, compared to 22.7% of those in the control group. The authors conclude the need to intervene at recess and at lunchtime in order to create more opportunities to practice physical activity.

Therefore, it is suggested that teachers design programs to promote the use of recess as a means of physical activity for children, as well as in the hours in which they can experience free time in the school environment, and thus invest in activities that involve body movement.

4.2. Physical Activity during Sports (SPORT-I)

This term is used to identify the physical activity carried out by children outside the school environment at the sports or federated level [28]. Participation in sports schools outside or school hours or in federated sports practice through clubs is included.

The practice of extracurricular physical activity has an impact on being overweight or obese, and it is also observed that it could improve academic performance, as confirmed by a study [38] carried out in a sample of 175 high school students. In this study, the levels of extracurricular physical activity practice also decreased with age, and boys showed higher values than girls. The authors conclude by stressing the need to facilitate the practice of physical activity outside of school to promote academic performance and avoid the appearance of psychologically maladaptive behaviors. In another study [39] carried out with a sample of students in grades 1 and 2 of Secondary Education, it was confirmed that first-grade students had higher levels of physical activity than second-grade students, boys practiced more than girls at any time of the day and on any day of the week, and only 1.4% of students complied with the international recommendations of the WHO [1] in relation to the levels of physical activity, as recommended as a daily hour of moderate to vigorous intensity physical activity (MVPA).

4.3. Physical Activity in Free and Leisure Time (LEISURE-I)

This term is used to identify the physical activity carried out by the child in his free time or leisure time [28]. The levels of physical activity carried out outside the competitive sports environment and in children's free time, weekends and holiday periods are incorporated, as well as possible transfers from one place to another, or active transport.

Children's levels of physical activity in their free time largely depend on the use or enjoyment of other forms of spending their time, such as using electronic or display devices. The average number of electronic devices in households with children under 12 years of age is 6.08 devices [3], the most frequent being televisions, followed by computers, tablets, game consoles and mobile phones. In a study carried out in a sample of 837 children, the time dedicated to video games was negatively related to that for physical activity, that of

learning to play an instrument, and that dedicated to artistic activities, to the family, and to free play [3]. Similar results were found in another study [40] carried out with a sample of 220 Primary school students, where it was found that those students who practiced more than 3 h of physical activity per week had fewer problems with video game addiction, so investing in programs enhancing children's adherence to sports in their free time may be an option to prevent problems related to the overuse of electronic devices or video games. In this last study, no gender differences were found in terms of the level of physical activity, as in the present study, where boys and girls show similar values for physical activity during free time.

Some authors [41,42] link children's low levels of physical activity with a higher stress load (affective and cognitive), suggesting that fluctuations in stress from day to day may be a barrier to children engaging in more physical activity, as it results in ego depletion or reduced availability of self-control and increased fatigue [43]. In our study, the lowest levels of physical activity were found during leisure time. Although stress can have different origins, one is homework, causing stress in both children and parents [44]. In another study [45], children who had a higher academic load in their free time registered lower levels of physical activity and shorter screen viewing time, with academic load being the main reason for not having enough physical activity (76.6%). Schoolchildren who did not indicate academic load were significantly more likely to meet physical activity guidelines but less likely to meet screen time guidelines.

In addition to this association between a higher load of academic tasks at home with lower levels of physical activity, there is another problem associated with children's health, and that is the relationship with higher levels of adiposity in children with more academic loads, placing stress as a powerful risk factor for obesity [46].

For all these reasons, it is necessary that educational institutions allow children to enjoy leisure time in order to promote a healthy lifestyle and advise parents tools to encourage children to practice physical activity in their free time instead of using screens.

4.4. Global Physical Activity (GLOBAL-I)

Often the promotion of physical activity in children focuses only on the school environment [47,48]; however, this environment is very limited in terms of planning sports activities that stimulate children's participation. Even the best PE programs do not guarantee the recommended minimum amount of moderate vigorous physical activity. In one study [49], an intervention was addressed in 14 Primary and 5 Secondary schools, even creating Wellness Committees, where the centres were advised on how to take advantage of different times of the day to enhance children's physical activity. The intervention was associated with modest but significant increases in leisure-time physical activity levels among primary but not secondary school students. The effects were attributed in part to increased supervision by adults during recess.

The search for extracurricular programs that promote higher levels of physical activity and the promotion of active transportation are two possible approaches to increase the levels of overall physical activity in children. A recent study [50] confirms that schoolchildren who participate in sports activity through a club take active trips several days a week, which could make an important contribution to increasing levels of daily physical activity. In the present study, schoolchildren who participate in sports also had higher levels of habitual physical activity. In another study [51] that addressed the promotion of active transport as a means to increase the levels of children's physical activity, it was confirmed that it is important for political authorities to plan where to locate schools, since it was found that 79.2% of families used active transport to take their children to school (walking, cycling, etc.). The proportion of trips on foot decreased as the distance to the school increased and the use of bicycles or motorized transport increased over longer distances. Distances greater than 900 m were passively covered.

In a current literature review [52], it is concluded that the strategies applied in active transport interventions through the use of bicycles for schoolchildren indicated a great

potential to promote physical activity on the way from home to school and vice versa, but it recommended more studies with stronger research protocols. In addition, another study recorded improvements in children's health, in relation to psychosomatic aspects, in children who used active transport (walking or cycling) to go to school [53].

In the present study we have not analysed parents' knowledge of physical activity recommendations for the school population, so it may also be necessary to focus on quality training for families, in order to promote a healthy lifestyle [54]. It should be noted that higher levels of physical activity not only prevent unhealthy habits in schoolchildren, but may also be associated with better mental health [55]. The authors of this last study conclude that it is necessary to promote the practice of physical activity in schoolchildren in different contexts: family, school or community. Other works [56] have also found that most malnutrition or overnutrition problems in the first ten years of life are accompanied by lower levels of physical activity.

Also noteworthy are the results of a study [57] carried out in a sample of more than 4000 children between the ages of 8 and 11, where it was found that those who were in front of screens for less than 2 h a day, did one hour of physical exercise every day and slept between 9–11 h of sleep obtained a higher overall cognitive performance in the tests carried out.

In general, the usual levels of physical activity for boys were low, based on mean results, but significantly lower for girls. These results coincide with those found by other researchers in the Early Childhood Education stage [58], which leads us to recommend establishing strategies that promote the practice of physical activity in early childhood.

5. Conclusions

The objective of this study was to look for different indices of physical activity in a sample of the school population aged between 10 and 12 years and to correlate these according to age and gender. It is concluded that. as children advance in age, the levels of global and school physical activity decrease. There is also a decrease in the levels of physical activity in leisure and free time and in sports, but these last two indices do not show statistically significant differences. One of the reasons that could support these higher rates of physical activity in the youngest, although not been studied in this research, would be that the smallest schoolchildren could consider the weight factor and body image, along with social recognition and the emergency factor important for health (physical activity by medical prescription), as the most important motivations for the practice of physical exercise, as occurs in another recent study (Mecias-Calvo, et al., 2021). In relation to gender, girls present lower levels of physical activity in every context of physical activity during childhood and youth, which could indicate that boys have a greater predisposition to physical exercise than girls of similar ages (Navarro-Patón, et al., 2020) and that boys have better motivation towards sports practice, unlike girls, involving sensations related to well-being, fun and weight or body image (Mecías-Calvo, et al., 2021), which is the reason that children practice physical activity in different environments, along weight control and the desire to obtain a better male body than others, unlike girls, and therefore boys have a higher physical activity index (SCHOOL-I and SPORT-I).

Strategies are necessary that promote the practice of physical activity both within the school environment and after school. For this, solid programs are suggested to promote the practice of physical activity aimed at families, as possible influencers in the lifestyle of children during leisure time and after school, at educational authorities as managers of the educational curriculum and sports programs within the school environment, and at political institutions as creators of socio-sports programs capable of creating infrastructure and organization of sports activities and physical activity programs that stimulate the participation of children during their free time. It is also recommended that these actions be carried out from early childhood in order to establish healthy lifestyle habits in children aged 3 to 6 years old and not wait until primary education to promote the practice of physical activity or adherence to physical exercise in children.

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References

1. Organización Mundial de la Salud. *To Grow up Healthy, Children Need to Sit Less and Play More [Para Crecer Sanos, los Niños Tienen Que Pasar Menos Tiempo Sentados y Jugar Más]*; World Health Organization: Geneva, Switzerland, 2019.
2. Organización Mundial de la Salud. *Recomendaciones Mundiales Sobre Actividad Física Para la Salud*; Organización Mundial de la Salud: Geneva, Switzerland, 2010.
3. Arufe-Giráldez, V.; Cachón Zagalaz, J.; Zagalaz Sánchez, M.; Sanmiguel-Rodríguez, A.; González Valero, G. Equipamiento y uso de Tecnologías de la Información y Comunicación (TIC) en los hogares españoles durante el periodo de confinamiento. Asociación con los hábitos sociales, estilo de vida y actividad física de los niños menores de 12 años. *Rev. Lat. Comun. Soc.* **2020**, *78*, 183–204. [CrossRef]
4. Santos Muñoz, S. La Educación Física escolar ante el problema de la obesidad y el sobrepeso. *Rev. Int. Med. Cienc. Act. Fís. Deport.* **2005**, *5*, 179–199.
5. Diaz Ruiz, R.; Aladro Castaneda, M. Relationship between the use of New Technologies and overweight children as a problem of Public Health. *RQR Enferm. Comunitaria* **2016**, *4*, 46–51.
6. Núñez-Quiroga, J.I.; Zurita-Ortega, F.; Ramírez-Granizo, I.; Lozano-Sánchez, A.M.; Puertas-Molero, P.; Ubago-Jiménez, J.L. Analysis of the relationship between physical-healthy habits and diet with obesity in primary school students of the Province of Granada. *Retos* **2018**, *35*, 31–35. [CrossRef]
7. Lozano-Sánchez, A.M.; Zurita-Ortega, F.; Ubago-Jiménez, J.L.; Puertas-Molero, P.; Ramírez-Granizo, I.; Núñez-Quiroga, J.I. Videogames, physical activity practice, obesity, and sedentary habits in schoolchildren aged 10 to 12 years old in the province of Granada. *Retos* **2018**, *35*, 42–46. [CrossRef]
8. Wickel, E.E.; Belton, S. School's out... now what? Objective estimates of afterschool sedentary time and physical activity from childhood to adolescence. *J. Sci. Med. Sport* **2016**, *19*, 654–658. [CrossRef] [PubMed]
9. Pérez López, A.; Valadés Cerrato, D.; Buján Varela, J. Sedentarismo y Actividad Física. *Rev. Investig. Educ. Cienc. Salud* **2017**, *2*, 49–58. [CrossRef]
10. Gobierno de España. *Estudio ALADINO 2019: Estudio sobre Alimentación, Actividad Física, Desarrollo Infantil y Obesidad en España 2019*; Ministerio de Consumo, Agencia Española de Seguridad Alimentaria y Nutrición: Madrid, Spain, 2020.
11. del Val Martín, P.; Obrador, E.S.; Sánchez, D.B. ¿Qué es y cómo se mide la calidad en Educación Física? Una revisión de literatura. *Sport. Sci. J. Sch. Sport. Phys. Educ. Psychomot.* **2021**, *7*, 300–320.
12. Rodríguez, A.C.; Valenzuela, A.V.; Sánchez-Alcaraz Martínez, B.J. La importancia de la educación física en el sistema educativo. *EmásF Rev. Digit. Educ. Fís.* **2016**, *43*, 83–96.
13. Martinez-López, E.J.; Moreno-Cerceda, J.; Suarez-Manzano, S.; Ruiz-Ariza, A. Effect of and satisfaction with a program of physical activity controlled through heart rate monitors on body mass index in young students with overweight-obesity. *Retos* **2017**, *33*, 179–184. [CrossRef]
14. Thorburn, M.; Carse, N.; Jess, M.; Atencio, M. Translating change into improved practice: Analysis of teachers' attempts to generate a new emerging pedagogy in Scotland. *Eur. Phys. Educ. Rev.* **2011**, *17*, 313–324. [CrossRef]
15. Camacho-Miñano, M.; Fernández García, E.; Ramírez Rico, E.; Blández Ángel, J. La Educación Física escolar en la promoción de la actividad física orientada a la salud en la adolescencia: Una revisión sistemática de programas de intervención. *Rev. Complut. Educ.* **2013**, *24*, 9–26. [CrossRef]
16. Martínez Baena, A.C.; Romero Cerezo, C.; Delgado Fernández, M. Factores que inciden en la promoción de la actividad físico-deportiva en la escuela desde una perspectiva del profesorado. *Cuad. Psicol. Deport.* **2010**, *10*, 57–78.
17. Pérez López, I.J.; Delgado, M. Improvement of knowledge, procedures and attitudes of students in Secondary Education after being exposed to an intervention in Physical Education for Health. *Eur. J. Hum. Mov.* **2007**, *18*, 61–77.

18. Arufe-Giráldez, V.; Barcala-Furelos, R.; Mateos-Padorno, C. Programas de deporte escolar en España e implicación de los agentes educativos. *Rev. Int. Med. Cienc. Act. Fís. Deport.* **2017**, *17*, 397–411.
19. Ríos Liz, Y.; Navarro Patón, R.; Arufe Giráldez, V.; Pérez Turpín, J.A. Evaluation of a physical activity programme through popular games in Primary School students. *Retos* **2017**, *34*, 108–113. [CrossRef]
20. AlMarzooqi, M.A.; Nagy, M.C. Childhood obesity intervention programs: A systematic review. *Life Sci. J.* **2011**, *8*, 45–60.
21. Gómez, S.F.; Casas Esteve, R.; Subirana, I.; Serra-Majem, L.; Fletas Torrent, M.; Homs, C.; Bawaked, R.A.; Estrada, L.; Fíto, M.; Schröder, H. Effect of a community-based childhood obesity intervention program on changes in anthropometric variables, incidence of obesity, and lifestyle choices in Spanish children aged 8 to 10 years. *Eur. J. Pediatr.* **2018**, *177*, 1531–1539. [CrossRef] [PubMed]
22. Dishman, R.K.; Motl, R.W.; Saunders, R.; Felton, G.; Ward, D.S.; Dowda, M.; Pate, R.R. Self-efficacy partially mediates the effect of a school-based physical-activity intervention among adolescent girls. *Prev. Med.* **2004**, *38*, 628–636. [CrossRef] [PubMed]
23. Dishman, R.K.; Motl, R.W.; Saunders, R.; Felton, G.; Ward, D.S.; Dowda, M.; Pate, R.R. Enjoyment mediates effects of a school-based physical-activity intervention. *Med. Sci. Sport. Exerc.* **2005**, *37*, 478–487. [CrossRef]
24. Schneider, M.; Cooper, D.M. Enjoyment of exercise moderates the impact of a school-based physical activity intervention. *Int. J. Behav. Nutr. Phys. Act.* **2011**, *8*, 64. [CrossRef]
25. Mecías-Calvo, M.; Navarro-Patón, R.; Neira-Martín, P.J.; Rico-Díaz, J. Analysis of motivation towards sports practice in students of Primary Education in Galicia. A descriptive study. *J. Hum. Sport Exerc.* **2020**, *16*, 595–605. [CrossRef]
26. Rué Rosell, L.; Serrano Alfonso, M.Á. Physical Education and health promotion: Strategies of intervention in the school. *Retos* **2015**, *25*, 186–191. [CrossRef]
27. Ato, M.; López, J.J.; Benavente, A. Un sistema de clasificación de los diseños de investigación en psicología. *An. Psicol.* **2013**, *29*, 1038–1059. [CrossRef]
28. Cantó, E.G.; García, P.L.R.; Miñarro, P.A.L.; Villalba, F.J.L. Validación de un inventario para la medición de la actividad física habitual en escolares (IAFHE). *Rev. Esp. Educ. Fís. Deport.* **2013**, *403*, 45–60.
29. American Psychological Association. *Publication Manual of the American Psychological Association*, 7th ed.; American Psychological Association: Washington, DC, USA, 2020; ISBN 9776666809.
30. Paz Maldonado, E.J. La ética en la investigación educativa. *Rev. Cienc. Pedagóg. Innov.* **2018**, *6*, 45–51. [CrossRef]
31. Lois Carro, L.; Rial Rebullido, T. Hábitos alimentarios y de actividad física de alumnado de Educación Primaria: Estudio descriptivo de un colegio de Pontevedra. *Sportis* **2016**, *2*, 77–92. [CrossRef]
32. Kelso, A.; Linder, S.; Reimers, A.K.; Klug, S.J.; Alesi, M.; Scifo, L.; Borrego, C.C.; Monteiro, D.; Demetriou, Y. Effects of school-based interventions on motivation towards physical activity in children and adolescents: A systematic review and meta-analysis. *Psychol. Sport Exerc.* **2020**, *51*, 101770. [CrossRef]
33. Pastor-Vicedo, J.C.; Martínez-Martinez, J.; López-Polo, M.; Prieto-Ayuso, A. Recreos activos como estrategia de promoción de la actividad física: Una revisión sistemática. *Retos* **2020**, *40*, 135–144. [CrossRef]
34. Martín-Acosta, F.; Escaravajal Rodríguez, J.C. Análisis bibliográfico sobre los programas de recreos activos. *Rev. Iberoam. Cienc. Act. Fís. Deport.* **2019**, *8*, 125–135. [CrossRef]
35. Latorre-Román, P.Á.; Berrios-Aguayo, B.; Aragón-Vela, J.; Pantoja-Vallejo, A. Effects of a 10-week active recess program in school setting on physical fitness, school aptitudes, creativity and cognitive flexibility in elementary school children. A randomised-controlled trial. *J. Sports Sci.* **2021**, *39*, 1277–1286.
36. Martínez-López, E.J.; Ruiz-Ariza, A.; De la Torre-Cruz, M.; Suárez-Manzano, S. Alternatives of Physical Activity within School Times and Effects on Cognition. A Systematic Review and Educational Practical Guide. *Psicol. Educ.* **2021**, *27*, 37–50. [CrossRef]
37. Rodríguez-Rodríguez, F.; Cristi-Montero, C.; Castro-Piñero, J. Physical Activity Levels of Chilean Children in a National School Intervention Programme. A Quasi-Experimental Study. *Int. J. Environ. Res. Public Health* **2020**, *17*, 4529. [CrossRef]
38. Alfonso Rosa, R.M. Relación entre la actividad física extraescolar y el rendimiento académico en alumnos de Educación Secundaria. *Sportis* **2016**, *2*, 177–187. [CrossRef]
39. Sanz-Martín, D. Niveles de actividad física moderada-vigorosa de adolescentes del municipio de Soria. *Sportis* **2017**, *3*, 100–122. [CrossRef]
40. Sánchez-Zafra, M.; Ramírez-Granizo, I.; Baez-Mirón, F.; Moreno-Arrebola, R.; Fernández-Revelles, A. Análisis de la relación existente entre el uso de videojuegos y la práctica de actividad física. *Sportis* **2019**, *5*, 118–132. [CrossRef]
41. Stults-Kolehmainen, M.A.; Sinha, R. The effects of stress on physical activity and exercise. *Sport. Med.* **2014**, *44*, 81–121. [CrossRef] [PubMed]
42. Do, B.; Mason, T.B.; Yi, L.; Yang, C.-H.; Dunton, G.F. Momentary associations between stress and physical activity among children using ecological momentary assessment. *Psychol. Sport Exerc.* **2021**, *55*, 101935. [CrossRef]
43. Baumeister, R.F.; Vohs, K.D.; Tice, D.M. The Strength Model of Self-Control. *Curr. Dir. Psychol. Sci.* **2007**, *16*, 351–355. [CrossRef]
44. Moè, A.; Katz, I.; Cohen, R.; Alesi, M. Reducing homework stress by increasing adoption of need-supportive practices: Effects of an intervention with parents. *Learn. Individ. Differ.* **2020**, *82*, 101921. [CrossRef]
45. Zhu, X.; Haegele, J.A.; Tang, Y.; Wu, X. Physical Activity and Sedentary Behaviors of Urban Chinese Children: Grade Level Prevalence and Academic Burden Associations. *BioMed Res. Int.* **2017**, *2017*, 7540147. [CrossRef] [PubMed]
46. Michaud, I.; Chaput, J.-P.; O'Loughlin, J.; Tremblay, A.; Mathieu, M.-E. Long duration of stressful homework as a potential obesogenic factor in children: A QUALITY study. *Obesity* **2015**, *23*, 815–822. [CrossRef]

47. Metcalf, B.; Henley, W.; Wilkin, T. Effectiveness of intervention on physical activity of children: Systematic review and meta-analysis of controlled trials with objectively measured outcomes (EarlyBird 54). *BMJ* **2012**, *345*, e5888. [CrossRef]
48. van Sluijs, E.M.F.; McMinn, A.M.; Griffin, S.J. Effectiveness of interventions to promote physical activity in children and adolescents: Systematic review of controlled trials. *BMJ* **2007**, *335*, 703. [CrossRef]
49. Escaron, A.L.; Vega-Herrera, C.; Martinez, C.; Steers, N.; Lara, M.; Hochman, M. Impact of a school-level intervention on leisure-time physical activity levels on school grounds in under-resourced school districts. *Prev. Med. Rep.* **2021**, *22*, 101377. [CrossRef]
50. Salway, R.; Emm-Collison, L.; Sebire, S.J.; Thompson, J.L.; Lawlor, D.A.; Jago, R. The association of school-related active travel and active after-school clubs with children's physical activity: A cross-sectional study in 11-year-old UK children. *Int. J. Behav. Nutr. Phys. Act.* **2019**, *16*, 72. [CrossRef]
51. Dessing, D.; de Vries, S.I.; Graham, J.M.A.; Pierik, F.H. Active transport between home and school assessed with GPS: A cross-sectional study among Dutch elementary school children. *BMC Public Health* **2014**, *14*, 227. [CrossRef] [PubMed]
52. Schönbach, D.M.I.; Altenburg, T.M.; Marques, A.; Chinapaw, M.J.M.; Demetriou, Y. Strategies and effects of school-based interventions to promote active school transportation by bicycle among children and adolescents: A systematic review. *Int. J. Behav. Nutr. Phys. Act.* **2020**, *17*, 138. [CrossRef] [PubMed]
53. Kleszczewska, D.; Mazur, J.; Bucksch, J.; Dzielska, A.; Brindley, C.; Michalska, A. Active Transport to School May Reduce Psychosomatic Symptoms in School-Aged Children: Data from Nine Countries. *Int. J. Environ. Res. Public Health* **2020**, *17*, 8709. [CrossRef]
54. Fox, K.; Dalton, N.; Boldy, A.; Khalil, M.; Scully, P.; O'Gorman, C. P511 Parental knowledge of physical activity guidelines and levels of physical activity in children. *Arch. Dis. Child.* **2019**, *104*, A358.
55. da Silva, G.C.; dos Santos Silva, R.A.; Cavalcante Neto, J.L. Mental health and levels of physical activity in children: A systematic review. *Cad. Bras. Ter. Ocup.* **2017**, *25*, 607–615.
56. Dufour, D.L. Nutrition, Activity, and Health in Children. *Annu. Rev. Anthropol.* **1997**, *26*, 541–565. [CrossRef]
57. Walsh, J.J.; Barnes, J.D.; Cameron, J.D.; Goldfield, G.S.; Chaput, J.-P.; Gunnell, K.E.; Ledoux, A.-A.; Zemek, R.L.; Tremblay, M.S. Associations between 24 hour movement behaviours and global cognition in US children: A cross-sectional observational study. *Lancet Child Adolesc. Health* **2018**, *2*, 783–791. [CrossRef]
58. Kelly, L.A.; Reilly, J.J.; Grant, S.; Paton, J.Y. Low physical activity levels and high levels of sedentary behaviour are characteristic of rural Irish primary school children. *Ir. Med. J.* **2005**, *98*, 138–141. [PubMed]