

# ALADINO 2023

## Study on Nutrition, Physical Activity, Child Development and Obesity in Spain

### EXECUTIVE SUMMARY



GOBIERNO  
DE ESPAÑA

MINISTERIO  
DE DERECHOS SOCIALES, CONSUMO  
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Agencia Española de Seguridad Alimentaria y Nutrición (AESAN)

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## > INTRODUCTION

Childhood overweight and obesity are a serious public health problem that can affect children's development as well as their physical and mental health. Childhood obesity is associated with numerous diseases such as type 2 diabetes mellitus, high blood pressure, as well as with a greater likelihood of living with obesity and other diseases in adulthood.

The ALADINO study, is part of the WHO European Childhood Obesity Surveillance Initiative (COSI) (1). It has been performed since 2011 by the Nutrition and Obesity Study Observatory of the Spanish Agency for Food Safety and Nutrition (AESAN, for its initials in Spanish). It aims to ascertain the prevalence of childhood overweight and obesity in Spain, evaluate its evolution over time, and its association with different socio-economic factors related to the school and family environment.

This is an epidemiological study, with a descriptive cross-sectional design of the children's anthropometric data (by direct measurement of weight and height), and the associated lifestyle factors (via questionnaires completed by families and schools).

For the purposes of this study, the prevalence values are estimated using the following Body Mass Index<sup>1</sup> (BMI) sex-age-specific cut-offs according to the WHO growth reference for children and adolescents (2):

- Thinness:  $BMI < - 2$  SD of the median
- Normalweight:  $- 2$  SD  $\leq$  BMI  $\leq$  + 1 SD of the median
- Overweight (including obesity): BMI  $>$  +1 SD of the median
- Overweight: +1 SD  $<$  BMI  $\leq$  + 2 SD of the median
- Obesity: BMI  $>$  +2 SD of the median
- Severe Obesity: BMI  $>$  +3 SD of the median

The ALADINO 2023 study comprises a sample size of 12,678 schoolchildren enrolled in 296 schools, representative of the school population aged 6 to 9 resident in Spain.

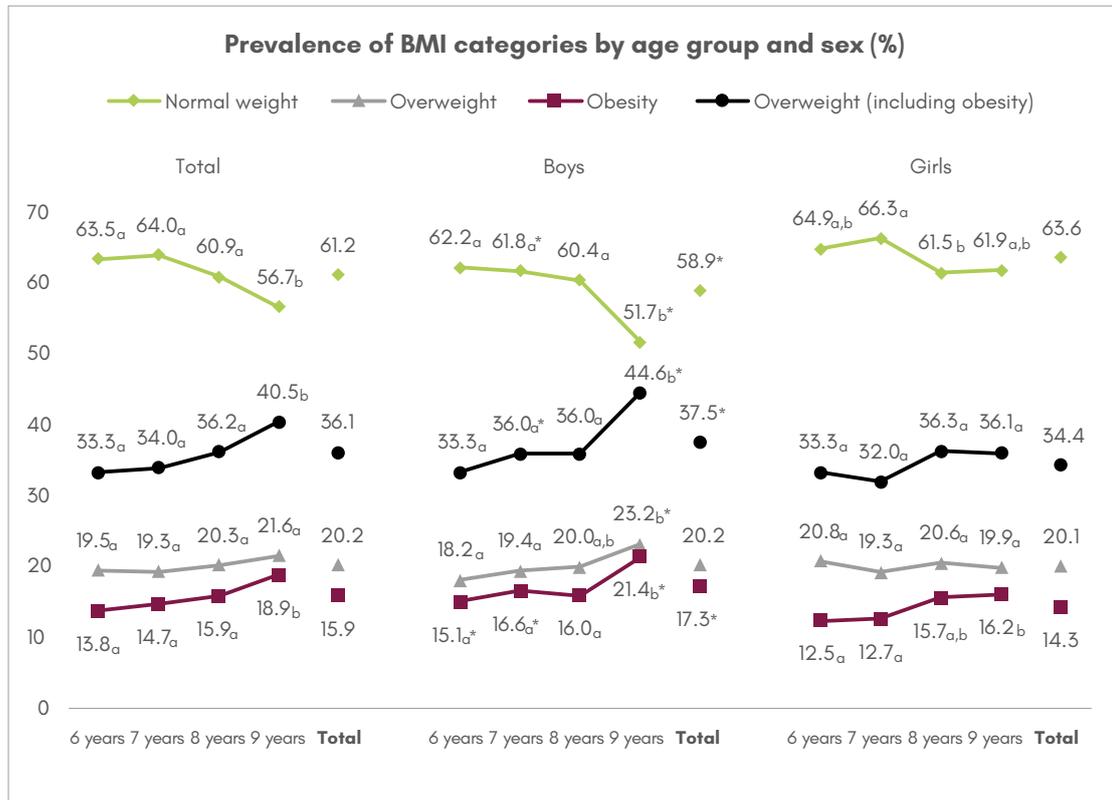
## > PREVALENCE OF OVERWEIGHT AND OBESITY ACCORDING TO WHO STANDARDS

The results of ALADINO 2023 study show a prevalence of overweight (including obesity) of 36.1%, which corresponds to 20.2% overweight and 15.9% obesity. Although the overweight (including obesity) has decreased by 4.5 points compared to the previous edition, the figures remain very high.

Some differences by sex have been detected, with a higher prevalence of obesity, severe obesity and overweight (including obesity) in boys than in girls, while the prevalence of overweight is similar in both sexes.

<sup>1</sup> BMI is calculated as mass in kilograms divided by the square of height in metres (kg/m<sup>2</sup>).

Regarding the differences by age, the 9-year-old group has a higher percentage of obesity and overweight, compared to the other age groups. In the case of severe obesity, the opposite is true, in the 6-year-old group the percentage is significantly higher than in the 9-year-old group.

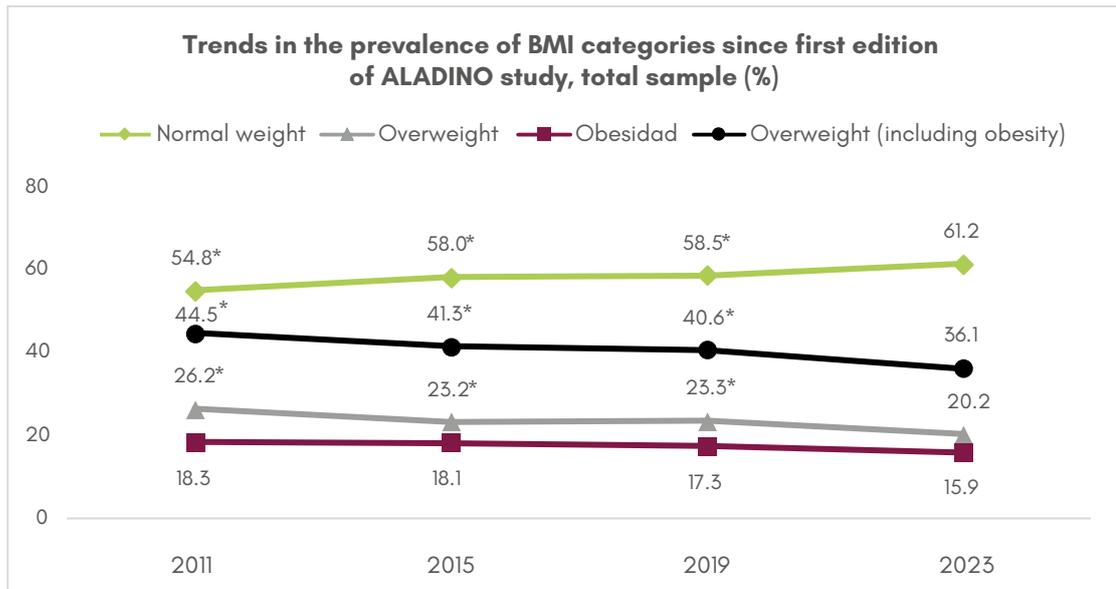


Note: The values that do not share the same subscript in each series are significantly different in  $p < 0.05$ .  
\* Marks the stratum with significant differences by sex in  $p < 0.05$ .

### > TRENDS IN OVERWEIGHT AND OBESITY PREVALENCE SINCE THE FIRST EDITION OF THE ALADINO STUDY

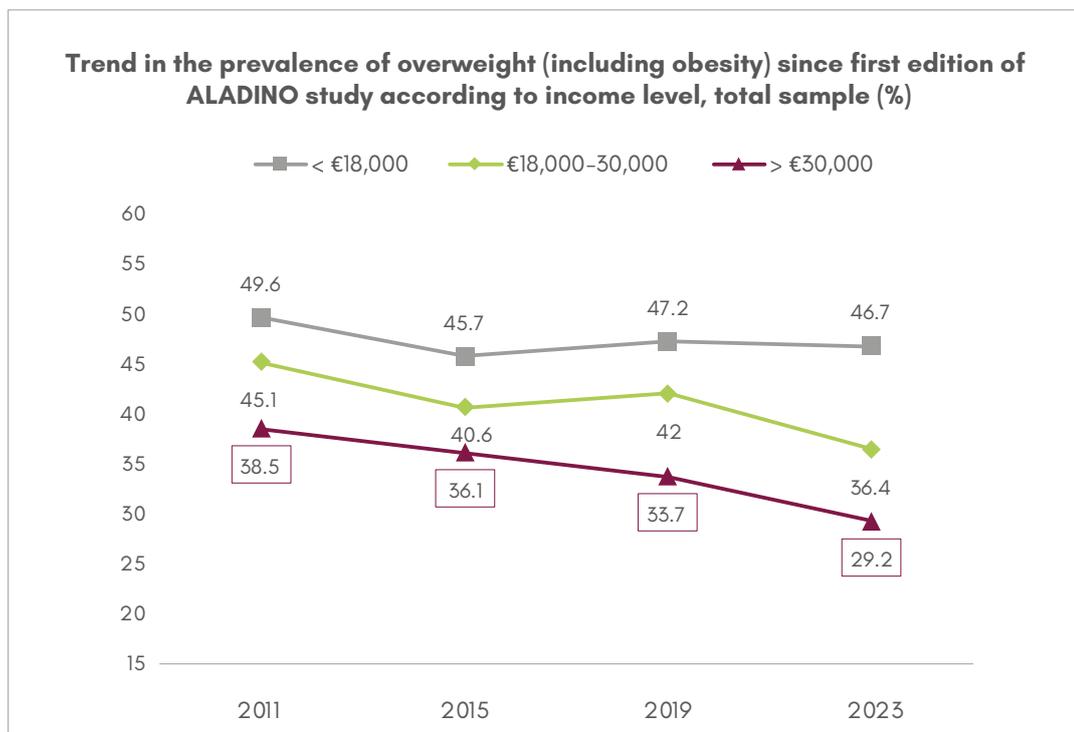
In this edition, with respect to all editions since 2011, overweight (including obesity), obesity and overweight have decreased, being statistically significant for both overweight (including obesity) and overweight. Although obesity is also decreasing, it does so to a lesser extent.

In this regard, it is between 2019 (3) and 2023, where the most marked decrease in the prevalence of overweight (including obesity) of all editions has occurred, with a decrease of 4.5 percentage points: 3.1 percentage points in the case of overweight and 1.4 for obesity.



Note: \* In the difference with 2023 p value < 0.05.

However, throughout the different editions of the study, the highest prevalences of overweight (including obesity) and obesity remain practically unchanged in low-income families, while in middle- and high-income families this decrease is observed.



The prevalence of central obesity in the total sample is 22.7%, without statistically significant differences by sex or significant changes across editions.

## > FIRST YEAR OF LIFE

82.2% of schoolchildren received breastfeeding, and 71.5% received it for more than one month, with an average length of 13.1 months, higher than that registered in ALADINO 2019 (9.5 months).

In line with the WHO's exclusive breastfeeding recommendations (4), 46.9% of the children in the study were exclusively breastfed during the first six months of life.

When comparing these data based on BMI categories, both the duration of breastfeeding and the percentage of schoolchildren who received breastfeeding exclusively were significantly higher in the group with normal weight compared to the group with obesity.

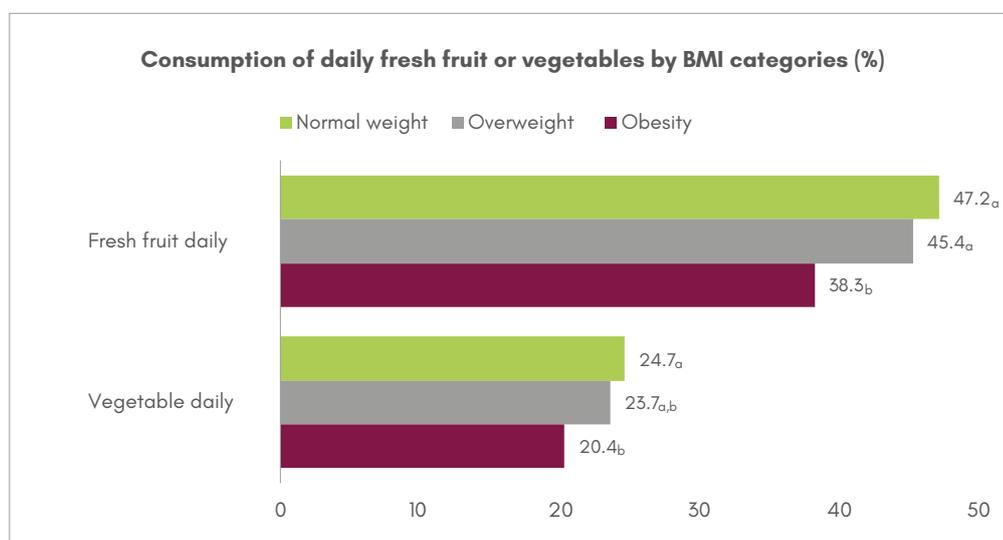
## > EATING HABITS

70% of families report that their child has more than just a beverage for breakfast every day, while 6.2% never do so, reflecting a worsen in this last figure compared to 2019 (3).

Regarding the response of schoolchildren about breakfast on the day of the measurement, the percentages of those who did not eat breakfast at all are higher in those living with obesity than those with normal weight (9.1% compared to 6%). In contrast, it is observed that eating breakfast every day is more frequent among schoolchildren with normal weight compared to the group with obesity, both declared by the families and the schoolchildren on the day of the assessment.

The breakfast combinations that schoolchildren declared on the day of the measurement included pastries or biscuits in the highest proportion.

The daily consumption of fresh fruit or vegetables is significantly higher in the population group with normal weight compared to the one with obesity.



Note: The values that do not share the same subscript in each food category are significantly different in  $p < 0.05$ .

As for foods that should be eaten only occasionally, the ones most frequently consumed by schoolchildren more than three days a week, include sweet snacks (26.8%), smoothies/milkshakes (9%) and savoury snacks (5.3%).

The proportions of regular consumption (more than three days) of smoothies/milkshakes, sugary soft drinks, sugar-free soft drinks, savoury snacks and the group consisting of pizzas, chips, hamburgers, sausages or pasties are higher in schoolchildren with obesity. Their consumption has increased within this group and among the group with overweight since 2019 (3).

### > PHYSICAL ACTIVITY, SEDENTARY LIFESTYLE AND SLEEP DURATION

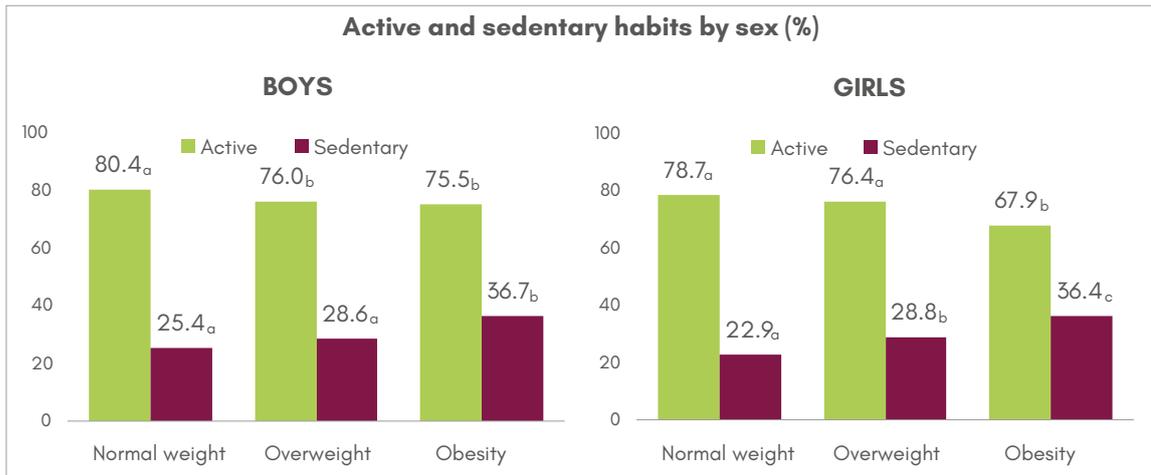
The percentage of boys participating in any extracurricular physical activity, as well as those who dedicate at least two hours a week to them, remains higher than that of girls (89.3% vs. 86%, and 84.3% vs. 79%, respectively). In any case, these figures indicate an increase compared to previous editions of the study, along with a rise in the higher time ranges spent on these activities.

Likewise, the percentage of children who meet the recommendation of at least one hour per day (both on weekdays and weekends) dedicated to moderate to vigorous physical activity or play (5), is 77.5% (78.3% boys and 76.7% girls), which also represents an increase compared to previous data.

However, screen time has also increased, occurring more frequently in boys, both on weekdays and weekends, and by age, in the 9-year-old group for both sexes. Thus, 9.2% of children spend 3 or more hours on weekdays of screen time, rising to 44.4% during the weekend (46% in boys and 42.7% in girls).

When analysing sedentary habits as a whole (defined as three hours a day or more, both during the week and at the weekend, to do homework/read, watch television or use screen-based electronic devices, apart from homework), the percentage of sedentary schoolchildren is 26.9% without significant differences between sexes, and meaning an increase compared to previous edition's data (3).

The school population with obesity is the one that has the highest sedentary habits and, in contrast, has a lower percentage of moderate to vigorous physical activity or play.



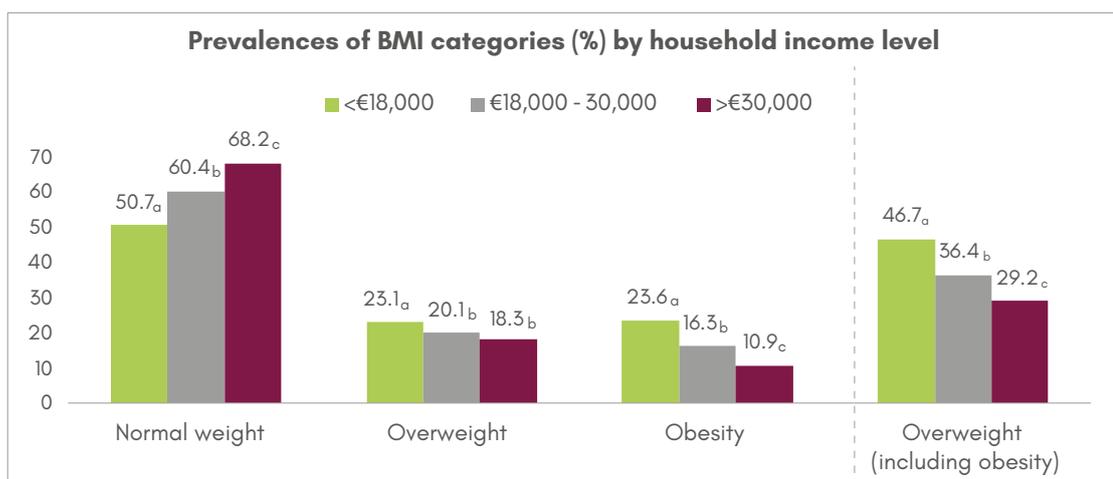
Note: The values that do not share the same subscript in each series by sex are significantly different in  $p < 0.05$ .

Besides, children living with obesity have a computer, television/DVD and video game console in their room to a larger extent than those with normal weight.

Finally, 97.9% of the population aged 6 to 9 years old sleeps more than 9 hours a day and 65.7% more than 10 hours a day.

### > FAMILY ENVIRONMENT

The prevalences of childhood overweight and obesity are higher in households with an annual gross income of less than €18,000, while they significantly decrease in those with an income of more than €30,000.



Note: The values that do not share the same subscript in each BMI category are significantly different in  $p < 0.05$ .

Otherwise, it is observed that the prevalence of childhood obesity increases significantly the greater the difficulty in the home to make month ends meet, as declared by the parents.

Furthermore, the percentage of schoolchildren with obesity is significantly lower in households where either the mother or the father has a university degree (11.1%), compared to households where parents declare a maximum level of secondary or primary education (19.7% and 20.5% respectively).

Similarly, the prevalences of overweight, and especially obesity, are higher when the mother or father is not in paid job, than when they are in paid job.

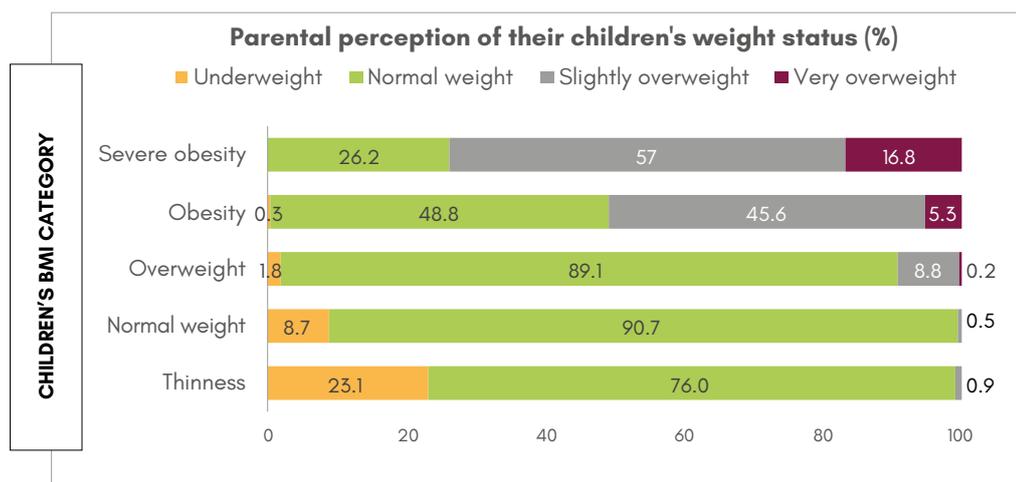
### > FAMILY HEALTH AND PARENTAL PERCEPTION OF THEIR CHILDREN'S WEIGHT STATUS

In relation to family health history, the percentage of any diagnosis of diabetes and high blood pressure in the parents is higher among children with overweight and obesity, compared to those with normal weight.

Likewise, the prevalence of overweight, and especially obesity in the children increases significantly as the weight of the father or mother increases (the prevalence of childhood obesity goes from 9.2% to 29.4% when the father has normal weight compared to when living with obesity; and from 10.1% to 30.6% in this same case for the mother).

Finally, most parents consider their son or daughter to have a normal weight, although this perception does not correspond to the child's real status.

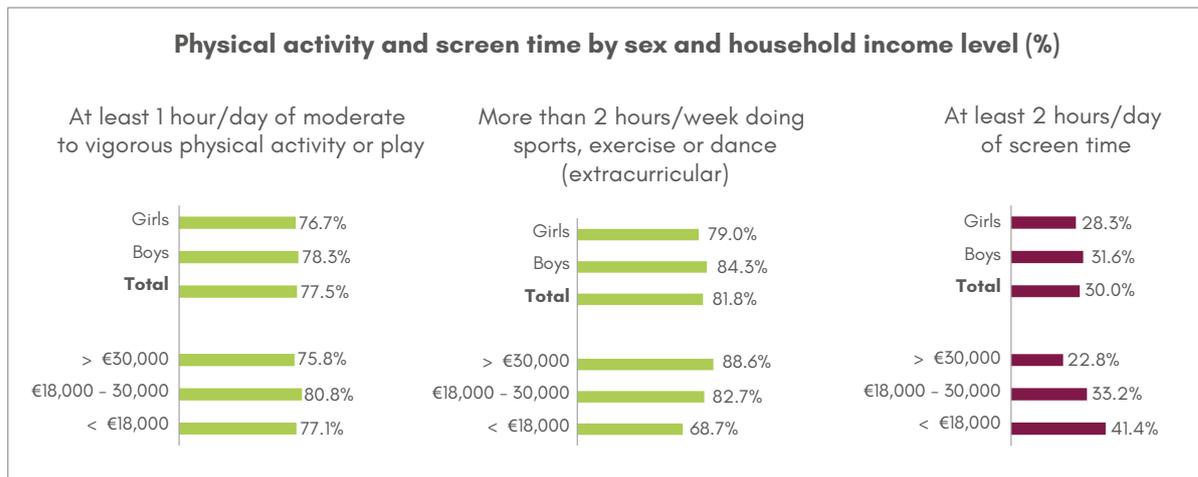
Among schoolchildren with overweight and obesity, 89.1% and 48.8% of their parents respectively consider that they have normal weight, while among children living with severe obesity, the most frequent perception, in 57% of families, is that they are slightly overweight.



### > RELATIONSHIP BETWEEN INCOME LEVEL AND LIFESTYLE HABITS

In lower-income families, the proportion of schoolchildren who eat a breakfast of more than just a beverage every day is lower than in high-income families (61% vs. 78%), while the consumption of sugary soft drinks more than three days a week is multiplied by eight in the low-income ones (7.8% vs. 0.9% in high-incomes).

On the other hand, percentage of schoolchildren from families with a low-income level who perform at least two hours of extracurricular sports (68.7%) is lower than that of the highest income group (88.6%), and, conversely, the proportion of schoolchildren who spend more than 2 hours per day of screen time (both on weekdays and weekends), doubles in children from low incomes (41.4% vs. 22.8% in high-incomes).



## > SCHOOL ENVIRONMENT

100% of schools include the practice of physical activity in their curricular program, devoting more than 60 minutes weekly to physical education classes in all cases, and being taught between two and three hours a week in all years, in more than half of the participating schools.

99.1% of these schools have outside playgrounds and in more than eight out of ten of these schools, children are allowed to use it outside school hours. In addition, 77.3% of schools have an indoor gymnasium or sport hall with 66.1% allowing to use it outside school hours.

In relation to eating habits at school, 93.8% of schools have a school canteen service. Of which 51.2% have their own kitchen facilities and 47.6% use an external service. Approximately half of the population studied regularly uses the school canteen, with a lower percentage as the age of schoolchildren rises.

In the context of the "School Program for the Consumption of Fruit, Vegetables and Milk", financed by the European Union (6), 54.4% of the schools provide free fruit to primary school students of all levels, while 31.4% provide milk and 21.8% vegetables.

Percentage of children with access to free water in the school is significantly higher among those with normal weight compared to the group with overweight and obesity.

Primary school children have access to food purchased in stores or cafeterias in 8.3% of the schools and to vending machines with food other than water, fruit or vegetables in 1.6% of the schools surveyed. 96.2% of schools are free from advertising and marketing of high-energy and nutrient-poor food and beverages.

## > CONCLUSIONS

The current edition of ALADINO study shows a decrease in the prevalence of overweight (including obesity), overweight and obesity compared to the previous edition of 2019 (3), although maintaining very high figures, in which more than a third of the population aged 6 to 9 years is living with overweight (including obesity). These prevalences have been decreasing since the first edition in 2011, but it is in the last one that the most marked decrease has occurred with a drop of 4.5 points in overweight (including obesity).

Regarding the factors associated with obesity, differences are observed between eating habits (including those of the first years of life), physical activity, sedentary lifestyle and the family environment, with respect to the Body Mass Index status of schoolchildren.

The inverse relationship of childhood overweight (including obesity) with the income level of families continues to be observed, in such a way that the prevalences of overweight (including obesity) and obesity increase in schoolchildren from households with the lowest level of gross income. The same applies to the parent's educational attainment and employment status.

The results of the ALADINO 2023 study show the need to continue promoting healthy habits in conditions of equity for the entire children population.



## > REFERENCES

1. World Health Organization. Regional Office for Europe. Brief review of results from round 6 of COSI (WHO European Childhood Obesity Surveillance Initiative) 2022-2024 [Internet]. Available in: <https://www.who.int/europe/publications/m/item/brief-review-of-results-from-round-6-of-cosi-2022-2024>
2. WHO European Childhood Surveillance Initiative (COSI) Guidelines on data processing and cleaning. [Internet]. 2022. Available in: [https://www.aesan.gob.es/AECOSAN/docs/documentos/nutricion/observatorio/COSI\\_Guidelines\\_on\\_Data\\_Processing\\_and\\_Cleaning\\_2021\\_2023.pdf](https://www.aesan.gob.es/AECOSAN/docs/documentos/nutricion/observatorio/COSI_Guidelines_on_Data_Processing_and_Cleaning_2021_2023.pdf)
3. Agencia Española de Seguridad Alimentaria y Nutrición. Ministerio de Consumo. Estudio ALADINO 2019: Estudio de Vigilancia del Crecimiento, Alimentación, Actividad Física, Desarrollo Infantil y Obesidad en España. [Internet]. 2020. Available in: [https://www.aesan.gob.es/AECOSAN/web/nutricion/detalle/aladino\\_2019.htm](https://www.aesan.gob.es/AECOSAN/web/nutricion/detalle/aladino_2019.htm)
4. World Health Organization. Breastfeeding [Internet]. Available in: <https://www.who.int/es/health-topics/breastfeeding>
5. World Health Organization. WHO guidelines on physical activity and sedentary behaviour [Internet]. Organización Mundial de la Salud; 2021. Available in: <https://iris.who.int/handle/10665/349729>
6. Real Decreto 511/2017, de 22 de mayo de 2017, por el que se desarrolla la aplicación en España de la normativa de la Unión Europea en relación con el programa escolar de consumo de frutas, hortalizas y leche. BOE (Boletín Oficial del Estado) núm. 124, de 25 de mayo de 2017. [Internet]. 2017. Available in: <https://www.boe.es/buscar/act.php?id=BOE-A-2017-5776>



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