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Editorial

Are we on the right track to reduce childhood obesity?

¿Estamos en el camino correcto para reducir la obesidad infantil?

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The link between obesity and the risk of cardiovascular disease, cancer, and type 2 diabetes mellitus is strong enough to consider the condition a public health priority, particularly because many factors involve modifiable habits and because childhood obesity is related to adult obesity.[1] Much remains to be done to halt the advance of this 19th-century disease, and there is no time to lose. According to the World Health Organization (WHO) 2016 Global Strategy on Diet, Physical Activity and Health, the number of children and adolescents aged 5 to 19 years with obesity has risen 10-fold over the past 4 decades; if current trends hold steady, in 2022 there will be more children and adolescents with obesity than with moderate or severe underweight.

An article recently published in *Revista Española de Cardiología* by Aranceta-Bartrina et al.[2] describes the results of the Nutritional and Eating Habits Study on the Spanish Population (ENPE), which included 1601 participants aged between 3 and 24 years and confirms that childhood and adolescent obesity is a lingering problem in Spain. The figures reported by the authors are a cause for concern, because 34.1% of their overall study population was overweight, and 8.6% to 10.3% were obese, regardless of the criteria or references used for diagnosis. These numbers are higher than those published in Spain in a recent meta-analysis[3] that analyzed data from a large number of participants in 103 studies conducted in 28 European countries (n = 477 660). This systematic review indicates that excess weight (sum of overweight and obesity prevalence rates) affects 32.1% of Spanish children aged 7 to 13 years, putting Spain in fifth place behind Greece (36.8%), Italy (35.2%), Malta (34.5%), and Cyprus (34.3%). The review also pointed out that between 1999 and 2016, excess weight showed a tendency to drop among younger children (2-6 years old) and appeared to stabilize as of age 7 years.

However, these findings are contradicted by the ENPE study, as the prevalence rates of overweight and obesity among children and adolescents obtained in the study were higher than those reported in prior countrywide studies performed in Spain from 1985 until now. As described in detail in another article by the main author,[4] the lowest numbers were reported by the PAIDOS study[5] (4.9% obesity in children between ages 6 and 13 years) and the enKid study[6] (18.1% overweight and 10.4% obesity between ages 2 and 24 years). The highest rates found for the same time frame are from a study based on the National Health Survey in Spain (ENSE), which published figures of 37% overweight and 14.7% obesity for the age bracket of 5 to 9 years. All ENSE data were parent-reported, which should be taken into consideration because the level of consistency with body measurements suggests that the data may not be entirely reliable.

If the results of the ENPE study from children and adolescents in different autonomous communities are published, it will be interesting to compare them with other regional studies. For instance, the overall rates of overweight and obesity, based on body mass index (BMI), were higher in ENPE than the rates obtained in a contemporary study[7] with nearly 2000 Spanish schoolchildren aged 7 to 16 years residing in the Community of Madrid. The latter study included measurements taken between 2016 and 2018 and reported a prevalence of 27.23% and 7.53% for overweight and obesity, respectively. The ENPE levels were also higher than figures from other studies undertaken between 2013 and 2014 in 7438 Galician schoolchildren[8] that reported a prevalence of 33.1% (24.9% overweight and 8.2% obesity).

Interestingly, the ENPE study used 3 diagnostic alternatives to the use of BMI: the cut-off points defined by the International Obesity Task Force (IOTF), the WHO standards and references, and the national growth standards sponsored by the Orbegozo Foundation.

Among the scientific community, there is some debate about which growth charts and tables should be used to assess nutritional status, because the results can vary noticeably according to the reference ranges used, as seen in these ENPE study results. National charts are always of interest because pediatrics departments tend to use those standards, making large-scale studies possible; however, there are certainly some limitations for international comparisons. In the case of the Orbegozo Foundation standards, the sample population is from the province of Vizcaya, which is also not necessarily representative of the country as a whole.

In 2006, the WHO published child growth standards for ages 5 years and younger, prepared from a sample of children in cities on 4 continents: Pelotas (Brazil) and Davis (United States) in the Americas, Accra (Ghana) in Africa, Delhi (India) and Muscat (Oman) in Asia, and Oslo (Norway) in Europe. The research was based on a

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semilongitudinal design, and the children enrolled had been exclusively breastfed for at least 4 months and had nonsmoking mothers. In 2007, this agency also published the WHO references for ages 5 to 19 years, although in this case old data were statistically processed for the First National Health and Nutrition Examination Survey in the United States (NHANES I) and no body measurements were taken in a new sample. A restricted application of the LMS method was used, making it possible to plot adjusted growth charts using Box-Cox transformation (L), median (M), and coefficient of variation for BMI at each age (S).

However, the IOTF prefers to use the BMI references for ages 2 to 18 years published by Cole et al.,[9] which are cut-off points that can classify participants of either sex into various categories of thinness and overweight. These age-adjusted BMI limits are equivalent to those proposed by the WHO for nutritional diagnosis of adults and were obtained from an international sample taken over 3 decades: Brazil (1989), United States (1963-1980), United Kingdom (1978-1993), Netherlands (1980), Hong Kong (1993), and Singapore (1993).

In view of the lack of consensus, some groups, such as the European Childhood Obesity Group (ECOG),[10] recommend that both the WHO and IOTF references be used for easier comparisons between time periods and population groups. The ECOG also proposes using BMI along with other body measurements that provide further information on the amount and distribution of fat, such as skinfold thicknesses and body circumferences.

Another relevant aspect of the ENPE study is that it includes the prevalence of abdominal obesity (AO), as measured by waist circumference and waist-height ratio. As explained by Aranceta-Bartrina et al.,[2] there are a paucity of data on AO in children and adolescents, even though it is known to be associated with cardiometabolic risk in childhood and adolescence. The waist-height ratio, widely used in the adult population, has proven to be an accurate indicator when screening for factors related to metabolic syndrome in childhood and adolescence, particularly hypertension.[11] The prevalence of AO based on waist-height ratio (> 0.5) was 31.2% in the ENPE, a figure nearly as high as that obtained in the above-mentioned study by Calderón et al.[7] in Madrid schoolchildren, and somewhat higher than that reported for Galician schoolchildren aged 6 to 15 years (25.8%). In fact, AO tends to be concomitant with overall obesity (classified by BMI), but 4% to 8% of boys and girls with normal weight have a high waist circumference.

The variability in overweight, obesity, and core obesity figures reported for Spain in recent publications can be explained by differences in the age brackets analyzed, even though those publications used the same diagnostic methodologies and criteria. Additionally, several studies have been conducted nationwide, such as the ENPE, with proportional representation of the various Spanish autonomous communities, whereas others have been carried out in specific provinces or communities. Joint research efforts using the latest information should be undertaken in Spain for a more meticulous analysis of nutritional status based on geographic diversity, rural residency rates, and socioeconomic levels, among other factors potentially leading to inequalities in lifestyle habits and, therefore, prevalence of poor nutrition due to overeating. In our opinion, a detailed, in-depth understanding of the extent of child and adolescent obesity is an enormously important tool to raise awareness and motivate the public and the health authorities.

Notwithstanding differences between studies, there is no question that the ENPE study and other national and regional studies reveal that overweight and excess abdominal fat affect approximately 4 of every 10 Spanish children and young people. This is despite efforts made by governmental and autonomous community agencies and by the private sector (companies and foundations), especially since implementation of the NAOS (Nutrition, Physical Activity, and Obesity Prevention) strategy in 2005. The current obesity "epidemic" has various causes, all shared with other developed countries in our region. In Spain, the dietary shift has been characterized by an increase in total calorie consumption and gradual laxity in Mediterranean dietary habits. Since the 1960s, the percentage of animal fat and protein and of sugar-laden products with few nutrients (eg, candy, soft drinks) has risen, while the consumption of bread, grains, and legumes has fallen. This phenomenon, along with the rise in sedentary lifestyles and the decline in the amount of sleep, has led to greater obesity in adults as well as in children and adolescents. Excess intake of high-calorie, high-fat, and high-sugar processed foods and physical inactivity in connection with urbanization and changes in transportation methods are certainly determining factors.

The latest Global Matrix 2.0 report[12] rated Spain as "C" based on all the indicators for average physical activity levels. In fact, according to the same sources, only 81% of schoolchildren meet the WHO recommendation of 60 minutes of daily exercise, and Spain is ranked among the most sedentary in Europe. Furthermore, according to the 2018 report from the Health Behaviour in School-aged Children (HBSC) study on healthy habits among young schoolchildren, which had a Spanish sample of 40 495 participants aged 11 to 18 years, only 34.7% of schoolchildren eat fruit every day.

Childhood is undoubtedly an ideal time to implement strategies that promote healthy habits due to the extraordinary brain plasticity at early ages, and school is an appropriate setting because it occupies much of children's time for many years.[13] However, focusing only on a specific group is insufficient to counteract the pressure of the obesigenic environment that surrounds us. Efforts to foster healthy habits should not be limited to the classroom, but should also reach out to families because children's habits are clearly influenced by their caregivers' habits and because socioeconomic characteristics can play a key role in the effectiveness of these actions.[13,14] One possible way to reach the entire spectrum of the population are programs that take into account the social strata and that target multiple settings, such as school, work, health centers, and elderly care facilities. This approach (despite the challenge of requiring program adaptation to the specific needs of each age and setting) would bring us much closer to ensuring that the whole population receives the nutritional education needed to sustain a healthy lifestyle, which is often the initial limitation. Although the nutritional component is key, the best approach is to address the multiple factors contributing to obesity through multiple types of interventions, as they broaden the classic programs that simply try to encourage physical activity or healthy eating. In fact, one of the goals of the WHO's 2013-2020 Global Action Plan for the Prevention and Control of Noncommunicable Diseases is to stop the rise in obesity and to achieve other goals related to physical activity, salt intake, smoking, and hypertension. An example of an educational intervention that encompasses several aspects and various levels of intervention is SI! (Spanish for YES!), a comprehensive health program being implemented in children and adolescents aged 3 to 16 years and their families and teachers as well as in the school setting itself.[14–16] This educational program seeks to implement or maintain healthy lifestyle habits in terms of diet, physical activity, and emotional management for cardiovascular health. Emotional management can work on various aspects, such as self-esteem, emotional eating, and self-efficacy in smoking cessation, using age-appropriate content as mentioned earlier. The broad concept of cardiovascular health helps to make sense of the skills acquired in terms of healthy habits, focusing on health and on the benefits of physical activity or foods based on composition, and moving away from fads or beauty stereotypes. This initiative, as well as many other school-based efforts that tackle various aspects and levels of

intervention,[17] has already been beneficial, but there is still a long road ahead. The long-term effectiveness of these efforts should be analyzed, and they should be enhanced by social commitments, most particularly a commitment from government, to cultivate a healthy environment available to the entire population. For instance, achieving real progress in establishing healthy habits is difficult when the food industry and the media are an unquestionable influence, often with confusing messages for consumers. Although current legislation requires more detailed nutrition labels and more truthful information, it may be an unsuccessful effort unless accompanied by proactive nutritional education of the population. Only a comprehensive approach undertaken by everyone and for everyone will reduce obesity rates and eliminate the threat.

CONFLICTS OF INTEREST

None declared.

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