

## Editorial

## Use of primary care electronic medical records for research purposes: is it taking off?



## Uso de registros clínicos electrónicos en atención primaria con fines de investigación: ¿despegando?

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The general increase in unhealthy lifestyle habits such as sedentariness and consumption of foods of low nutritional value is causing high rates of overweight and obesity starting in childhood.<sup>1</sup> This can lead to the early onset of metabolic and cardiovascular disorders that can persist into adult life.<sup>1</sup> Although several studies have analyzed trends in overweight and obesity from the preschool age to adolescence in Spain, few have looked at this subject on a larger scale and taking into account regional differences.

In a recently-published article in *Revista Española de Cardiología*, Bont et al.<sup>2</sup> analyzed anthropometric data from 2.5 million children aged 2 to 17 years from 8 of Spain's autonomous communities (Aragon, Asturias, Cantabria, Catalonia, Castile and León, Madrid, Murcia, and Navarre), collected longitudinally in 2 electronic databases of primary care medical records: the Database for Pharmacoepidemiologic Research in Primary Care (BIFAP, from its Spanish initials)<sup>3</sup> and the Information System for Research in Primary Care (SIDIAP)<sup>4</sup>. The analysis included all children with at least 1 weight and height measurement recorded during the same appointment between January 1, 2005 and December 31, 2017 (except Castile and León, where the start date was January 1, 2011). The analysis performed by Bont et al. showed that the overall prevalence of obesity in children increased from 2 years of age (0.8% in both sexes) to a peak at 7 years in girls (17.3%) and 9 years in boys (24.1%); the highest incidence rates of overweight and obesity occurred in the age group 6 to 7 years. The cohort had a high prevalence of overweight (including obesity), reaching its highest (~45%) at age 9 years in both sexes. The regions with the highest and lowest prevalence of overweight and obesity were Murcia and Navarre, respectively. The overall trend in the prevalence of overweight and obesity was a slight decrease from 2005 to 2017 in all age and sex groups and in most of the

autonomous communities included in the study. In all the regions assessed, boys had higher incidence and prevalence rates than girls.

The authors found slightly lower overall prevalence rates than the data from the National Health Survey from the period 2001–2010 or studies with national representation such as the ALADINO study—a national study of diet, physical activity, childhood development, and obesity in Spain based on 2019 data.<sup>5</sup> As the authors mentioned in their article, this lower observed rate of overweight may have been influenced by the lack of representation from Andalusia and the Canary Islands, where historically a higher prevalence of obesity has been documented. Furthermore, when they analyzed prevalence rates and trends, the different age ranges included in each study and the different criteria used to categorize overweight determined to a large extent the comparability of the data. For example, in the recent ENPE study—a study of the nutrition and dietary habits of the Spanish population—they found a higher overall prevalence of both overweight and obesity when using the World Health Organization criteria than when using the cutoff points proposed by the International Obesity Taskforce (IOTF) and those that are generally used as national references from the *Fundación Orbegozo*.<sup>6</sup> In the age ranges 3 to 8 and 9 to 18 years, which are closest to the range in this study, they found a prevalence of overweight of 39.8% and 34%, respectively, and of obesity, 15.9% and 11.6%. However, although this sample was representative of Spain as a whole, the sample size was much smaller, and the prevalence data did not reach 600 data points for the age group 3 to 18 years, although other relevant variables were included such as abdominal obesity and different weight classification criteria.

Although the ENPE<sup>6</sup> study estimated a higher prevalence of overweight than that observed in the enKid study of childhood and juvenile obesity in Spain, conducted between 1998 and 2000, and the PAIDOS'84 epidemiological study of nutrition and childhood obesity,<sup>7</sup> conducted in the 1980s, the overall trends in the prevalence of overweight and obesity decreased from 2005 to 2017 in all age groups in most of the autonomous communities included in the study by Bont et al.<sup>2</sup> In an extensive meta-analysis that shows the trends in overweight between 1999 and 2016 from

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almost half a million children aged 2 to 13 years in 28 European countries,<sup>8</sup> they also noted a decreasing trend in the prevalence of overweight and obesity in children up to 6 years of age, which stabilized from age 7 years. This trend should encourage us to keep championing health promotion from a very early age. As the authors noted in their conclusion, public health interventions at an early age are essential. In fact, recent studies indicate that such interventions should be started as early as possible.<sup>1</sup> A greater weight gain between 2 and 6 years old has been strongly associated with overweight in adolescence, and furthermore, the probability of returning to a normal weight in adolescence is less than 20% and decreases with age.<sup>9</sup> In those with remission of overweight before age 13 years, the probability of comorbidities such as type 2 diabetes can be similar to that of adolescents who have never been overweight.<sup>10</sup> Therefore, interventions in the educational setting represent a unique opportunity to promote healthy habits from a preschool age, and many initiatives have been carried out with very good outcomes. Some of them have involved large samples, such as the European study Identification and Prevention of Dietary- and Lifestyle-induced Health Effects in Children and Infants (IDEFICS), which included a cohort of more than 16 000 schoolchildren aged 2 to 9 years from 8 European countries who were reassessed in the follow-up study iFAMILY<sup>11</sup>. The same is true of the *SI!* comprehensive health program, which has been expanded to include more than 30 000 schoolchildren aged between 3 and 16 years in various regions of Spain,<sup>12–14</sup> Bogota (Colombia),<sup>15</sup> and Harlem (New York, USA).<sup>16</sup>

This type of school-based interventional study provides access to indicators of health that go beyond those used in everyday clinical practice, such as subcutaneous fat folds or waist and hip circumference, supplying very useful information for the assessment of nutritional status, which is very limited if using only body mass index. With these interventional studies, we must assume a degree of bias due to the voluntary nature of participation. Although the use of monitoring tools via primary care can partially avoid this bias, we should also consider the logistical implications of performing the measurements in educational centers. In this respect, large-scale monitoring initiatives are an excellent instrument. For example, the European Childhood Obesity Surveillance Initiative (COSI) by the World Health Organization for the standardized surveillance of childhood obesity in Europe is collecting data on weight, height and waist and hip circumference from 250 000 children, providing national representative data from 36 countries. This study, although it includes only the age range 7 to 9 years, will provide important data for the prevention of obesity such as socioeconomic indicators, rural vs urban setting, and data on dietary habits and physical activity.

Although the study by Bont et al.<sup>2</sup> does not include representation from all the regions of Spain and there are no data on the degree of urbanization or other indicators of nutritional status besides body mass index, the authors should be congratulated for using systematic electronic records of clinical data for research purposes. Despite the limitations, this is a very valuable instrument for conducting epidemiological studies and is commonly used in countries such as the USA, Canada, the United Kingdom, Denmark, and Sweden, among others. Furthermore, it could improve the speed and efficiency of conducting pragmatic randomized trials.<sup>17</sup> Although the implementation and use of this type of record has arrived a little later in Spain, a growing number of initiatives are trying to address this need. To this end, BIFAP<sup>3</sup> and SIDIAP<sup>4</sup> are key sources of primary care data in Spain: between the two of them they provide data on almost 20 million individuals from different autonomous communities. As of September 3, 2021, 172 published articles had been identified in the search engine PubMed using the following terms: “(BIFAP[Title/Abstract]) OR (SIDIAP[Title/Abstract])”; these articles were checked individually

by reading their abstracts, and there was a clear increase in the number of scientific studies that have used at least 1 one these 2 databases in recent years. In addition, the 160 studies included in the Web of Science between 2010 and 2021 using the same search criteria were of noteworthy quality. Up to the aforementioned date, these studies had received a total of 2238 citations, and they include publications of original articles in high-prestige international journals in their respective areas, such as the *Lancet*, the *British Medical Journal*, the *Journal of the American College of Cardiology*, and *Annals of the Rheumatic Diseases*.

Given the potential with the systematic use of databases whose information is collected by primary care professionals, the scientific community must make a joint effort to encourage this and achieve a large-scale representative map. We are talking about millions of data that could potentially be analyzed by region, rural vs urban environment, or local socioeconomic indicators, and which, most importantly, have the guarantee of being collected in a standardized manner and by health care professionals.

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## CONFLICTS OF INTEREST

The authors declare no conflict of interest in relation to the contents of this article.

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