

## VITAL STATISTICS

**Overweight and obesity in Mexican children under 20 years of age**Sonia B. Fernández Cantón,<sup>1</sup> Yura A. Montoya Núñez,<sup>1</sup> and Ricardo Viguri Uribe<sup>2</sup>

An infrequent, but high impact, term is “nutritional transition”, which explains the coexistence of overweight and obesity with the ever-existing problems of malnutrition and nutritional deficiencies in Mexican children and adolescents. Excess weight in children is now one of the most serious public health problems primarily because obesity is a risk factor for several chronic conditions whose care and treatment require high financial costs. In addition, the epidemiological impact is that, apparently, there is a significant correlation between weight in childhood to that in adult life. In this regard, detection and early treatment of childhood obesity is important because it is the best time to try to prevent disease progression and its associated morbidity. In the last decade, obesity has become a silent epidemic that encompasses different aspects of social and public health, especially in school-age populations, adolescents and young adults. In Mexico, there is an increasing trend in this condition as reported by nutritional surveys carried out on three separate occasions.

Obesity and overweight are defined as abnormal or excessive accumulation of fat that can be harmful to health and are the result of an imbalance between intake and energy expenditure. This imbalance is often caused

by ingestion of diets low in fiber, high in energy density, and sweetened beverages, combined with low physical activity (excessive use of television and video games).

According to results from the National Health and Nutrition Survey (ENSANUT) in 2006 and its comparison with the results of the National Nutrition Survey 1999 (NNS), the numbers of overweight and obesity in children and adolescents represented by the national prevalence of overweight and obesity in children aged 5 to 11 years according to the IOTF criteria (International Working Group on Obesity) was about 26% for both genders (26.8% in girls and 25.9% in boys). The most significant increase in the prevalence of obesity was in boys (from 5.3 to 9.4, 77%) and in girls (from 5.9 to 8.7, 47%) (Figure 1).

With regard to the adolescent population, the prevalence of overweight was greater in females (23.3 vs. 21.2%). On the contrary, obesity was slightly higher in adolescent males. It should be noted that obesity is increased according to age gradient in the teenage years from 7.5 to 10.3%. The tendency for obesity in adolescents >15 years was more frequent in 2006.

According to the behavior disaggregated by age, Table 1 shows that the percentage of overweight was higher among girls aged 5-11 years (18.1 vs. 16.5%). On the other hand, obesity was higher in children (9.4 vs. 8.7%).

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**Figure 1.** Prevalence of overweight and obesity in the population of 5-11 years of age according to gender

**Table 1.** Prevalence of overweight and obesity in the population of 5-11 years of age according to age and gender

<b>Male</b>								
Age in years	Overweight				Obesity			
	Sample number	Number (thousands)	Expansion %	95% CI	Sample number	Number (thousands)	Expansion %	95% CI
5	117	145.3	12.9	(9.26,17.63)	78	54.7	4.8	(3.51,6.65)
6	126	150.4	14.5	(11.27,18.37)	86	101.5	9.8	(6.53,14.36)
7	141	137.2	13.4	(10.69,16.76)	100	79.3	7.8	(6.00,9.99)
8	169	150.4	13.9	(11.11,17.25)	130	133	12.3	(9.46,15.82)
9	235	256.9	21.2	(16.70,26.54)	123	132.7	11	(8.14,14.58)
10	246	212.2	17	(14.12,20.44)	134	107.7	8.6	(6.74,11.03)
11	245	245.4	21.2	(17.69,25.27)	123	130.3	11.3	(8.82,14.31)
<b>Total</b>	<b>1 279</b>	<b>1 279.7</b>	<b>16.5</b>	<b>(15.09, 17.93)</b>	<b>774</b>	<b>739</b>	<b>9.4</b>	<b>(8.42,10.43)</b>

  

<b>Female</b>								
Age in years	Overweight				Obesity			
	Sample number	Number (thousands)	Expansion %	95% CI	Sample number	Number (thousands)	Expansion %	95% CI
5	158	140.6	12.6	(9.91,15.92)	80	96.1	8.6	(5.49,13.28)
6	131	155.9	13.7	(10.40,17.87)	84	79.6	7	(5.09,9.58)
7	162	150.8	16.1	(12.83,20.04)	94	93.7	10	(7.55,13.17)
8	189	186.7	17.5	(14.30,21.32)	99	95.3	8.9	(6.85,11.62)
9	236	284.4	23.2	(18.36,28.84)	114	104	8.5	(6.45,11.07)
10	254	242.8	20	(16.74,23.74)	112	125.2	10.3	(7.64,13.82)
11	262	271.2	21.8	(18.33,25.83)	101	95.7	7.7	(5.97,9.89)
<b>Total</b>	<b>1 392</b>	<b>1 432.4</b>	<b>18.1</b>	<b>(16.62, 19.58)</b>	<b>684</b>	<b>689.6</b>	<b>8.7</b>	<b>(7.62,9.91)</b>

Mexico, ENSANUT 2006.

In addition, it appears that the frequency of overweight in boys (12.9-21.2%) and girls (12.6-21.8%) of 5 to 11 years of age increased progressively according to age. In relation to obesity, the behavior of frequency, in general, has the same tendency to increase with age. In boys it was 4.8-11.3% and 8.6-7.7% for girls.

Regarding the profile of the population aged 12-19 years, the results of the ENSANUT 2006 show that one in three male and female adolescents are overweight or obese. There were approximately 5,757,400 adolescents in the country during that year (Table 2).

It is important to note that the nutrition surveys conducted in 1999 and 2006 reported anthropometric results of children from 5 years of age. However, prevention of overweight and obesity should begin early in life (perhaps from the intrauterine period). We need to have information

on these stages of human growth. Health records generated by information systems are part of the surveillance with regard to these nutritional problems.

Consultations for overweight and obesity that occurred in each of the Mexican states in children <5 years old account for regional differences that exist today. The northern region of Mexico has shown, in a greater proportion than the other two regions, first consultations for overweight and obesity in children <1 year, 1 year and 2 to 4 years of age.

Finally, due to the importance of obesity as a risk factor for type 2 diabetes and other complications of high body mass index such as heart disease and hypertension, as well as the high costs involved in their care, timely implementation of evaluations and specific strategies to prevent the increase of overweight and obesity in children and adolescents is warranted.

**Table 2.** National prevalence of overweight and obesity in the population of 12-14 years of age according to age and gender

<b>Male</b>								
<i>Age in years</i>	<i>Overweight</i>				<i>Obesity</i>			
	<i>Sample number</i>	<i>Number (thousands)</i>	<i>Expansion %</i>	<i>95% CI</i>	<i>Sample number</i>	<i>Number (thousands)</i>	<i>Expansion %</i>	<i>95% CI</i>
12	250	301.1	22.1	(18.06,26.71)	137	145.7	10.7	(8.21,13.78)
13	267	371.2	24.9	(20.90,29.30)	130	132	8.8	(6.77,11.48)
14	201	256.5	18.4	(14.76,22.59)	115	183.8	13.2	(6.88,23.82)
15	223	291.2	22.9	19.08,27.34)	91	93.5	7.4	(5.58,9.67)
16	169	194.4	17.8	(14.29,21.90)	89	89.4	8.2	(5.93,11.18)
17	171	209.9	21.7	(17.51,26.52)	77	95	9.8	(7.19,13.26)
18	122	150.2	17	(13.23,21.67)	75	82.2	9.3	(6.84,12.60)
19	138	173.5	24.7	(19.59,30.65)	64	99.6	14.2	(9.12,21.40)
<b>Total</b>	<b>1 541</b>	<b>1 948.1</b>	<b>21.2</b>	<b>(19.68, 22.91)</b>	<b>778</b>	<b>921.3</b>	<b>10</b>	<b>(8.53,11.80)</b>
<b>Female</b>								
<i>Age in years</i>	<i>Overweight</i>				<i>Obesity</i>			
	<i>Sample number</i>	<i>Number (thousands)</i>	<i>Expansion %</i>	<i>95% CI</i>	<i>Sample number</i>	<i>Number (thousands)</i>	<i>Expansion %</i>	<i>95% CI</i>
12	261	297.6	24	(20.20,28.36)	100	93.1	7.5	(5.46,10.27)
13	263	319.7	23.8	(20.27,27.79)	88	94.5	7	(5.13,9.60)
14	254	287	24.7	(20.93,28.80)	98	106.3	9.1	(6.60,12.50)
15	240	293.4	23.9	(19.67,28.63)	89	143.7	11.7	(8.43,15.99)
16	227	259.2	22.1	(18.17,26.71)	77	76.2	6.5	(4.75,8.85)
17	188	215.2	20.6	(16.95,24.79)	89	114.2	10.9	(8.08,14.63)
18	211	270.3	24.2	(19.85,29.19)	98	128	11.5	(8.10,16.01)
19	188	221.7	22.3	(18.05,27.31)	85	101.9	10.3	(7.56,13.82)
<b>Total</b>	<b>1 832</b>	<b>2 164.1</b>	<b>23.3</b>	<b>(21.84, 24.78)</b>	<b>72.4</b>	<b>857.9</b>	<b>9.2</b>	<b>(8.17, 10.41)</b>

Mexico, ENSANUT 2006.