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# High Prevalence of Obesity Among the Poor in Mexico

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**To the Editor:** The burden of disease in developing countries has traditionally been characterized by undernutrition and infectious diseases. However, lifestyle in many developing countries now parallels that in the developed world, with increasing prevalence of overweight and obesity.<sup>1</sup> It is unclear, however, how the prevalence of obesity varies across levels of socioeconomic status within such societies. We examined the prevalence of overweight and obesity among the rural poor in Mexico in comparison with a national sample.

**Methods**

We obtained data from 2 national surveys in Mexico. The first was conducted in 2000 in 45 260 adults as part of the National Health Survey, which was designed as a multistage, stratified, and clustered survey, nationally representative of the Mexican noninstitutionalized population.<sup>2</sup> The second survey was conducted in 2003 in 12 873 adults as part of the Social Welfare Survey, which was designed to be representative of the poorest (income <20th percentile), rural (towns with <2500 inhabitants) communities in 7 Mexican states.<sup>3</sup> These regions had a mean daily per capita income of US \$2. Women were more likely to be sampled because they were more often at home when the surveys were conducted.

Height and weight in both surveys were measured by trained and standardized personnel using standard techniques. Body mass index (BMI) was calculated as weight in kilograms divided by the square of height in meters. Overweight was defined as a BMI of 25.0 to 29.9 and obesity as a BMI of 30.0 or higher, in accordance with World Health Organization recommendations.<sup>4</sup> Values of BMI greater than 60 were excluded as implausible (representing <0.05% of individuals). Variables of interest for this analysis were available for 42 800 (94.6%) of the 2000 survey respondents and 12 844 (99.7%) of the 2003 survey respondents. For both surveys, sampling weights took into consideration unequal probabilities of selection resulting from sample design and nonresponse. Both studies were approved by the National Institute of Public Health in Mexico Ethical Review Committee and the 2003 survey was also approved by the University of California, Berkeley Committee on Human Research. All participants provided written informed consent.

**Results**

In the 2003 sample from low-income, rural regions of Mexico, the combined prevalence of overweight and obesity was nearly 60% in women and more than 50% in men (Table 1), which was slightly lower than the prevalence found in the nationally representative sample from 2000 (67% in women and 61% in men). However, this difference was not significant.

**Table.** Prevalence of Overweight and Obesity in Women and Men in Mexico From a Nationally Representative Sample and a Sample of Low-Income Rural Mexicans\*

|                               | % (95% CI)                    |                     |                              |                   |
|-------------------------------|-------------------------------|---------------------|------------------------------|-------------------|
|                               | National Health Survey, 2000† |                     | Social Welfare Survey, 2003‡ |                   |
|                               | Women<br>(n = 29 418)         | Men<br>(n = 13 385) | Women<br>(n = 8905)          | Men<br>(n = 3964) |
| Age, yr                       | 40.9 (34.1-47.7)              | 46.1 (42.7-49.5)    | 36.1 (37.7-34.6)             | 47.8 (47.2-48.4)  |
| Underweight (BMI <18.5)       | 1.8 (1.6-1.9)                 | 1.9 (1.7-2.1)       | 1.3 (1.1-1.6)                | 1.9 (1.4-2.4)     |
| Normal weight (BMI 18.5-24.9) | 31.1 (30.7-31.5)              | 36.0 (35.6-36.5)    | 39.5 (37.4-41.6)             | 45.5 (45.0-46.0)  |
| Overweight (BMI 25.0-29.9)    | 36.5 (36.0-37.1)              | 40.4 (39.9-41.0)    | 36.8 (35.0-38.6)             | 38.9 (38.0-41.1)  |
| Obese (BMI ≥30.0)             | 29.2 (28.4-30.0)              | 26.4 (25.9-27.0)    | 22.2 (20.4-24.1)             | 13.6 (11.9-15.3)  |

\*BMI, body mass index; prevalence of overweight and obesity defined by World Health Organization. †Designed as a multistage, stratified and clustered survey, nationally representative of the Mexican noninstitutionalized population. ‡Designed to be representative of the poorest (income <20th percentile), rural (towns with <2500 inhabitants) communities in 7 states of Mexico. §Data presented as mean (95% CI).

**Comment**

There is a high prevalence of overweight and obesity in the poorest segment of the Mexican population, and the prevalence is only slightly lower than that reported for a nationally representative health survey. The survey does not contain data about differences among regions of Mexico. Although the data do not permit conclusions about the causes of obesity in this population, we note that the prevalence of obesity we found is equal to or higher than in other Latin American countries.<sup>5</sup> Thus, it is likely that the population of the entire region is at risk for the comorbid conditions that accompany overweight and obesity, including hypertension, insulin resistance, and diabetes, all of which substantially increase the risk for cardiovascular disease.<sup>1,4</sup> This high prevalence of obesity coexists with traditional diseases of the poor, such as linear growth retardation, anemia, and deficiency of micronutrients in children.<sup>6</sup>

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