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Obesity, poverty, and food insecurity in Brazilian males and females

Introduction

The obesity/food insecurity paradox has been present in the scientific literature for the past two decades¹, based mostly on evidence from the U.S. population. The potential mediators of such a paradox were recently reviewed. Overall, the review confirmed that food insecurity and obesity continue to be positively associated in women; new mediators were revealed (such as marital status, stressors, and participation in food aid programs) that may alter the association².

However, until now, publications on obesity among the population exposed to food insecurity in Brazil were scarce. Kac et al. provide such evidence in a series of papers adopting a life course approach to analyze obesity among Brazilian women and children affected by different degrees of food insecurity^{3,4,5}.

Trends of obesity versus poverty in Brazil

The association between poverty and obesity is somewhat recent in Brazil and affects adult males and females in different ways, as the analysis of a time series clearly points out. In 1975, when the first national anthropometric survey was conducted, one could see a typical “pre-nutrition transition” pattern for both males and females (Figure 1). Higher prevalence of obesity was present at the time in the higher income classes.

However, from 1989 onwards, weight gain patterns in women have shifted in the direction of an inverse relationship with income, especially in the lower income classes. Obesity among poor women rose steadily, and as a result, obesity reached equal magnitude among women of all income classes in 2009 (Figure 2). The prevalence observed in 2009 for all income categories was rather similar, varying from 15.1% among the lowest income women (per capita monthly income of less than one-fourth the minimum wage) to 15.8% in the highest income bracket (more than 5 minimum wages) (Figure 2). The same did not happen with males in the period under analysis: income has maintained a positive relationship with obesity in Brazilian men.

Gender differences in the relationship between obesity and poverty

In the first two periods analyzed the prevalence of obesity in women was roughly twice as high as in men. But this was not so for 2003 and 2009. Obesity prevalence in men rose steadily and in 2009 reached values comparable to women, although maintaining large differentials by income class.

A hypothetical explanation for the class differences observed in men is probably their job characteristics. Work by low-income men is more likely to involve heavy physical effort, as in construction work, manual labor, agriculture, etc.

Interestingly, in all surveys conducted from 1975 to 2009, Brazilian women in the highest income class always presented a somewhat lower prevalence compared to those at the next-to-highest income levels. A plausible explanation for this phenomenon is the money invested by upper class women in losing weight or remaining slim. In fact, slimming clinics, spas, and fitness clubs have become a booming investment area in Brazil.

Figure 3 shows the comparison of prevalence ratios by income levels for men and women. In both cases obesity in the wealthiest class was compared to the poorest. As mentioned before, data from 1975 showed huge differences in obesity between income brackets and displayed a more “classical” pattern: less obesity in the lower income brackets. The wealthiest men had 11 times greater odds of presenting obesity when compared to the poorest; for women, the odds were 3.4 times higher. Thus the “poverty/obesity” paradox was not observed in 1975. As decades passed, these differentials changed rapidly and dramatically for women, but not for men.

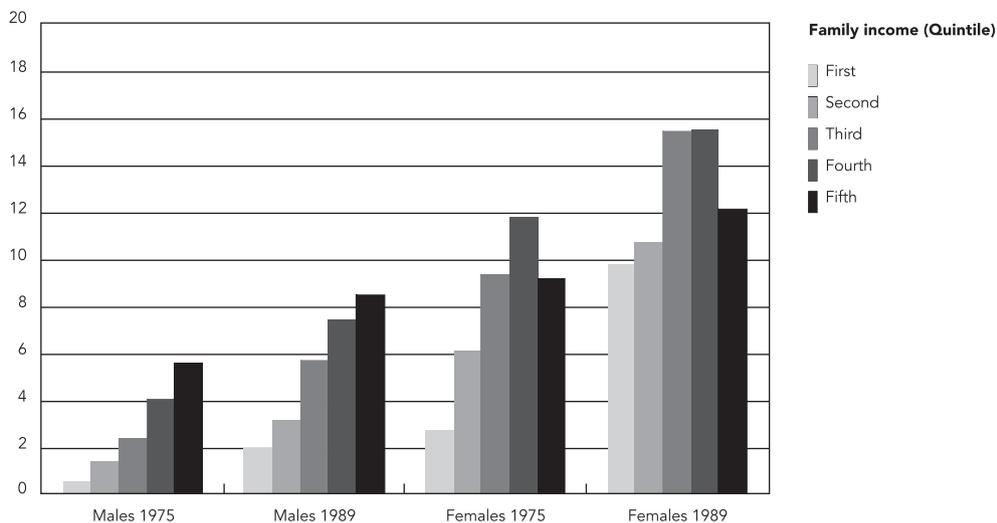
In women the prevalence ratio had already dropped markedly by 1989, reaching and sustaining levels close to one (indicative of no difference between income classes). The public health implications of such gender and class differences are clear. Obesity prevention policies under the Brazilian Unified National Health System (SUS) are designed to reach females of all social classes, as well as high-income males.

Obesity and food insecurity in Brazil

The three papers under debate^{3,4,5} carried out a robust analysis of national data from the *2006-2007 Brazilian Demographic and Health Survey* (DHS). For the first time in Brazil, the authors showed an association between food insecurity and obesity in women and adolescent females,

Figure 1

Prevalence of obesity in the adult population according to gender and quintile of per capita family income *. Brazil, 1975 and 1989.

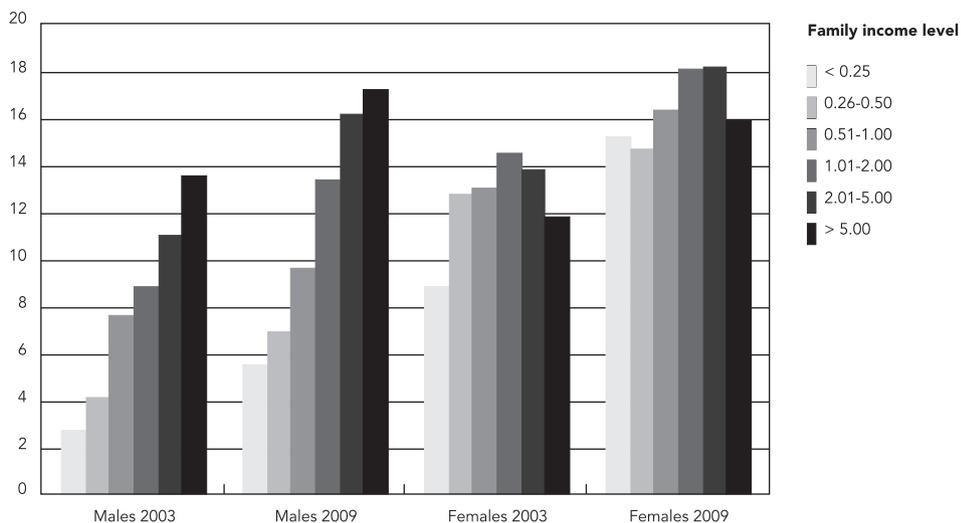


* Obesity as body mass index $\geq 30\text{kg}/\text{m}^2$ / adult ≥ 20 years / Income expressed in quintiles.

Source: INAN 6; IBGE 7.

Figure 2

Prevalence of obesity in the adult population according to gender and range of per capita family income level *. Brazil, 2003 and 2009.

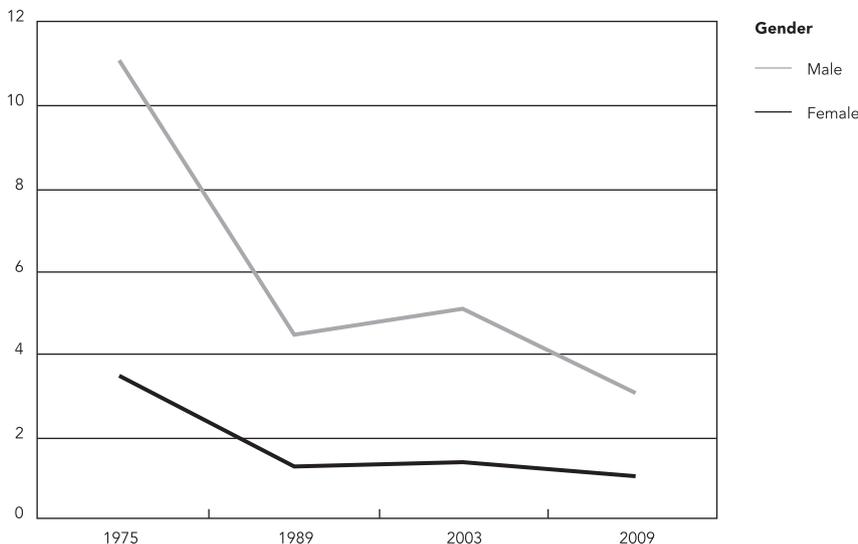


* Obesity as body mass index $\geq 30\text{kg}/\text{m}^2$ /adult ≥ 20 years/Income expressed in minimum wages.

Source: IBGE 7,8.

Figure 3

Prevalence ratio of obesity in the adult population comparing the wealthy and poor income classes according to gender *. Brazil, 1975-2009.



* Obesity as body mass index $\geq 30\text{kg}/\text{m}^2$ /adult ≥ 20 years/Income compared in quintiles for 1975/1989 and in minimum wages for 2003/2009.

Source: new analysis with data from INAN ⁶ and IBGE ^{7,8}.

but not in children. These findings are not surprising, when compared to the patterns of obesity and poverty in women just described. Considering that the 2006-2007 DHS did not collect anthropometric data for adult males, it is not possible to verify whether obesity or underweight are associated with food insecurity in Brazilian men.

Does hunger cause obesity in Brazil?

There is still no definitive answer to this question, posed by Dietz as early as 1995 ¹. The answer in Brazil is “probably yes”: hunger does lead to obesity in women, but not in men.

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