Unequally Obese: Individual- and Area-Level Associations with Income

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Although obesity is frequently associated with poverty, recent increases in obesity may not occur disproportionately among the poor. Furthermore, the relationship between income and weight status may be changing with time. We use nationally representative data from the National Health and Nutrition Examination Surveys (1971-2002) to examine (1) income differentials in body mass index [BMI: weight (kg) / height (m^2)] and (2) change over time in the prevalence of obesity (BMI $\geq$30) at different levels of income. Over three decades, obesity has increased at all levels of income. Moreover, it is typically not the poor who have experienced the largest gains. For example, among black women, the absolute increase in obesity is 27.0% (1.05%/year) for those at middle incomes, but only 14.5% (0.54%/year) for the poor. Among black men, the increase in obesity is 21.1% (0.77%/year) for those at the highest level of income, but only 4.5% (0.06%/year) for the near-poor and 5.4% (0.50%/year) for the poor. Furthermore, all race-sex groups show income differentials on BMI, but patterns show substantial variation *between* groups and consistency as well as change *within* groups over time. For example, white women consistently show a strong inverse gradient, while a positive gradient emerges in later waves for black and Mexican-American men. The persistence and emergence of income gradients suggests that disparities in weight status are only partially attributable to poverty and that efforts aimed at reducing disparities need to consider a much broader array of contributing factors.

Aside from health gradients with respect to individual-level incomes, prior studies have also demonstrated an association between area-level inequality and general health endpoints such as mortality and self-rated health. Findings have been taken as support for the hypothesis that inequality in the distribution of income is detrimental to health. Unhealthy weight statuses may function as an intermediary link between inequality and more general heath endpoints. Using individual-level data from the 1996-8 Behavioral Risk Factor Surveillance System (BRFSS), we examine the relationship between individual weight status and income inequality in U.S. metropolitan areas. Income inequality is calculated with data from the 1990 U.S. Census 5% Public Use Microsample. In analyses stratified by race-sex groups, we do not find a positive association between income inequality and weight outcomes such as body mass index, the odds of being overweight, and the odds of being obese. Among white women, however, we do find a statistically significant *inverse* association between inequality and each of these weight outcomes, despite adjustments for individual-level covariates, metropolitan-level covariates, and census region. We also find that greater inequality is associated with higher odds for trying to lose weight among white women, even adjusting for current weight status. Although our findings are suggestive of a contextual effect of metropolitan area income inequality, we do not find an increased risk for unhealthy weight outcomes, adding to recent debates surrounding this topic.