

Hunger, Food Insecurity, and Child Obesity

Marilyn Townsend and Hugo Melgar-Quinonez, University of California, Davis

While obesity is most common among children of low socioeconomic status, the prevalence of obesity is increasing among children of all socioeconomic groups. At the same time, about 13 million children live in food-insecure households, in which there is a limited or uncertain availability of food because of financial constraints. Recent studies have found a positive association between food insecurity and overweight among women in the U.S. This study considers whether a positive association between household food insecurity and overweight exists among children.

The authors examine the relationship between food insecurity and child overweight for Mexican-American, non-Hispanic black and non-Hispanic white boys and girls from age 2 to 19 years. They combine several years of data from the Continuing Survey of Food Intakes for Individuals (CSFII) to examine a nationally representative sample of 6473 children. The data provide information on the reported height and weight for each child. The authors adjust the values of height and weight to account for the error typically found in self-reported measures, and use the adjusted values to calculate an indicator of whether the child is overweight or at risk of becoming overweight.

Households in the survey report whether they have (1) enough of the kinds of food they want to eat, or (2) enough but not always the kinds of food they want to eat, or (3) sometimes not enough to eat, or (4) often not enough to eat. The authors categorize households that indicate that they have enough of the kinds of food they want to eat as food secure, and all other households as food insecure.

The authors find that 12 percent of children are overweight, and another 16 percent are at risk of becoming overweight. A child's risk of becoming or being overweight increases as their dietary energy intake, saturated fat intake, or time spent watching television increases, and decreases as their household income relative to the poverty line increases.

About three-fourths of children live in households categorized as food secure, according to the study's definition. The authors separate children into four age groups and find that food insecurity is positively associated with overweight and risk of overweight among children age 12 to 15 years and children age 16 to 19 years. They also separate children according to their race and ethnicity, and find no significant relationship between overweight and food insecurity among non-Hispanic children of any age. However, they find a positive association between overweight and food insecurity for several age groups of Mexican-American and non-Hispanic black children. Food insecurity is positively associated with overweight and risk of overweight for non-Hispanic black children age 12 to 15 years, and Mexican-American children age 6 to 11 years.

The authors use linear regression to estimate the relationship between food insecurity and child overweight, while controlling for other factors that could be associated with overweight or risk of overweight. The estimates results indicate a positive relationship between food insecurity and overweight for non-Hispanic black children age 12 to 15 years.

The study finds that older minority children who are food insecure were more likely to be overweight than those who are food secure. This finding may guide the development of education interventions that accompany food assistance programs, such as the Food Stamp Program, available to food insecure families.

Impact of Home-Delivered Meals on Nutritional Status and Food Security of Elderly Persons in New York State

Edward A. Frongillo and Wendy S. Wolfe, Cornell University

The Home Delivered Meals (HDM) component of the Older Americans Act Nutrition Program provides meals to non-institutionalized frail elderly persons who are no longer able to obtain an adequate diet without assistance. This study examines whether participation in the HDM program improves nutritional outcomes. The study also characterizes elders who are most likely to benefit from the program, and identifies a number of nutritional indicators that can be used in program evaluation.

Several studies have found benefits associated with HDM, including a recent national evaluation, which found that participants in both HDM and Congregate Meals had a higher average daily intake of nutrients than a matched comparison group of non-participants. However, these studies could not determine whether participation in the HDM program was responsible for the improved outcomes, due to methodological limitations. The authors address the methodological limitations of previous studies by comparing those who received HDM with a non-randomized control group, and by using longitudinal data

on the nutritional outcomes of both the control and treatment group members. They also examine outcomes other than nutrient intakes, such as food security and dietary patterns, and information on measured, rather than self-reported, height and weight.

This collaborative study analyzes data collected by the New York State Office for the Aging in 1999 in three counties representative of Upstate New York. All elders referred for aging services over a five-month period received a standard assessment and were asked to participate in the study. Of the 212 people who agreed to participate, some began receiving HDM and others began receiving other services, but not HDM. Both the HDM recipients and non-recipients completed a baseline survey and two follow-up surveys, at 6 months and 12 months after the baseline survey. The surveys contained a 24-hour dietary recall, and questions used to construct the federal measure of food security. A number of elders in the initial sample did not complete the follow-up surveys, primarily because they stopped participating in HDM because they no longer needed it, moved, or died. A total of 99 elders completed the 6-month follow-up survey, and 67 elders completed the 12-month follow-up survey. However, the authors use estimation techniques that suggest that the bias resulting from the loss of sample members is minimal.

The study finds that initial dietary intakes for those who began participating in the HDM program were lower than recommended for many nutrients and food groups. After receipt of meals through the HDM program, vegetable consumption, fruit and vegetable variety, beta carotene, vitamin E and magnesium increase significantly. In addition, the prevalence of food insecurity among elders in the sample decreases from 23 percent to 13 percent.

The analysis compares HDM participants whose diet was assessed in the follow-up surveys on a day that they had an HDM meal to those participants whose diet was assessed on a day they did not eat an HDM meal. Those whose diet was assessed on a day that they received an HDM meal show a greater improvement over time in 25 of 27 indicators of nutrient intake and dietary patterns compared with HDM participants who had not had an HDM meal on the day of their diet assessment. The authors find similar results when they examine nutrient density rather than total nutrient intake.

The analysis shows that the positive effects of the HDM are greater among males and among elders who live alone. Participants with poorer initial nutritional status also show greater improvement, regardless of demographic characteristics. In addition to nutrient intake, the HDM program improves other outcomes, such as food security, fruit and vegetable variety, milk consumption, and servings of Food Pyramid food groups.

These results provide evidence that the HDM program improves the nutritional well-being of elderly persons. There is substantial unmet need for the HDM program, and the positive effects of the program are an important consideration in the decision to allocate limited resources to social programs. In addition, information on those who are likely to most benefit from the program can be utilized to target program resources most effectively. The study also identifies new nutritional indicators, which can be used in future studies to measure the effect of the HDM and other food assistance and nutrition programs.