

Robert Wood Johnson
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Associations Between Access to Food Stores and Adolescent Body Mass Index

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Research Highlight

POLICY PERSPECTIVE

AS THE NUMBER OF CHAIN SUPERMARKETS IN AN AREA INCREASES, ADOLESCENT BMI LEVELS AND PREVALENCE OF OVERWEIGHT DECREASE. POLICY-MAKERS NEED TO CONSIDER THE EFFECTS OF ENVIRONMENTAL INFLUENCES ON ADOLESCENTS' WEIGHT STATUS. POLICIES THAT ENCOURAGE COMMERCIAL DEVELOPMENT OF SUPERMARKETS APPEAR TO BE PARTICULARLY IMPORTANT IN UNDERSERVED MINORITY COMMUNITIES AND NEIGHBORHOODS WHERE THE RATES OF ADOLESCENT OBESITY ARE HIGHEST.

Background

The obesity rate for adolescents (ages 12–19) in the United States has more than tripled in the last few decades. Several recent studies suggest that adolescents are consuming too much fat, sugar, snacks, soda and fast foods. Environmental causes for the increase in weight and poor dietary habits are being investigated. Some of this research has focused on food stores. For example, research has shown that larger supermarkets and chain supermarkets are more likely to stock healthy foods, including fruits and vegetables, and offer such foods at lower prices, but no studies to date have examined the link between food store availability and weight outcomes in adolescence.

In the study “Associations Between Access to Food Stores and Adolescent Body Mass Index,”¹ Lisa M. Powell and colleagues examine the link between neighborhood food store availability (such as chain supermarkets, nonchain supermarkets, convenience stores and other grocery stores), and adolescents’ body mass index (BMI), overweight prevalence and demographic variables. To do this, the researchers used data from a variety of sources including Dun and Bradstreet, the American Chamber of Commerce Researchers Association, the Monitoring the Future surveys and the U.S. Census 2000.² Using data from 73,079 observations and multiple regression analyses, researchers tested the hypothesis that areas with a larger number of chain supermarkets would result in lower adolescent BMI while areas with a large number of small stores would result in higher adolescent weight.

Key Findings

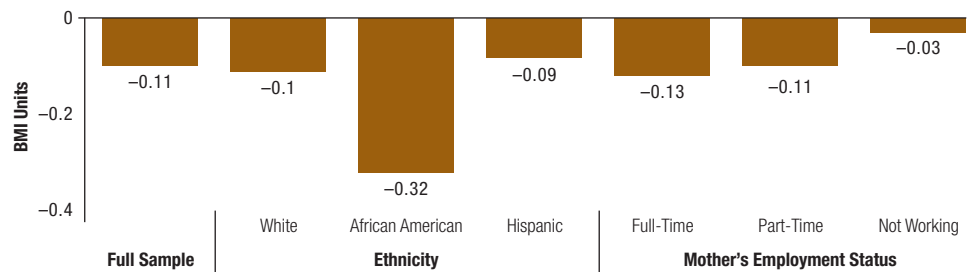
- **There are significant associations between the availability of food stores and adolescent BMI.** Even when demographic (both individual and family-level) and neighborhood-related variables were held constant, the availability of chain supermarkets was associated with lower adolescent BMI and overweight status, while the availability of convenience stores was associated with higher adolescent BMI and overweight status. Specifically, a decrease of .11 BMI units was observed for each additional chain supermarket, whereas each additional convenience store was associated with an increase of .03 BMI units. Similarly, an additional chain supermarket decreased overweight prevalence by 0.6 percentage points, and an additional convenience store increased overweight prevalence by 0.15 percentage points.

1 Powell LM, Auld C, Chaloupka FJ, O’Malley PM and Johnston LD. “Associations Between Access to Food Stores and Adolescent Body Mass Index,” *American Journal of Preventive Medicine*, 33 (4) Supplement 1: S301-S307, October 2007. This article is available at: <http://www.rwjf.org/pr/product.jsp?id=22232>

2 These include gender, grade, age, race/ethnicity, highest schooling completed by mother and father, rural/urban neighborhood, student income, hours of work per week of student, and mother’s employment status (full- or part-time).

Effects of Access to Food Stores on Adolescent BMI*

Decreases in Adolescent BMI for each Additional Chain Supermarket per 10,000 Capita (expressed in BMI units)**



*Body mass index (BMI) is a relationship between height and weight that is associated with body fat estimates and health risk. A BMI over 25 is generally considered overweight.

**Controlling for gender*age interaction terms, grade, race, fathers' education, mothers' education, living with both parents, living in rural areas, students' weekly real income, hours worked by students, mother works part-time, mother works full-time, year effects, per capita restaurant and fast-food restaurant outlet density, fast food and fruit and vegetable prices, and neighborhood per capita income.

- **The effects of access to food stores on BMI and weight may be most important for African-American adolescents.** Results indicated that the relationship between supermarket availability and BMI was three times greater among African-American adolescents than white or Hispanic adolescents. That is, the addition of a chain supermarket showed a decrease of .3 BMI units among African-American adolescents but only resulted in a decrease of .1 BMI units among white and Hispanic adolescents.
- **The effects of supermarket availability on adolescent BMI are stronger in families with a working mother.** Results indicated that the availability of grocery stores impacted adolescents whose mothers worked full- or part-time more than adolescents whose mothers did not work. In particular, the addition of a chain supermarket resulted in a substantially greater decrease in the BMI of adolescents whose mothers worked as compared with those whose mothers did not work.

—Deanna Lewis

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