

Study finds that low-income women living in small cities have higher chance of obesity

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A recent Kansas State University study found that the availability of supermarkets -- rather than the lack of them --increased the risk of obesity for low-income women living in small cities. This suggests that policies to increase healthful eating behaviors might need to be tailored based on geographic location.

K-State researchers studied the availability of food stores for low-income women in Kansas to see whether there was a link to [obesity](#). The findings showed that limited availability of grocery stores did not contribute to an increased risk of obesity in metropolitan or rural areas, but it was associated with an increased risk of obesity in micropolitan areas in Kansas, defined as cities with fewer than 40,000 people.

"This study was one of the first to look at supermarket availability across the urban-rural continuum, and the findings suggest that policies to increase healthful [food availability](#) may need to differ depending on urban influence," said David Dzewaltowski, K-State professor and department head of kinesiology.

Dzewaltowski and Paula Ford, assistant professor of public health sciences at the University of Texas at El Paso, published the study in the January issue of *Obesity*, a research journal. Ford led the project as a doctoral student at K-State.

Research has shown that a lack of nearby food stores that offer healthful items contributes to higher incidences of obesity for consumers. Studies

also have shown that low-income residents have an improved quality of diet when larger grocery stores and supermarkets are available. That's because these stores often supply consumers with healthful foods at a lower cost compared to small grocery and convenience stores.

Dzewaltowski said most studies that have investigated links between food environments and obesity have relied upon census tracts or ZIP codes for analysis. However, this can lead to faulty results. The K-State study used a statewide, geographically referenced dataset of Kansans participating in the Special Supplemental Nutrition Program for Women, Infants and Children from October 2004 to December 2006.

"Previous research assumes that most people shop within their own census tract or ZIP code," Ford said. "However, other studies have found that most people shop outside of their census tract. By examining the number of stores within a 1- to 3-mile radius of these women's homes, we were able to get a more accurate and realistic assessment of supermarket availability."

To be eligible for the Special Supplemental Nutrition Program, a recipient must be a pregnant, breastfeeding or postpartum woman with children younger than 5 years old and a household income less than 185 percent of the federally designated poverty level. The researchers' data included each woman's body mass index.

The study included only socioeconomically disadvantaged women because they are at greater risk of obesity than are wealthier women. They also are likely to be more dependent on nearby grocery stores and supermarkets because of limited transportation options and fewer economic resources, Ford said.

The researchers looked at the availability of food stores -- specifically convenience and grocery stores and supermarkets -- located within a

radius of 1, 3 or 5 miles of the women's residences. The women's homes also were categorized as being in a rural, micropolitan or metropolitan area. The first item the researchers examined was the availability of these stores in the different areas.

The findings showed significant geographic disparities regarding the availability of supermarkets. However, the majority of the women lived within 1 mile of a small grocery store. Dzewaltowski said this is important because previous studies have indicated that rural areas are food deserts where low-income residents have to travel far to access healthful foods.

The number and types of stores available differed in the metropolitan, micropolitan and rural areas. Rural low-income women had 74 percent fewer supermarkets and 55 percent fewer small grocery stores available within a 1-mile radius as compared to women in metropolitan areas. Yet the number of convenience stores per 10,000 residents was highest in rural areas.

The researchers also looked at how the availability of different food stores contributed to area residents' obesity. They found that the availability and density of food stores was not associated with obesity in metropolitan and rural areas. However, contrary to previous studies, the findings showed that the presence of a supermarket is not protective against obesity for women in these areas. Women who resided in micropolitan areas in Kansas had an 18 percent increase in obesity risk when living within a 1-mile radius of a supermarket. The presence of small grocery and convenience stores also was associated with an increased risk of obesity.

Dzewaltowski said the findings indicate that the choice of supermarkets may be a more relevant issue than the availability of supermarkets. The findings also suggest that most of the low-income women reside within

the urban cluster of the micropolitan areas and are likely to be exposed to multiple fast food restaurants and other high-caloric density eating opportunities, which are often absent in rural areas.

The researchers said policies that increase the accessibility of healthful foods at small grocery stores might be a promising strategy for reducing the higher prevalence of obesity in rural areas.

Provided by Kansas State University

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