

Body mass index of low income African-Americans linked to proximity of fast food restaurants

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African-American adults living closer to a fast food restaurant had a higher body mass index (BMI) than those who lived further away from fast food, according to researchers at The University of Texas MD Anderson Cancer Center, and this association was particularly strong among those with a lower income.

A new study published online in the *American Journal of Public Health* indicates higher BMI associates with residential proximity to a fast food restaurant, and among lower-income African-Americans, the density, or number, of [fast food restaurants](#) within two miles of the home.

The study was led by Lorraine Reitzel, Ph.D., assistant professor in the Department of [Health Disparities Research](#) at MD Anderson. Data was collected from a large sample of more than 1,400 black adult participants from the Project CHURCH research study, a collaboration between MD Anderson and Windsor Village United Methodist Church in Houston – one of the largest Methodist churches in the United States.

"According to prior research, African-Americans, particularly women, have higher rates of obesity than other ethnic groups, and the gap is growing," said Reitzel. "The results of this study add to the literature indicating that a person's [neighborhood environment](#) and the foods that they're exposed to can contribute to a higher BMI."

Reitzel said that this is an important population group for researchers to examine because of the health consequences that are associated with obesity among African-Americans including diabetes, cancer and heart disease. "We need to find the relationships and triggers that relate to this population's BMI, as they're at the greatest risk for becoming obese and developing associated health problems," said Reitzel. "Such information can help inform policies and interventions to prevent health disparities."

In this study, Reitzel and her team examined two different food environment variables and their associations with BMI: proximity and density of fast food restaurants, which were based on each participant's geocoded residential address. The study participants were also broken into two income groups; those making less than \$40,000 a year and those making \$40,000 or more a year.

"We found no previous research literature that considered household income when investigating whether there were associations between fast food availability and BMI," said Reitzel.

The study controlled for factors that may influence a person's BMI including gender, age, physical activity, individual household income, median neighborhood income, education, partner status, employment status and residential tenure. Sedentary behaviors, including the amount of time the participant spent watching television, were considered. Researchers also controlled for the presence of children in the home because of its known relation with physical activity rates.

Researchers examined the density of fast food restaurants within a half mile, one mile, two miles and five miles around each participant's home.

On average there were 2.5 fast food restaurants within a half mile, 4.5 within a mile, 11.4 within 2 miles and 71.3 within 5 miles of participants' homes. "We found a significant relationship between the

number of fast food restaurants and BMI for within a half-mile, one-mile and two-miles of the home, but only among lower-income study participants," said Reitzel. The data showed the greater the density, the higher the BMI. There was no significant association for the five-mile area.

When examining proximity – the distance in miles from each participant's home to the closest restaurant – the study found that closer proximity was associated with a higher BMI. In fact, although results indicate that the relationship between a higher BMI and proximity was stronger for those of lower income, it was still significant in the group with the higher incomes. The data also showed that every additional mile participants' lived from the closest fast food restaurant was associated with a 2.4 percent lower BMI.

"There's something about living close to a fast food restaurant that's associated with a higher BMI," said Reitzel. She said that there may be some behavioral economics involved in the decision to choose fast food over a healthier choice. "Fast food is specifically designed to be affordable, appealing and convenient. People are pressed for time, and they behave in such a way that will cost them the least amount of time to get things done, and this may extend to their food choices."

Reitzel also said that people of lower income may have less access to transportation, so having a high density of fast food restaurants around the home makes eating fast food easier. "This may also be why there were significant associations for density and BMI within 2 miles of the home, which is an easily walkable distance, but not 5 miles of the home." Reitzel said in some neighborhoods, there are fewer roads to travel and people pass by the same fast food restaurants on the way in and out of the neighborhood every day. "Those visual cues may prompt people to choose [fast food](#) even when it was not the original intent."

Provided by University of Texas M. D. Anderson Cancer Center

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