

Infants in households with very low food security may have greater obesity risk

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Infants from households reporting very low "food security," a measure of access to adequate and healthy meals, tend to weigh more than those from households with relatively high food security, suggests a new study

led by a researcher at Johns Hopkins Bloomberg School of Public Health.

The study tracked nearly 700 infants in North Carolina over their first year of life, with regular interviews of the infants' mothers. The researchers found that when mothers reported very low [food](#) security per a standard government questionnaire, the infants were more likely to have above-average body mass indices (BMIs), higher fat levels, and other measures indicating greater obesity risk.

The reasons for the association between food insecurity and higher obesity risk are not yet understood but may be related to poor nutrition and overfeeding. The results suggest that [household food insecurity](#) may be especially hazardous for infants, given that diet and [weight gain](#) in infancy are thought to have a potentially large impact on the future risks of obesity and related health conditions.

The study was published August 28 in *Pediatrics*.

Study lead author Sara Benjamin-Neelon, Ph.D., JD, the Helaine and Sidney Lerner Associate Professor in the Bloomberg School's Department of Health, Behavior and Society, began the study in 2013 when she was a faculty member at Duke University's School of Medicine, and completed data collection in 2017 at the Bloomberg School. The 666 infants tracked in the study were from [lower-income households](#) in Durham, NC. Most of the infants (68.6 percent) were African American, 14.9 percent were white, and 55.4 percent of the households reported annual incomes below \$20,000. Benjamin-Neelon and her colleagues visited the homes of the infants when they were 3, 6, 9, and 12 months old, and interviewed the mothers by phone an additional eight times over the year.

"The findings are especially relevant today when there is such

widespread food insecurity in the U.S. due to the COVID-19 crisis," says Benjamin-Neelon, Ph.D., JD, who also directs the Lerner Center for Public Health Promotion at the Bloomberg School.

For their analysis, the researchers compared the weight and length of infants in the study to a global population of healthy infants from eight countries to determine "at risk of overweight." They found that infants from households categorized as low and very low food security tended to move into this overweight risk category over the 3-month visit to the 12-month visit period (53.2 percent to 66.9 percent), whereas infants from households with high and marginal food security—those with moderate access to adequate, [healthy food](#)—tended to move out of this category (46.8 to 33.1 percent) during the period.

Infants in households with low and very low food security also were generally more likely (1.72 and 1.55 times more likely) to be at risk of overweight. Additionally, infants from very low [food security](#) households were significantly heavier by comparison with infants from food-secure households, and had more fat accumulation by standard caliper-based measures.

"One possible explanation for this link is that food insecurity is associated with lower quality diets that promote obesity, although infants, especially in the first six months of life, should be consuming limited foods—mainly just human breastmilk or infant formula," Benjamin-Neelon says. "Another possibility may be related to infant feeding practices. Mothers wanting to make sure their infants are fed enough could be overfeeding or feeding in a way that overrides infant fullness cues like propping a bottle or encouraging infants to finish the bottle."

Benjamin-Neelon and colleagues found, to their surprise, that mothers' participation in either of two federal food assistance programs, WIC and

SNAP, did not modify the apparent links between food insecurity and being overweight.

"As a former WIC nutritionist, I thought it was important to assess whether such programs modified the association between food insecurity and obesity," Benjamin-Neelon says. "However, just because it didn't make a difference in this study does not mean that women with [infants](#) and young children should not participate in these valuable programs."

She and her colleagues believe that larger and longer-term studies are needed to resolve the many questions about [food insecurity](#) and obesity, including whether the association in infancy continues into later childhood.

More information: Sara E. Benjamin-Neelon et al, Household Food Security and Infant Adiposity, *Pediatrics* (2020). [DOI: 10.1542/peds.2019-3725](#)

Provided by Johns Hopkins University Bloomberg School of Public Health

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