

# Grandchild's stillbirth risk linked to grandma's weight

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Research has shown that pregnant women with a body mass index of 30 or higher face a greater chance of experiencing a stillbirth compared to pregnant women with a normal BMI. Now, a new University of

Michigan study finds that a grandmother's BMI also relates to the risk of a grandchild being stillborn.

Published in the *American Journal of Epidemiology*, the study examined the link between the risk of having a stillborn grandchild and a grandmother's weight at the time of her pregnancy with her female fetus, who would later become the grandchild's mother.

"These findings suggest that the potential effects of [obesity](#) might linger on through generations," said Eduardo Villamor, professor of epidemiology at the U-M School of Public Health, who co-authored the study with professor Sven Cnattingius from the Karolinska Institute in Stockholm.

Using data from more than 300,000 grandmother-mother-grand offspring triads from Sweden, the researchers found that grand offspring of women with an early-pregnancy BMI between 25-29.9—considered overweight—and a BMI of 30 or higher—classified as obese—had an increased risk of 41% and 62%, respectively, of being stillborn when compared to grand offspring of women with a normal BMI between 18.5-24.9.

This relation was not likely explained by factors shared within families, like genetic characteristics, Villamor said.

The investigators further examined how much of this risk increase went through the mother's BMI or was directly from the grandmother.

"We found that 81% of the risk increase seemed to be directly from the grandmother, rather than to the influence of the grandmother's BMI on her daughter's BMI and its effect on the baby," Villamor said. "It is possible that obesity changes the way genes in a female fetus's eggs will be expressed when that female fetus becomes a mother herself."

Obesity-related inflammation may affect the germinal cells of the fetus through [epigenetic alterations](#).

The findings strongly emphasize the gravity of the obesity epidemic and its multifaceted effects throughout generations. Villamor expressed a pressing need for heightened awareness.

"Obesity in [women](#) of reproductive age is the most important preventable risk factor for stillbirth in many populations," he said. "The finding that the potential effects of obesity might linger on through generations should contribute to sensitize the public and policymakers to continue investing efforts that promote maintaining a healthy weight."

**More information:** Eduardo Villamor et al, Grandmaternal body mass index in early pregnancy and risk of grandoffspring stillbirth: A nationwide, three-generation cohort study, *American Journal of Epidemiology* (2023). [DOI: 10.1093/aje/kwad235](https://doi.org/10.1093/aje/kwad235)

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