

Children born to obese, overweight mothers may be at higher risk for neurodevelopmental problems, study finds

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Compared with children of normal-weight mothers, children born to mothers who were overweight or obese immediately prior to pregnancy are at a higher risk for neurodevelopmental problems including attention deficit disorder, autism, and cognitive developmental delays, according to a Virginia Commonwealth University-led study.

The study, titled "Maternal Pre-Pregnancy Obesity and Child Neurodevelopmental Outcomes: A Meta-Analysis," was published Nov. 22 in the journal *Obesity Reviews*. It is the first meta-analysis of studies investigating prepregnancy weight and child neurodevelopment.

Relative to children born to normal-weight mothers, the risk for adverse neurodevelopmental outcomes was 17 percent higher among children born to mothers who were overweight prior to their pregnancy. The risk for adverse neurodevelopmental outcomes jumped to 51 percent among children born to mothers who were obese prior to pregnancy.

"Given the current obesity prevalence among women of childbearing age, the association between maternal obesity during pregnancy and atypical childhood neurodevelopment represents a potentially high public health burden," said senior author Bernard Fuemmeler, Ph.D., professor of health behavior and policy at VCU School of Medicine.

More than 40 percent of women in the U.S. are obese, an increase from previous estimates according to a 2016 report published in the *Journal of the American Medical Association*. The prevalence of children diagnosed with mental, behavioral and neurodevelopmental disorders has increased markedly in recent years, with 15 percent of children ages 2 to 8 now estimated to

have one or more neurodevelopmental disability, according to a 2016 report by the Centers for Disease Control and Prevention.

Fuemmeler, a licensed pediatric clinical psychologist and epidemiologist, studies childhood health and development. His research focuses on the prenatal and environmental factors that contribute to pediatric health.

The research findings were based on 41 epidemiological studies that examined correlational relationships between maternal weight and childhood brain development. While the meta-analysis did not prove causality, it demonstrated a significant negative association between the two factors. The findings support previously conducted animal studies that have proven a causal relationship between prepregnancy obesity and behavioral outcomes of offspring.

"If studies continue to show this type of result, it may be important that we begin to think about using this as a teachable moment to help women manage their weight during pregnancy," Fuemmeler said. "Pregnant women generally want to do the best for their unborn child, which is why we often counsel women during pregnancy to stop smoking. The results of this study could help us bring attention to the importance of maintaining a healthy weight before and throughout pregnancy."

More information: C. E. Sanchez et al, Maternal pre-pregnancy obesity and child neurodevelopmental outcomes: a meta-analysis, *Obesity Reviews* (2017). [DOI: 10.1111/obr.12643](https://doi.org/10.1111/obr.12643)

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