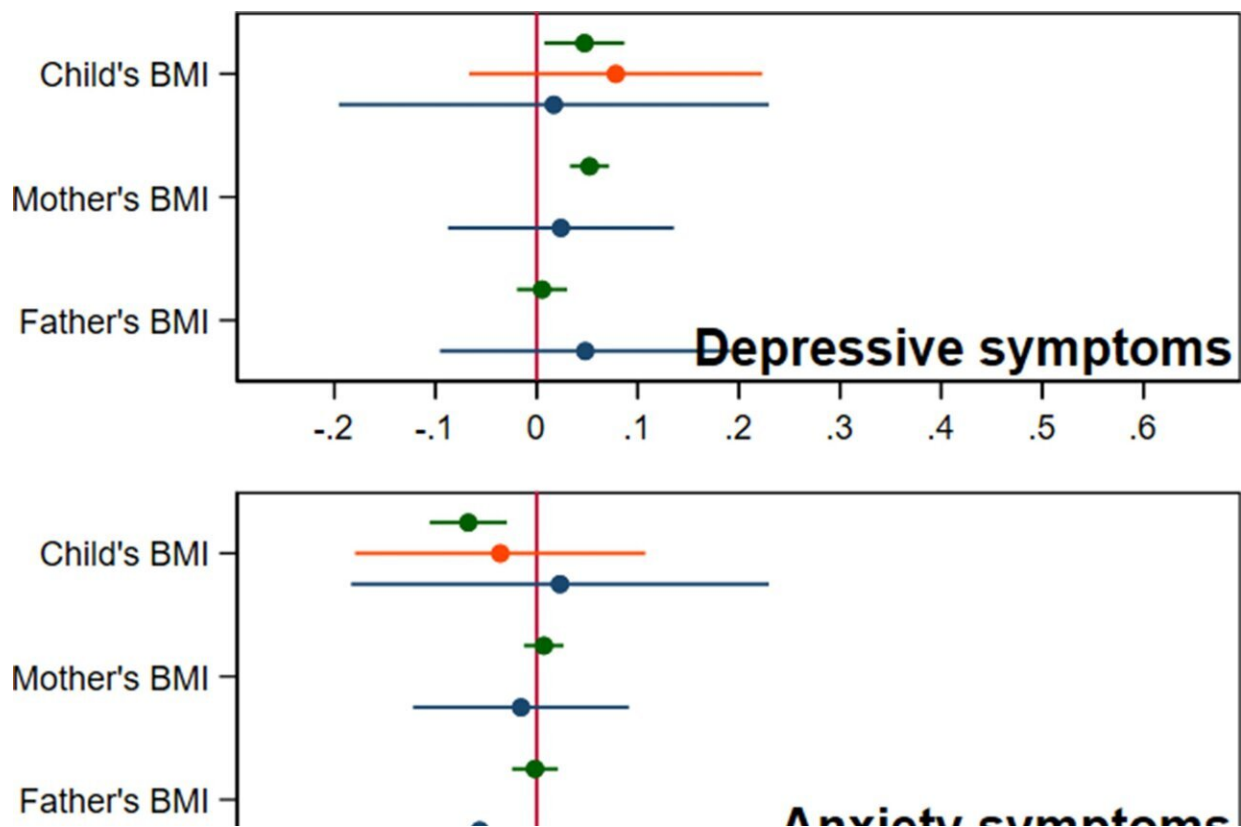


Child body weight has limited effects on mood and behavioral disorders, study suggests

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BMI and child's depressive, anxiety, and ADHD symptoms, using a polygenic score for childhood body size (N=40,949 trios). Coefficients represent standard-deviation change in outcomes per 5 kg/m² increase in BMI, shown with 95% confidence intervals. Credit: *eLife* (2022). DOI: 10.7554/eLife.74320

Childhood body mass index is unlikely to have a big impact on children's mood or behavioral disorders, according to a study led by the University of Bristol and published today in *eLife*.

The results suggest that some previous studies, which have shown a strong link between [childhood obesity](#) and [mental health](#), may not have fully accounted for family genetics and environmental factors.

Children with obesity are more likely to be diagnosed with depression, anxiety, or [attention-deficit hyperactivity disorder](#) (ADHD). But the nature of the relationship between obesity and these [mental health conditions](#) is not clear. Obesity might contribute to mental health symptoms, or vice versa. Alternatively, a child's environment might contribute to both obesity and mood and behavioral disorders.

"We need to better understand the relationship between childhood obesity and mental health," said lead author Dr. Amanda Hughes, Senior Research Associate in Epidemiology in the Bristol Medical School: Population Health Sciences (PHS) at the University of Bristol. "This requires teasing apart the contributions of child and parent genetics and the environmental factors affecting the whole family."

Dr. Hughes and colleagues examined genetic and mental health data from 41,000 eight-year-old children and their parents from the Norwegian Mother, Father, and Child Cohort Study and Medical Birth Registry of Norway. They assessed the relationship between children's body mass index (BMI)—a ratio of weight and height—and symptoms of depression, anxiety and ADHD. To help separate the effects of the children's genetics from the influence of other factors that affect the whole family, they also accounted for parental genetics and BMI.

The analysis found a minimal effect of a child's own BMI on their anxiety symptoms. There was also conflicting evidence about whether a

child's BMI influenced their depressive or ADHD symptoms. This suggests that policies aiming to reduce childhood obesity are unlikely to have a big impact on the prevalence of these conditions.

"At least for this age group, the impact of a child's own BMI appears small. For [older children](#) and adolescents, it could be more important," said Neil Davies, Professor at University College London (UCL).

When they looked at the effect of the parents' BMI on the children's mental health, the team found little evidence that the parents' BMI affected children's ADHD or anxiety symptoms. The data suggested that having a mother with a higher BMI might be linked with [depressive symptoms](#) in children, but there was little evidence of any link between the child's mental health and the father's BMI.

"Overall, the influence of a parent's BMI on a child's mental health seems to be limited. As a result, interventions to reduce parents' BMIs are unlikely to have widespread benefits to children's mental health," added Alexandra Havdahl, Research Professor at the Norwegian Institute of Public Health.

"Our results suggest that interventions designed to reduce child obesity are unlikely to make big improvements in child mental health. On the other hand, policies which target social and [environmental factors](#) linked to higher body weights, and which target poor child mental health directly, may be more beneficial," Hughes concluded.

More information: Amanda M Hughes et al, Body mass index and childhood symptoms of depression, anxiety, and attention-deficit hyperactivity disorder: A within-family Mendelian randomization study, *eLife* (2022). [DOI: 10.7554/eLife.74320](https://doi.org/10.7554/eLife.74320)

Provided by University of Bristol

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