

# U-shaped link detected between adolescent BMI and mental health

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There is a U-shaped association between adolescent body mass index (BMI) and mental health, according to a [study published](#) online May 15 in *JAMA Psychiatry*.

Shanquan Chen, Ph.D., from the London School of Hygiene & Tropical Medicine, and colleagues estimated the association between BMI and

mental health and examined changes from 2002 to 2018 in a repeated multicountry cross-sectional study. Data were obtained from the Health Behavior in School-aged Children survey in Europe and North America, including a study population of 1,036,869 adolescents (527,585 girls) aged 11 to 15 years.

The researchers identified a U-shaped association between BMI and [mental health](#). Compared with those with healthy weight, adolescents with low body mass, overweight, or obesity had increased [psychosomatic symptoms](#) (unstandardized  $\beta$ , 0.14, 0.27, and 0.62, respectively), while fewer symptoms were seen for adolescents with underweight ( $\beta$ ,  $-0.18$ ).

Across different years, sex, and grade, the association was observed. Psychosomatic concerns increased significantly in 2006, 2010, 2014, and 2018 compared with 2002 (unstandardized  $\beta$ , 0.19, 0.14, 0.48, and 0.82, respectively).

Significantly higher psychosomatic concerns were seen for girls than boys (unstandardized  $\beta$ , 2.27). Psychosomatic concerns increased significantly in middle and [high school](#) versus primary school (unstandardized  $\beta$ , 1.15 and 2.12, respectively).

"These insights can inform public health and school programs, emphasizing correcting body image misconceptions, encouraging healthy weight, and creating supportive peer environments," the authors write.

**More information:** Shanquan Chen et al, Dose-Dependent Association Between Body Mass Index and Mental Health and Changes Over Time, *JAMA Psychiatry* (2024). [DOI: 10.1001/jamapsychiatry.2024.0921](#)

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