Medical Xpress

Shared genetic factors influence risks for disordered eating and alcohol use in late adolescence, twin study finds

September 18 2023

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Certain genetic influences contribute to disordered eating and problematic alcohol use, leaving some people vulnerable to both

conditions, according to a large study of late adolescent twins.

Previous research has found concurrent eating disorders and risky drinking in younger teens amplify the chance of worse outcomes, including death. Studies across age groups have pointed to shared genetic influences for the two conditions, and other studies suggest that changes in one disorder may aggravate symptoms in the other. Understanding the genetic and environmental factors involved in co-occurring eating disorders and alcohol use disorders (AUDs) could improve treatment and outcomes.

Adolescence is a key life stage for onset, and the major transitions characterizing the late teen years may heighten susceptibility. Little is known, however, about the varying manifestations and combinations of eating disorders and AUDs in late adolescence or potential sex differences.

For the study published in *Alcohol: Clinical and Experimental Research*, investigators in the U.S. and Sweden examined genetic and environmental risks across various dimensions and measures of disordered eating and drinking in 18-year-old twins.

Twin studies are a vital tool for differentiating between genetic and environmental influences. The researchers worked with 3,568 female and 2,526 male same-sex twins in Sweden. The participants completed surveys assessing their drive for thinness, bulimia, body dissatisfaction, alcohol consumption over the last year (frequency and amount), and alcohol problems over the previous year (signs of dependence and harmful use).

Investigators looked for three types of influence: evidence of multiple genes that work together to affect relevant traits; shared environmental factors, such as socioeconomic status, making twins more similar for a

given trait; and nonshared environmental factors (e.g., childhood trauma and peer influences), making twins more dissimilar for a given trait. They used statistical analysis to quantify the genetic and environmental contributions to disordered eating associated with alcohol use.

Co-occurring disordered eating and alcohol involvement manifested differently in male and female twins. In the women, the phenotypic correlation between the conditions was evident across different manifestations of disordered eating and alcohol use. In the men, the association was specific to problematic alcohol use. In young women (but not the men), drive for thinness, bulimia, and body dissatisfaction had slight-to-moderate genetic correlations with alcohol consumption and problems.

Overall, nonshared environmental influences contributed to separate disordered eating dimensions and alcohol measures but minimally contributed to the co-occurrence of the two conditions in the women. Some findings contrasted with previous research involving 16- and 17-year-old twins, possibly reflecting differences in alcohol use relating to the legal drinking age in Sweden (18).

The study points to the importance of sex-specific treatment strategies for late adolescents with concurrent disordered eating and problematic alcohol use. Additionally, the findings could help identify vulnerable teens. Late adolescents presenting with symptoms of disordered eating or problematic alcohol use could be screened for the other condition, potentially improving detection and treatment. Assessing the family history of multiple eating disorder manifestations also has value in screening and treatment.

The study did not identify specific genetic or environmental factors affecting co-occurring conditions. Further research is needed on potential differences between countries and regions and more diverse

populations.

More information: Baiyu Qi et al, Differential genetic associations between dimensions of eating disorders and alcohol involvement in late adolescent twins, *Alcohol: Clinical and Experimental Research* (2023). DOI: 10.1111/acer.15150

Provided by Research Society on Alcoholism

Citation: Shared genetic factors influence risks for disordered eating and alcohol use in late adolescence, twin study finds (2023, September 18) retrieved 10 May 2024 from https://medicalxpress.com/news/2023-09-genetic-factors-disordered-alcohol-late.html

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