

New research identifies genetic links between schizophrenia and cardiovascular disease risk factors

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New research finds that people with schizophrenia have a genetic propensity to smoking and a reduced genetic risk of obesity. The study, published in *The American Journal of Psychiatry*, revealed genetic overlap between schizophrenia and cardiovascular disease (CVD) risk factors, particularly body mass index (BMI) and smoking. The findings highlight the importance of environmental factors in the development of obesity and other CVD comorbidities.

Schizophrenia is associated with an increased risk of CVD and this study was aimed at better understanding the genetic overlap between the two. The research team, led by Linn Rødevand, Ph.D., with the Norwegian Center for Mental Disorders Research at the University of Oslo, analyzed recent genome-wide association study (GWAS) results to estimate the number of shared genetic variants and pinpoint specific shared locations.

Extensive genetic overlap was found between schizophrenia and CVD risk factors, particularly smoking initiation and BMI. Several specific shared locations were also found between schizophrenia and waist-to-hip ratio, systolic and [diastolic blood pressure](#), type 2 diabetes, lipids, and [coronary artery disease](#).

The genetic overlap between schizophrenia and smoking behavior means that people with schizophrenia may be more affected by nicotine's addictive properties, the authors note.

"In particular, patients with schizophrenia experience greater reinforcing

effects of nicotine and more severe withdrawal symptoms during abstinence." In addition, they note that "smoking may represent a form of self-medication . . . tobacco smoking in people with schizophrenia may involve, to some extent, an attempt to compensate for genetically determined dysfunction of nAChRs."

In line with previous evidence of higher prevalence of low BMI before the onset of schizophrenia, the study results also indicate that people with schizophrenia are genetically predisposed to lower BMI. However, obesity is also more common in individuals with schizophrenia than those in the general population.

The findings indicate that factors other than common genetic variants play an important role in weight gain in schizophrenia, including adverse effects of antipsychotics and symptoms, depression, and socioeconomic challenges that contribute to unhealthy lifestyles. In addition, [genetic factors](#) likely play an important role in antipsychotic-induced [weight gain](#).

The overlapping locations between schizophrenia and lipids, blood pressure, waist-to-hip ratio, type 2 diabetes, and coronary artery disease had mixed effect directions. This means that half of the genetic variants influencing schizophrenia were associated with increased cardiovascular disease risk, while the other half were associated with reduced [cardiovascular disease](#) risk.

This may suggest that subgroups of people with [schizophrenia](#) vary in their genetic vulnerability to CVD, which can underlie some of the differences in CVD comorbidity, according to the authors.

More information: Linn Rødevand et al, Characterizing the Shared Genetic Underpinnings of Schizophrenia and Cardiovascular Disease Risk Factors, *The American Journal of Psychiatry* (2023). [DOI:](#)

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