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TITLE: Polygenic propensity for a psychiatric disorder is associated with nutrient intake

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ABSTRACT:

Despite the observed association between psychiatric disorders and nutrient intake, genetic studies are limited. To gain a better insight into the relationship between psychiatric disorders and nutrient intake these studies are needed. We examined whether polygenic scores (PGS) for psychiatric disorders are associated with self-reported nutrient intake using data obtained by the UK Biobank diet questionnaire (N = 163,619).

Association was assessed using linear mixed effects models for the analysis of data with repeated measures. We find that PGSs for psychiatric disorders are differentially associated with nutrient intake, with attention-deficit/hyperactivity disorder, bipolar disorder and schizophrenia showing the strongest associations, whilst autism spectrum disorder showed the weakest. We found a higher anorexia nervosa PGS was associated with higher intake of fibre, folate, iron and vitamin C; however, associations were predominantly driven by socioeconomic status and educational attainment. This was also true for obsessive-compulsive disorder PGS and fibre intake. A higher major depressive

disorder PGS with higher alcohol intake but lower iron, vitamin C and vitamin E intake. Furthermore, a higher alcohol dependence PGS was associated with higher alcohol intake independent of socioeconomic status, and individuals with higher persistent thinness PGS reported their food to weigh less. Overall, these findings suggest that polygenic propensity for a psychiatric disorder is associated with dietary behaviour. The nutrient intake is based on self-reported data and findings must be mindfully interpreted given its inherent limitations.

GRANT SUPPORT: