Study reveals new genetic link between anorexia nervosa and being an early riser

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New research indicates that the eating disorder anorexia nervosa is associated with being an early riser, unlike many other disorders that tend to be evening-based such as depression, binge eating disorder and schizophrenia.

The study, which is published in *JAMA Network Open* and led by

investigators at Massachusetts General Hospital (MGH), in collaboration with University College London and the University of the Republic in Uruguay, also revealed a link between anorexia nervosa and insomnia risk.

Previous research has suggested a possible connection between eating disorders and the body's internal clock, or circadian clock, which controls a wide range of biological functions such as sleep and affects nearly every organ in the body.

This study aimed to further understand this relationship by assessing genes associated with anorexia nervosa, the circadian clock and several sleep traits including insomnia.

The investigators used a statistical method called Mendelian Randomization to see how genes that are associated with a certain trait affect other traits of interest. For example, examining the sleep patterns of people with genetic differences that makes them more likely to have anorexia nervosa, this provides evidence on the relationship between anorexia nervosa and sleep.

They found a two-way association between genes associated with anorexia nervosa and genes associated with morning chronotype (waking early and going to bed early).

In other words, the findings suggest that being an early riser could increase the risk for having anorexia nervosa, and having anorexia nervosa could lead to an earlier wake time. The team also found an association between anorexia nervosa and insomnia.

When they further assessed the insomnia connection using the Mass General Brigham Biobank by developing a "genetic risk score" for anorexia nervosa, the scientists found that the genetic risk score was

indeed associated with higher insomnia risk.

"Our findings implicate anorexia nervosa as a morning disorder in contrast to most other evening-based psychiatric diseases and support the association between anorexia nervosa and insomnia as seen in earlier studies," says senior author Hassan S Dashti, Ph.D., RD, an assistant investigator in the Department of Anesthesia, Critical Care and Pain Medicine at MGH and an assistant professor of anesthesia at Harvard Medical School.

Treatments for anorexia nervosa are limited and current treatments have relapse rates of up to 52%. In addition, the cause of the disease is still unclear.

With anorexia nervosa having the second highest mortality rate of psychiatric diseases, more research is desperately needed into new prevention strategies and treatments.

"The clinical implications of our new findings are currently unclear; however, our results could direct future investigations into circadian-based therapies for anorexia nervosa prevention and treatment," says Hannah Wilcox, lead author of the study and researcher at MGH.

More information: The Role of Circadian Rhythms and Sleep in Anorexia Nervosa, *JAMA Network Open* (2024). DOI: 10.1001/jamanetworkopen.2023.50358

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