

ECNP Congress Amsterdam: press release

Different types of depression linked to different cardiometabolic diseases

- *Suggests that treatment should be tailored according to type of depression*

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Type of research: not peer-reviewed/observational study/ people

It is known that depression is linked to increased incidence of metabolic diseases; now scientists have discovered that different types of depression are linked to different cardiometabolic diseases. This work is presented at the ECNP Congress in Amsterdam.

Over seven years, researchers tracked 5,794 adults, enrolled in the Netherlands Epidemiology of Obesity (NEO) Study, all of whom were free of diabetes and cardiovascular disease at the study's start. At the start of the study each participant completed a comprehensive questionnaire to assess depressive symptoms. The team identified two distinct depressive profiles: one typified by "melancholic" symptoms (such as early morning awakening and reduced appetite), and another by "atypical/energy-related" symptoms (such as fatigue, increased sleep, and increased appetite).

Around 8% of the participants developed a cardiometabolic condition during the follow-up period, but the type of condition they developed depended on the type of depression they had. Those with atypical/energy-related" symptoms were around 2.7 times more likely to develop Type-2 diabetes than individuals without depressive symptoms. They showed no significant increase in cardiovascular disease.

In contrast, those who had "melancholic" symptoms were around 1.5 times more at risk of cardiovascular disease (such as a heart attack, or stroke) than individuals without depressive symptoms, with no significant increase in type 2 diabetes.

Lead researcher Dr Yuri Milaneschi (Amsterdam UNC) said

"Further metabolic analysis revealed that patients with the atypical/energy-related symptoms showed disruptions in inflammatory and metabolic processes linked to cardiometabolic health. This biological signature was not seen in those with "melancholic" symptoms, suggesting biochemical differences in the way that different types of depression link to cardiovascular health.

We already knew that not all depressions are the same, but this means that we may need to consider how the type of depression someone has impacts different areas of their physical health. It very much pushes us towards the idea of precision psychiatry – the idea that we need to look for physical associations with mental health profiles, so that we can better treat mental illness. To treat sufferers individually".

Commenting, Dr Chiara Fabbri (of the University of Bologna) said:

“The prevention and treatment of physical diseases in people with depression are not less important than the treatment of depression. These physical conditions are common and expected to raise, for example the number of people with diabetes (66 million) in the EUR Region will see a 10% increase by 2050 according to the International Diabetes Federation. It is a health care priority to prevent cardiometabolic diseases, diagnose them early, and continue to improve monitoring and treatment. This study on the NEO cohort provides highly valuable data on how to do this better for people suffering from depressive symptoms”.

Dr Fabbri was not involved in this work; this is an independent comment.

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Notes for Editors

This work is presented at the 38th ECNP Congress, taking place in Amsterdam and online 11-14th October 2025, see <https://www.ecnp.eu/congress2025/>. With more than 6,500 participants the ECNP Congress is Europe’s leading platform for the science and treatment of brain disorders.

Conference abstract: Symptomatology of depression and incidence of cardiometabolic diseases - a 7-year follow-up study

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Background Depression is associated with an increased risk of developing cardiometabolic diseases (CMD) (i.e., a composite of type 2 diabetes (T2D) and cardiovascular diseases (CVD)). However, this association may vary for different depressive symptom profiles and individual CMD.

Aims Our study aimed to investigate the associations of depressive mood and depressive symptom profiles with the risk of CMD, T2D and CVD. Additionally, we explored the underlying mechanisms of these associations through CMD-related metabolites and proteins.

Methods In the Netherlands Epidemiology of Obesity (NEO) study, depressive mood was measured with the Inventory of Depressive Symptomatology questionnaire, and two depressive symptom profiles, namely atypical energy-related symptom (AES) and melancholic, were created. Specifically, the AES profile was derived by summing the score of five items: increased sleepiness, increased appetite, weight gain, low energy level and leaden paralysis. The melancholic symptom profile was derived by summing the score of eight items: early morning awakening, mood worse in the morning, distinct quality of mood, decreased appetite, weight loss, excessive guilt, psychomotor retardation and psychomotor agitation. The incidence of CMD, including T2D and CVD, was identified through medical records from general practitioners. Furthermore, CMD-related metabolites and proteins were selected based on findings from previous metabolomics or proteomics studies conducted in the UK Biobank and were matched with the available markers in the NEO study. Cox proportional hazards models assessed the association of depressive mood and depressive symptom profiles with the incidence of CMD, T2D and CVD, adjusted for confounders. Linear regression models examined associations with CMD-related metabolites and proteins.

Results 6,561 participants (52% women) with mean age 55.8 (standard deviation=6.0) years were included. The median follow-up time for CMD was 6.7 years, with 498 individuals developed CMD, 296 individuals developed T2D and 281 individuals developed CVD. After adjusted for confounders, compared to participants without depressive mood, those in the severe depressive mood group had the highest risk of CMD, with a hazard ratio (HR) of 1.65 (95% CI: 1.22–2.22). When examining depressive symptom profiles, individuals with the severe AES profile

exhibited a significantly increased risk of T2D (HR: 2.87 95% CI: 1.92–4.30) compared to those without symptoms, whereas no significant association was observed for individuals with the severe melancholic symptom profile (HR: 1.39 95% CI: 0.95–2.05). In contrast, individuals with the severe melancholic symptom profile showed an increased risk of CVD (HR: 1.53 95% CI: 1.03–2.25), while no significant association was found for those with the severe AES profile (HR: 1.16 95% CI: 0.68–1.96). Additionally, the AES profile was strongly associated with CMD-related metabolites—including glycoprotein acetyls, isoleucine and specific lipoproteins (i.e., triglycerides in medium high-density lipoprotein (MHDLTG))—as well as with proteins predominantly enriched in the cytokine–cytokine receptor interaction pathway.

Conclusions The AES profile is specifically associated with the incidence of T2D, while the melancholic symptom profile is linked to the incidence of CVD. Specific metabolites and proteins may help explain these associations. Acknowledging the heterogeneity of various depression clinical manifestations and biological underpinnings may aid in tailoring the prevention of cardiometabolic conditions.