

# Link between heart disease risk factors and depression is biological, not behavioral

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Credit: Rice University

Biology, rather than personal behavior, may be responsible for the link between depression and risk factors for heart disease, according to a new study from Rice University.

"Depressive Symptom Profiles, Cardio-Metabolic Risk and Inflammation: Results From the MIDUS Study" will appear in an upcoming edition of *Psychoneuroendocrinology*. The study examines how depression is linked to a higher incidence of obesity and metabolic syndrome, both of which are [risk factors](#) for [heart disease](#). It also finds that biology may be responsible for this link. Blood tests of individuals with depression and heart disease risk factors showed the presence of an immune marker associated with increased inflammation in the body.

Rice researchers Diana Chirinos, a postdoctoral research fellow, and Chris Fagundes, an assistant professor of psychology, examined the mental and physical health of 1,085 participants, 56 percent of whom were female.

The researchers found that after they adjusted for socio-demographic and health behaviors, participants who displayed even mild [depressive symptoms](#) (such as trouble sleeping and a lack of energy) but did not necessarily have a clinical diagnosis of depression were 36 percent more likely to be obese than those who did not display depressive symptoms. Those people who had moderate symptoms of depression, who likely met diagnostic criteria for [clinical depression](#), were 49 percent more likely to be obese and 57 percent more likely to have metabolic syndrome than people with no depressive symptoms.

The researchers hypothesized two possible reasons that depression may be linked to health conditions that are risk factors for heart disease. The first was behavioral.

"We thought that individuals who are depressed might be more likely to

engage in unhealthy behaviors such as drinking alcohol, smoking and not exercising, which can lead to risk factors for heart disease," Chirinos said. "However, this was not necessarily the case."

The second possible reason hypothesized by the researchers was biological.

"After testing the blood of patients in the study, we discovered that depression creates an immune system response," Chirinos said. "C-reactive protein, an immune marker that signals inflammation in the body, was found in the blood of study participants who displayed symptoms of depression and risk factors of heart disease, such as obesity and metabolic syndrome."

Chirinos and Fagundes noted that in recent years, inflammation has increasingly been linked to heart disease.

The researchers hope that the study will encourage further studies of the link between [depression](#) and heart disease, and [inflammation](#)'s impact on the human body.

"We hope these findings will facilitate greater attention to [mental health issues](#) when treating [metabolic syndrome](#)," Chirinos and Fagundes said. "Our future work will explore these links further in bereaved individuals, as well as in cancer survivors. Both of these populations are at high risk for cardiovascular problems."

**More information:** Diana A. Chirinos et al. Depressive symptom profiles, cardio-metabolic risk and inflammation: Results from the MIDUS study, *Psychoneuroendocrinology* (2017). [DOI: 10.1016/j.psyneuen.2017.04.011](#)

Provided by Rice University

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