

'Obesity paradox' not found when measuring new cases of cardiovascular disease

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Although obesity is a well-known risk factor for getting cardiovascular disease, a controversial body of research suggests that obesity may actually be associated with improved survival among people who have

cardiovascular disease.

However, a new study by NYU College of Global Public Health and the University of Michigan finds that this "[obesity](#) paradox" is not present among people with new cases of [cardiovascular disease](#). Most prior work examines people with more longstanding disease, where disease-related factors can bias findings towards the observation of a paradox.

"Given that many diseases result in wasting at the end of life, the notion that extra catabolic reserve can prolong survival makes intuitive sense. There are also explanations relating to a various inflammatory and neurohormonal processes. However, despite the plausibility of these hypotheses, we did not find evidence of an obesity paradox when using methods that are less prone to bias," said Virginia Chang, MD, PhD, associate professor of social and behavioral sciences at NYU College of Global Public Health and the study's lead author. The study is published online in the journal *PLOS ONE*.

Past research has largely looked at people with existing cardiovascular disease (prevalent disease), rather than focusing on those newly diagnosed (incident disease). Using incident disease data, however, can be valuable in helping researchers to control for confounding factors.

For instance, illness-related weight loss can influence how weight status is categorized. Disease can lead to both death and weight loss, and both are a sign of more severe disease. If people categorized as normal weight have lost weight because of more severe disease, researchers will underestimate the adverse effects of being obese relative to normal weight. In addition, those who are both obese and have severe disease are more likely to die early, while more robust obese individuals survive and are ultimately studied. Both of these biases can be reduced by examining people at the time of an incident diagnosis and using their pre-diagnosis weight.

In this study, the researchers examined the association between obesity and mortality among people with cardiovascular disease, comparing incident and prevalent disease cases in the same dataset. They used the Health and Retirement Study, a nationally representative longitudinal survey of U.S. adults aged 50 years and older conducted by the University of Michigan. The study, initiated in 1992, links surveys of more than 30,000 individuals to Medicare claims.

The researchers focused on specific cardiovascular disease diagnoses: myocardial infarction (heart attack), chronic heart failure, stroke, and ischemic heart disease. When looking at prevalent disease, the researchers used individuals' current weights; when studying incident disease, they used their pre-diagnosis weights.

Among those with prevalent disease, the researchers observed a strong and significant obesity paradox, replicating earlier findings. The risk of death was 18 to 36 percent lower for people in obese class I (a body mass index of 30-34.9) compared with those of [normal weight](#).

However, in incident disease models of the same cardiovascular conditions, and using the same dataset, there was no evidence of this survival benefit.

"The loss of an obesity paradox when switching from prevalent to incident cases and pre-diagnosis [weight](#) in the same dataset suggests that prevalent models are likely biased by factors such as disease-related [weight loss](#) and selective survival," Chang said.

If obesity improved survival among people with new and existing cases of cardiovascular [disease](#), the finding would have important clinical and public health implications. However, the researchers conclude that their findings do not support reevaluating guidelines in pursuit of a potential obesity paradox.

Provided by New York University

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