

Higher BMI does not prevent bloodstream infections

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Credit: Dreamstime

It's a paradox that has puzzled epidemiologists for a long time. Why do some studies suggest that a higher body mass index (BMI) can end up "protecting" against bloodstream infections?

A team of researchers from the Yale School of Public Health, in

collaboration with colleagues at the Norwegian University of Science and Technology, may have found the answer: It doesn't. In fact, they found obesity increases risk.

Recently published in the journal *PLOS Medicine*, the study is the result of an innovative genetic analysis called Mendelian randomization that the researchers employed on data from more than 55,000 people in Norway over a 23-year span. Researchers found that those who were genetically predisposed to a higher BMI also had a higher risk of dying from bloodstream infections—a direct contradiction of earlier studies on the subject.

Andrew DeWan, associate professor in the Department of Chronic Disease Epidemiology and a senior author of the paper, said this kind of genetic analysis can help eliminate the biases that plagued earlier efforts to connect BMI and bloodstream infections.

For example, factors that both lower your BMI and increase your risk of dying, such as smoking habits and [chronic diseases](#), may confound the association between BMI and mortality risk.

"When you get rid of all of these potential biases, we see what we would expect from our understanding about the [health effects](#) of increasing BMI," DeWan said. "It doesn't mean that there aren't some other hidden biases, but this takes care of a lot of known biases that people think about in epidemiological research."

It's not fully understood how a higher BMI makes these infections more likely—and more deadly. But DeWan has an informed guess. Obesity is generally associated with [poor health](#), he said, and bloodstream infections could be more difficult to fend off in an unhealthy body.

There are some limitations to the findings. Because Norway is largely

genetically homogenous, DeWan said that researchers could run into challenges trying to map the results onto more diverse populations like those in the United States. And since this method works with [genetic data](#) generated from subjects of white, European ancestry, people of color may have genetically predicted BMIs that are less precise.

DeWan said he encourages researchers to test this method on other groups to see how universal their conclusion is.

"I would suspect that we would likely get similar results if we did this in the United States," DeWan, Ph.D., M.P.H., predicted. "We would most likely see the same trend, but it may not be as significant in other populations."

More information: Tormod Rogne et al. Body mass index and risk of dying from a bloodstream infection: A Mendelian randomization study, *PLOS Medicine* (2020). [DOI: 10.1371/journal.pmed.1003413](https://doi.org/10.1371/journal.pmed.1003413)

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