COVID-19: Is obesity really more of a risk factor for men than women?

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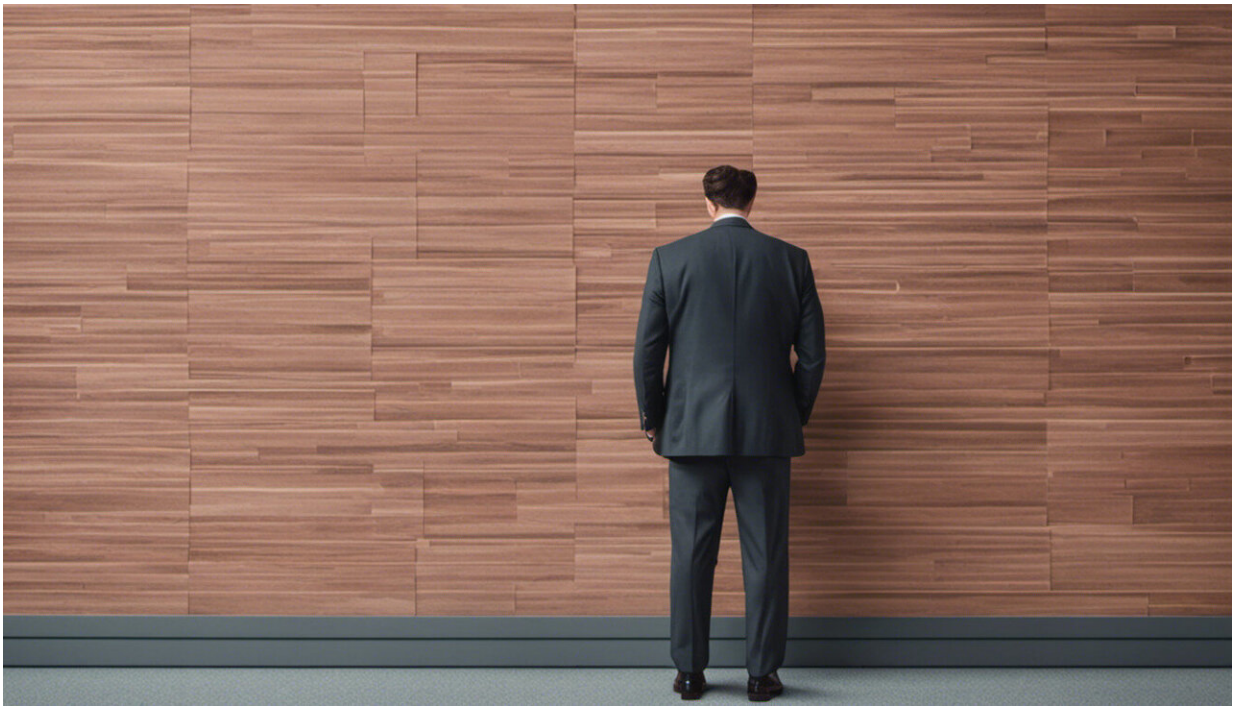

Credit: AI-generated image (disclaimer)

A new US study has added to the evidence that obesity is a risk factor for severe COVID-19. And in this paper, a particular finding has caught the media's attention: the apparently greater risk posed by COVID-19 to men with obesity than women. But while it's tempting to take this information at face value, there are several reasons not to.

There are lots of different ways to look at whether and how obesity increases the risk of COVID-19. Body mass index, or BMI, is the main measure used in studies investigating whether people with obesity have worse outcomes. You can easily calculate your BMI online if you know your weight and height.

The association between worse COVID-19 outcomes and obesity was recognized early on in the pandemic. The first large study investigating this relationship was released in July 2020 and used data from more than 17 million adults in England. It showed that having a BMI of over 40—classified as "severe obesity"—almost doubled a person's risk of dying from COVID-19. However, it didn't provide data on people with BMIs in the lower "overweight" or "obese" ranges.

A second large British study helped fill this gap, using data from almost 7 million adults. Rather than comparing people with obesity to people without obesity, it looked at the full spectrum of weight, again using BMI. It found that the lowest risk was in those with a BMI of 23—above that, every additional increase of one BMI unit led to an approximately 4% increase in risk of dying from COVID-19. Having a BMI lower than 23 also raised this risk.

In contrast to these two community-based British studies, the new US study is based on approximately 3,500 people hospitalized with COVID-19. The scientists found that in men, "obesity class II" (a BMI ranging from 35 to 39.9) and "obesity class III" (a BMI of 40 or greater) were associated with greater risks. In women, obesity class III was also associated with greater risk, but the relationship was less clear for obesity class II.

There are a number of reasons we can't read too much into this finding. When it comes to understanding risk factors, as a rule of thumb, the bigger the study the more certain we can be. In contrast to the British

studies with data from millions of people, this US study is relatively small. That's problematic, because with fewer people our ability to estimate risks becomes less precise. In other words, with fewer people in a study we can't be sure if any results we find are due to genuine differences in risk or simply down to chance.

It is now well established that men are at greater risk of being hospitalized with, and dying from, COVID-19. This US study only looked at hospitalized people, so unsurprisingly included more men than women. As a result, estimates given for women with class II obesity were more uncertain than the estimates for men. Therefore, it could be that obesity class II is genuinely less of a risk factor in women, but also could just be that the results in women were less precise.

If other studies had also found that the risk from obesity was less pronounced in women than men, we might be more confident that the US study was reflecting a real phenomenon rather than chance. However, of the two large British studies, the first didn't report whether the risk from obesity varied in men versus women, while the second found that the risks from excess body weight were the same in both men and women. Interestingly, it did find that these risks were much more pronounced in younger people.

Why this matters

Knowing who is at more risk from COVID-19 is important. It matters because it helps us target interventions, including vaccines, at those who need them most. It also matters because, where these risk factors can be changed, it helps us improve our health and resilience to COVID-19 and other infections.

For now, there is not enough data to say with any certainty that obesity is less of a COVID-19 risk factor in women than in men. What we can say

for certain is that obesity is associated with an increased risk of worse COVID-19 outcomes in and of itself. It's also a risk factor for conditions such as type 2 diabetes that can lead to worse outcomes.

We also know that eating well and being active improve health and may even reduce COVID-19 risk. But eating well and moving more is easier said than done. We need to work towards healthier environments—not just for men with obesity, or women with obesity, but for everyone.

And when we see interesting data from smaller studies, we need to be careful not to jump to conclusions either way. Just because a group is underrepresented in the data, as may be the case in this US COVID-19 study, doesn't mean the risk isn't real.

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