

NIHR Greater Manchester PSTRC

Plain English Publication Summary

Publication: [Estimating the causal effect of BMI on mortality risk in people with heart disease, diabetes and cancer using Mendelian randomization](#)

Publication details (Vancouver format)

Jenkins DA, Wade KH, Carslake D, Bowden J, Sattar N, Loos RJ, Timpson NJ, Sperrin M, Rutter MK. Estimating the causal effect of BMI on mortality risk in people with heart disease, diabetes and cancer using Mendelian randomization. *International Journal of Cardiology*. 2021 May 1;330:214-20.

What are the most important findings/conclusions in this paper? Why are they important?

We found that people with a higher body mass index (BMI) have a higher risk of death. This supports the idea that promoting weight loss in the general population would reduce the risk of death for all patients, including people with cardiovascular disease (conditions affecting the *heart* or blood vessels).

What did you do?

The UK Biobank is a database that contains the health information of over half a million patients. We analysed the data in the UK Biobank, including for patients with diseases such as type two diabetes, cancer and cardiovascular disease, as well as the general population.

We used a 'survival regression model', which means that the lifespan of an average patient can be estimated, based on specific health criteria that are used. In this study, we used body mass index (BMI) as a health criteria, so we could work out how much impact weight has on the average lifespan of patient groups who also have certain diseases.

Then we did the same thing again, but instead of BMI, we used each person's genetic information to estimate how much BMI affects the average lifespan.

Why did you conduct this research?

The challenges of CPMs are well-known but there are currently no recommendations or solutions discussed in academic papers. So we chose to discuss some possible solutions that should be researched, in order to improve CPMs.

What was known before your paper was published?

Some studies have reported that being overweight or obese, compared to being normal weight, means there is a lower risk for death. This is known as the obesity paradox. The idea that being overweight or obese helps people live longer goes against normal understanding of the body, which links obesity to negative health outcomes. It is now thought that there are other reasons behind the obesity paradox and that there's no benefit to being overweight or obese. However, there aren't many studies that have tried to find out how much BMI affects the lifespan of the population.

What is next? What is the potential impact of the work in this paper? What will change as a result of this paper (or the study it describes)?

This work followed on from a previous study [Adiposity-Mortality Relationships in Type 2 Diabetes, Coronary Heart Disease, and Cancer Subgroups in the UK Biobank, and Their Modification by Smoking](#).

This study could potentially influence clinical advice on intentional weight loss.

Does this paper link in to a particular study / project? If so, please summarise the study and explain how this paper has improved understanding, or will move the study forward.

N/A