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The BMJ Press Release

Being short or overweight linked to reduced life chances

Findings have important social and health implications

Being a short man or an overweight woman is associated with lower chances in life in areas such as education, occupation, and income, concludes a study published by **The BMJ** today.

The findings provide the strongest evidence to date that overweight people, especially women, are at a socioeconomic disadvantage - and that taller people, especially men, are at a socioeconomic advantage.

It is well known that higher socioeconomic status is associated with better health and longer life. In developed countries, being taller and thinner are associated with higher socioeconomic status, but the directions of these associations are not fully understood.

To better understand these interactions, a team of UK and US researchers, led by Professor Timothy Frayling at the University of Exeter, set out to test whether genetic

variants influencing height or BMI play a direct (causal) role in socioeconomic status.

They analysed genetic variants with known effects on height and body mass index (BMI) from 119,000 individuals aged between 40 and 70 in the UK Biobank - a database of biological information from half a million British adults - using a technique called mendelian randomisation.

Using genetic information in this way avoids some of the problems that afflict observational studies, making the results less prone to bias and unmeasured confounding factors, and therefore more likely to be reliable.

Five measures of socioeconomic status were assessed: age completing full time education, degree level education, job class, annual household income, and Townsend deprivation index (a recognised social deprivation score).

Analyses were repeated separately for men and women.

The results show that shorter height, as estimated by genetics, leads to lower levels of education, lower job status, and less income, particularly in men, and that higher BMI leads to lower income and greater deprivation in women.

A range of factors could link taller stature to higher social position, although this study did not consider which of these factors were involved, explain the authors. However, they say possibilities include complex

interactions between self esteem, stigma, positive discrimination, and increased intelligence.

“These data support evidence that height and BMI play an important partial role in determining several aspects of a person’s socioeconomic status, especially women’s BMI for income and deprivation and men’s height for education, income, and job class,” they write.

“These findings have important social and health implications, supporting evidence that overweight people, especially women, are at a disadvantage and that taller people, especially men, are at an advantage,” they conclude.

Open data projects such as UK Biobank offer great opportunities for advancing understanding in this field, say experts at the University of Bristol in an accompanying editorial. However, they point out that “important caveats exist even to this interpretation” and call for “an appropriately careful approach to data analysis and interpretation.”

[Ends]

Note to Editors

Research: Height, body mass index, and socioeconomic status: mendelian randomisation study in UK Biobank

<http://www.bmj.com/cgi/doi/10.1136/bmj.i582>

Editorial: Can genetic evidence help us understand why height and weight relate to social position?

<http://www.bmj.com/cgi/doi/10.1136/bmj.i1224>

Link to author video: <https://youtu.be/wG2I5fNO3oI>

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