

Obesity linked to increased risk of taking up smoking and smoking frequency

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Being obese is associated with an increased risk of taking up smoking and smoking frequency (number of cigarettes smoked per day), finds a study published by *The BMJ* today.

These results strongly suggest that obesity influences smoking behavior, which could have implications for [public health interventions](#) aiming to

reduce the prevalence of these important risk factors, say the researchers.

It is well known that smokers have lower [body](#) weight on average than non-smokers, but tend to gain weight after quitting. However, active smokers who smoke more intensively tend to weigh more than light smokers. While this may be due to other lifestyle factors, such as physical inactivity and unhealthy diet, it is also possible that obesity could influence smoking uptake and intensity.

Indeed, genetic evidence suggests a possible common biological basis for addictive behaviours, such as nicotine addiction and higher energy intake.

If it could be established that obesity influences smoking behaviour, this would have implications for prevention strategies aiming to reduce these important risk factors.

To better understand these interactions, a team of researchers based in France and the UK set out to determine whether genetic markers associated with obesity play a direct (causal) role in smoking behaviour.

They analysed genetic variants with known effects on body mass index (BMI), [body fat percentage](#) and [waist circumference](#) for nearly 450,000 individuals from the UK Biobank database and the Tobacco and Genetics (TAG) consortium—using a technique called Mendelian randomisation.

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

An association that is observed using Mendelian randomisation is therefore likely to reflect a causal relation.

Three measures of smoking behaviour were assessed: current and past smoking, number of cigarettes smoked per day, and age of smoking initiation. The average age of study participants was 58 years.

The results show that each 4.6 kg/m² increase in BMI was associated with an 18% increased risk of being a smoker in UK Biobank and a 19% increased risk in the TAG consortium data.

Each increase in BMI was also estimated to increase smoking frequency by around one cigarette per day (0.88 in UK Biobank and 1.27 in the TAG consortium).

Similar results were seen for body fat percentage and waist circumference, and were consistent in both men and women.

The researchers point out that, as with any Mendelian randomisation analysis, several assumptions were made, and they cannot rule out the possibility that sociodemographic factors may have influenced the results.

Nevertheless, they say based on comprehensive genetic data from nearly 450,000 individuals, "our study provides evidence that differences in [body mass index](#) and body fat distribution causally influence different aspects of smoking behavior, including the risk of individuals taking up smoking, [smoking](#) intensity, and [smoking cessation](#).

"These results highlight the role of obesity in influencing [smoking initiation](#) and cessation, which could have implications for public health interventions aiming to reduce the prevalence of these important risk factors," they conclude.

More information: The role of obesity in smoking behavior.
Mendelian randomisation study in UK Biobank, *BMJ* (2018).
www.bmj.com/content/361/bmj.k1767

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