

Study finds a decline in heart attacks over 20 years, but rising BMIs may reverse this in the future

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Better control of cholesterol levels and blood pressure and a decline in smoking have contributed to a 74% drop in the risk of heart attack among nearly 10,000 civil servants working in London over a 20-year period, according to new research. However, the reduction would have been even greater were it not for the fact that more people became fatter during this time, and this rise in body mass index (BMI) accounted for an estimated 11% increased risk of heart attack over the same period.

In a paper published online today in the [European Heart Journal](#), researchers report that, among 9453 people taking part in the long-running Whitehall II study in London (UK), there was a substantial reduction (74%) in the chances of a first [heart attack](#) (myocardial infarction) among both men and women between 1985 and 2004. This corresponded to an annual average decline of 6.5%.

Over half of this reduction in heart attack rates could be explained by improvements in four of the main risk factors for heart attack: declining levels of "bad" non-HDL cholesterol levels, an increase in "good" HDL cholesterol, reduced blood pressure, and a reduction in the number of people who smoked. There was also a modest but statistically insignificant contribution from increased consumption of fruit and vegetables. Together, these five risk factors accounted for 56% of the reduction in the risk of heart attack.

Trends in physical activity, alcohol and bread consumption had no notable impact. However, there was a steady annual rise in BMI for both men and women, and this was associated with an increase in the risk of [heart attack](#) of 11% over the 20-year period.

The research, led by Ms Sarah Hardoon, a senior research associate, and Dr Eric Brunner, a Reader in Epidemiology and Public Health, at University College London Medical School (London, UK), suggests that the increase in BMI could have led to an increase in the incidence of heart attacks during the period of the study, were it not for the favourable trends seen in the other risk factors.

"The substantial decline in [myocardial infarction](#) over two decades to 2004, of which more than half could be attributed to favourable trends in well-known risk factors, highlights what can be achieved and emphasises the value of the measures taken to combat risky levels of cholesterol and [blood pressure](#), and to promote healthier lifestyles. However, although these favourable trends seem to have outweighed the negative contribution of rising BMI over recent decades, continued increases in BMI may reduce further, and even reverse, the decline in the incidence of heart attacks in the future. Therefore, the rising BMI in the UK and in other countries needs urgent attention," said Ms Hardoon.

More research is required to understand what other factors may account for the rest of the reduction in heart attacks that is not explained by these five risk factors. Ms Hardoon said there were a number of possible explanations.

"It could well be that we have underestimated the contribution of various risk factors. There may be some imprecision in the measurements, particularly for those that derive from questionnaires, such as diet, physical activity and alcohol consumption. Also, we have not captured the small fluctuations in the risk factors that occur. Had the [risk factors](#)

all been measured precisely and we had captured the fluctuations in them, we might have explained a greater portion of the decline. Alternatively, there may have been favourable trends in other contributory factors not measured here, such as early treatment."

The researchers say that the reduction in non-HDL ("bad") cholesterol had the greatest single impact on the incidence of heart attacks, and this may reflect the increased use of cholesterol-lowering drugs such as statins, as well as healthier lifestyles. Statin use rose during the 20-year period and, by 2004, 11% of the civil servants were taking them.

More information: "Rising adiposity curbing decline in the incidence of myocardial infarction: 20-year follow-up of British man and women in the Whitehall II cohort". European Heart Journal.

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