

Public health study: Smoking increases the risks of 56 diseases in Chinese adults

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Smoking increases the risks of 56 diseases in Chinese adults. Credit: [Shutterstock](#)

Smoking increases the risks of 56 diseases and kills more than one million adults in China each year from 22 different causes, according to new research published in *The Lancet Public Health*.

Tobacco smoking is projected to cause one billion deaths worldwide this century, mainly in low and [middle income countries](#) (LMICs) such as China. Two thirds of adult men in China smoke; the study, led by researchers from Oxford Population Health, U.K., Peking University and the Chinese Academy of Medical Sciences shows that around half of those who start smoking cigarettes as young men (before the age of 18) will eventually be killed by tobacco, unless they give up permanently.

Smoking also increases the risks of developing a wide range of conditions that do not generally cause deaths, such as asthma, peptic ulcer, cataract, diabetes, and other [metabolic diseases](#).

The adverse effects of smoking have been known for many years, but very few studies, even those in high-income Western countries, have systematically assessed the impact of smoking on an extensive range of diseases within the same population. The researchers used data from the

China Kadoorie Biobank to comprehensively assess the health effects of [tobacco smoking](#) on death and hospitalization from a range of diseases and to examine the benefit of smoking cessation.

The study included over 512,000 adults who were recruited during 2004–08 from 10 diverse urban and rural areas across China. They were interviewed about lifestyle and behavior factors, including detailed smoking information, such as the ages at which they started smoking and the type of tobacco products they used. Their answers were validated objectively using exhaled carbon monoxide.

Of all of the participants, 32.4% had ever smoked regularly; this was much higher in men (~74%) than women (~3%). Participants were followed for a median of 11 years, during which more than 48,800 participants died and around 1.14 million new disease events occurred. The analyses were adjusted for other factors such as age, education, and alcohol drinking.

Key findings:

- Of almost 85 causes of death and 480 diseases studied, smoking was associated with higher risks of 22 causes of death (17 for men and nine for women) and 56 individual diseases (50 for men and 24 for women) across all body systems;
- Compared with people who had never smoked, men who had ever smoked regularly had about 10% higher risk of developing any disease (HR 1.09, 95% CI 1.08–1.11) ranging from 6% higher risk for diabetes (HR 1.06 [1.02–1.09]) to 216% for larynx cancer (HR 3.16 [1.98–5.05]). They also experienced significantly more frequent and longer stays in hospital, particularly due to cancers and [respiratory diseases](#);
- Men who were regular smokers and lived in [urban areas](#) tended to start smoking at a

- younger age and smoked in a greater amount than those in [rural areas](#); they were at higher risk of death (HR 1.50 [1.42–1.58] vs 1.25 [1.20–1.30]), especially those who started smoking under the age of 18 (HR 2.06 (1.89–2.24) for overall mortality and 1.32 (1.27–1.37) for any disease incidence);
- 19.6% of male (24.3% of men residing in urban settings and 16.2% of men residing in rural settings) and 2.8% of female deaths were attributed to having smoked regularly;
 - People who stopped smoking voluntarily (ie before developing major diseases) were found to have similar levels of risk of developing disease as people who had never smoked, about 10 years after quitting;
 - Despite the lower smoking prevalence and intensity in female smokers, they had comparable relative risks of major respiratory diseases, demonstrating a special vulnerability to the harm of tobacco (compared to men).
 - Smokers of either sex were likely to die at a median of 3.5 years earlier and among men this survival gap between smokers and never smokers is likely to increase significantly in future decades.

Ka Hung Chan, research fellow at Oxford Population Health and a lead author of the paper said: "The results are a stark reminder of the serious consequences of smoking and the benefits of stopping before any major illness develops. Although some associations were weaker than those seen in high-income populations, these are likely to be explained by the more recent widespread uptake of smoking in China."

Professor Liming Li, a senior author from Peking University, said, "About two-thirds of young Chinese men become cigarette smokers, and most start before they are 20. Unless they stop, about half of them will eventually be killed by their habit."

According to Professor Chen Wang, a senior author from the Chinese Academy of Medical Sciences, in Beijing, China, "Without rapid, committed, and widespread action to reduce smoking levels in China, the country will face an enormous health and economic burden of premature deaths and

disease morbidity attributed to smoking."

Zhengming Chen, Richard Peto Professor of Epidemiology at Oxford Population Health and one of the senior authors, said, "About 40% of the world's tobacco is consumed by people in China, almost exclusively by men. For China, a substantial increase in cigarette prices and effective package warning could save tens of millions of lives."

Certain myths about tobacco use have limited the effectiveness of health education messages in China. These include the belief that smoking is less hazardous to Asian populations, that quitting smoking may have unwanted health consequences, and that tobacco use is an intrinsic and traditional part of Chinese culture. The new study clearly demonstrates the severe health consequences of [tobacco use](#) beyond premature mortality, with similar risks per smoker in men and women.

The study predicts that the future tobacco hazards will be the greatest among men born after the 1970s most of whom start cigarette smoking before age 20 years and the risks in rural men will gradually overtake those in urban men due to higher smoking prevalence. Future research should continue to monitor the rising burden of smoking in China, and in other LMICs which face similar tobacco epidemics.

The paper, "Tobacco [smoking](#) and risks of >470 diseases in China: a prospective cohort study," is published in *The Lancet Public Health*.

More information: Ka Hung Chan et al, Tobacco smoking and risks of more than 470 diseases in China: a prospective cohort study, *The Lancet Public Health* (2022). DOI: [10.1016/S2468-2667\(22\)00227-4](https://doi.org/10.1016/S2468-2667(22)00227-4)

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