

Domestic coal use linked to substantial lifetime risk of lung cancer in Xuanwei, China

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The use of "smoky coal" for household cooking and heating is associated with a substantial increase in the lifetime risk of developing lung cancer, finds a study from China published in the *British Medical Journal* today.

This represents one of the strongest effects of environmental pollution reported for [cancer risk](#) in any population, say the authors. It also underlines the importance of taking action to minimise exposure to the most hazardous types of fuel.

About half the world's population uses coal and other solid fuels for cooking and heating, often in simple stoves that are unvented.

Exposure to certain types of solid fuel smoke is associated with several diseases, including [chronic obstructive pulmonary disease](#), [acute respiratory infections](#), and lung cancer. However, the relationship between smoky coal use and lung cancer is not fully understood.

So an international team of researchers compared deaths from lung cancer between lifelong users of "smoky coal" and "smokeless coal" for household cooking and heating in Xuanwei County, Yunnan Province, China, where lung cancer rates are particularly elevated.

In total, over 37,000 individuals were followed over a 20-year period (1976-96) during which time more than 2,000 deaths from lung cancer

were recorded.

After taking account of other possible risk factors including [tobacco use](#), lung cancer cases and deaths were substantially higher among users of smoky (i.e. bituminous) coal for home cooking and heating than users of smokeless (i.e. anthracitic) coal.

In absolute terms, the risk of lung cancer death before 70 years of age for men and women using smoky coal was 18% and 20% respectively, compared with less than 0.5% among smokeless coal users of both sexes. These risks are almost as high as those reported for [heavy smokers](#) in Western countries, ranging between 20% and 26%.

Lung cancer deaths were also associated with the average number of hours that a smoky coal user spent at home and the age at which participants started cooking.

The authors say that their findings have important implications for public health in this region of China and suggest that the use of less carcinogenic types of coal or other fuels can translate into a substantial reduction of lung cancer risk.

As this chemical and physical composition of coal differs widely in different geographical locations, additional research is needed on the carcinogenicity of various types of coal, they add.

Provided by British Medical Journal

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