Thousands die early from gas cooker pollution - research breakthrough

Regular breaches of WHO standards in the average home across half of Europe

Pollution from gas cookers cuts short the lives of 39,959 Europeans each year, the first scientific estimate of premature deaths has found.

Researchers at the University Jaume I's School of Health Sciences in Spain found that World Health Organisation guidelines are regularly broken in the average home in 14 European countries when background pollution combines with gas cooker fumes during normal use.

The worst hit countries are Italy, Poland, Romania, France and the UK, where more households cook with gas. Pollution is worst in homes with poor ventilation and during longer cooking sessions.

The researchers focused on one pollutant from gas cookers, nitrogen dioxide (NO_2), because it is well understood by epidemiologists [1]. They combined real world pollution measurements inside and outside homes across Europe taken by Dutch researchers last year with government data on background NO_2 concentrations in order to produce the first European map of likely NO_2 concentrations in homes that use gas cookers. They applied these figures to established NO_2 pollution risk rates to calculate the likely number of premature deaths in a year [2].

Lead author Dr Juana Maria Delgado-Saborit said: *"Way back in 1978, we first learned that* NO_2 *pollution is many times greater in kitchens using gas than electric cookers. But only now are we able to put a number on the amount of lives being cut short. The extent of the problem is far worse than we thought, with our modelling suggesting that the average home across half of Europe breaks WHO limits. Outdoor air pollution lays the foundation for those breaches, but it is gas cookers that push homes into the danger zone."*

Case studies and an explanation of Dr Delgado-Saborit's work are featured in videos here

The true human cost of gas cooker pollution is likely significantly higher, the researchers say. A lack of data meant they had to exclude some health conditions as well as other harmful pollutants created by gas cookers, such as benzene, formaldehyde and particulate matter. When most pollutants are included and using a less precise method, the researchers found that gas cookers likely cause roughly 367,000 child asthma cases and 726,000 cases in all age groups in Europe each year.

An estimated one third of European homes cook with gas, which generally have the highest levels of NO_2. The cookers leak the powerful greenhouse gas methane even when switched off. Indoor air quality is important because Europeans spend almost all their time inside and buildings are getting less fresh air as they are made more airtight. Air pollution is considered the single biggest environmental health risk.

NASA says there has been significant drops in NO_2 pollution over European cities in recent decades thanks to EU vehicle emission rules and vehicle technology. But background pollution remains a major contributor to the hazardous levels found by the study. Outdoor NO_2 pollution limits are set to get tougher soon.

The EU has no indoor air quality standards and its legislative tools for tackling the problem are scattered, argues the European Public Health Alliance (EPHA), the EU's largest group of civil society organisations working on public health. EPHA coordinates a clean cooking campaign and has partnered with the University to advance knowledge on this issue. The EU is due to propose updated rules for gas cookers later this year and has been considering pollution restrictions, including for NO_2. EPHA is urging Brussels to rapidly phase out gas cookers through emissions limits, paired with financial incentives to switch to cleaner cookers. It also wants to see mandatory consumer labels on cookers to signal pollution risks and public education campaigns on the risks of burning fuels indoors.

EPHA policy manager for global public health, Sara Bertucci, said: *"For too long it has been easy to dismiss the dangers of gas cookers. Like cigarettes, people didn't think much of the health impacts and like cigarettes, gas cookers are a little fire that fills our home with pollution. The true impacts are likely greater than predicted in this study. Knowing that, governments should take a lead in helping us quit gas, just like they helped us quit cigarettes."*

Ends

Notes

[1] Scientists are confident that long-term exposure to NO_2 raises the risk of premature death. Even brief exposure is thought to increase the need for hospital treatment, though the evidence for this is less clear. Children are especially vulnerable to air pollution because they have weaker lungs and immune systems. Short-term exposure to NO_2 has been linked to increased asthma symptoms in children, increased risk of missed school days due to asthma and increased wheezing.

[2] The study noted some limitations. It relied on data from slightly differing time periods. But the largely static population trends mean that the study conclusions on premature death and asthma numbers are unlikely to change significantly from year to year. Real world indoor NO_2 rates are likely higher than estimated in the study, which used a national average for ambient NO_2 pollution when population centres likely suffer more ambient NO_2 pollution. Despite this, the study's conclusions are likely conservative, the university says, because additional health impacts were not included due to lack of research, for example connecting NO_2 to hospital admissions. Only one previous study links NO_2 to premature death, in America.

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