

# Establishing a link between air pollution and dementia

June 7 2021, by Aaron Sidderaaron Sidder

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Here environmental activist Sumaira Abdulali measures particulate matter emitted by a burning roadside garbage dump near Mumbai, India. Credit: Sumaira Abdulali, CC BY-SA 4.0, via Wikimedia Commons

More people around the world are falling ill and dying from dementia than they used to. Between 2000 and 2019, the rate of dementia increased by 86%, while deaths from the cognitive disorder more than doubled. Longer life spans and aging populations in much of the world are partly to blame. However, evidence suggests that lifestyle and environmental causes may also play a role, namely, air pollution, excessive alcohol consumption, and traumatic brain injury.

In new research, Ru et al. explored the role of [air pollution](#) in rising dementia cases. The authors perused existing literature to find links between [fine particulate matter](#) 2.5 (PM2.5)—defined as particulates having a diameter less than or equal to 2.5 micrometers—and dementia. PM2.5 arises from both anthropogenic and natural sources, like burning gas for vehicles and wildfires. In addition, cigarettes produce fine particulate matter, which is inhaled by the smoker and through secondhand smoke. When these pollutants enter the body, they can affect the central nervous system and lead to cognitive disorders.

The study's findings indicate that in 2015, air pollution caused approximately 2 million incidences of dementia worldwide and around 600,000 deaths. The countries most affected were China, Japan, India, and the United States. What is more, Asia, the Middle East, and Africa face increasing burdens from the disease as living standards and pollution climb. The analysis concludes that air pollution causes roughly 15% of [premature deaths](#) and 7% of disability-adjusted life years (which accounts for mortality and morbidity) associated with dementia, with estimated economic costs of around \$26 billion.

The study establishes air pollution as a potentially significant risk factor for dementia. It suggests that reducing air pollution may help prevent dementia in older populations. However, the researchers note high uncertainty in the relationship. Future work that focuses on high-exposure regions will be necessary to clarify the link better.

**More information:** Muye Ru et al, Exploration of the Global Burden of Dementia Attributable to PM2.5: What Do We Know Based on Current Evidence?, *GeoHealth* (2021). [DOI: 10.1029/2020GH000356](https://doi.org/10.1029/2020GH000356)

*This story is republished courtesy of Eos, hosted by the American Geophysical Union. Read the original story [here](#).*

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Citation: Establishing a link between air pollution and dementia (2021, June 7) retrieved 22 May 2024 from <https://phys.org/news/2021-06-link-air-pollution-dementia.html>

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