

# Long-term air pollution exposure linked to late-life depression

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There are harmful associations between long-term exposure to air

pollution and an increased risk for late-life depression, according to a study published online Feb. 10 in *JAMA Network Open*.

Xinye Qiu, Ph.D., from the Harvard T.H. Chan School of Public Health in Boston, and colleagues conducted a population-based longitudinal cohort study involving U.S. Medicare enrollees aged older than 64 years. After a five-year washout period at entry, 8,907,422 unique individuals (mean age after washout period, 73.7 years) were followed during 2005 to 2016, contributing 1,526,690 late-onset [depression](#) diagnoses.

The researchers found that based on a tripollutant model, each 5-unit increase in long-term mean exposure to [fine particulate matter](#), [nitrogen dioxide](#), and ozone was associated with an adjusted percentage increase of 0.91, 0.61, and 2.13 percent in depression risk, respectively. Among subpopulations, the investigators observed effect size heterogeneity by comorbidity condition and neighborhood contextual backgrounds.

"We hope this study can inspire researchers to further consider possible environmental risk factors (such as [air pollution](#) and living environment) for the prevention of geriatric depression, to understand the disease better moving forward, and to improve the delivery of mental health care services among older adults," the authors write.

One author is an expert witness for the U.S. Department of Justice in a case involving a Clean Air Act violation.

**More information:** Xinye Qiu et al, Association of Long-term Exposure to Air Pollution With Late-Life Depression in Older Adults in the US, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2022.53668](#)

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