Air pollution

see Air Pollution as a brain tumor risk factor.

see Air Pollution as a intracerebral hemorrhage risk factor.

Epidemiological research has shown that exposure to fine particulate matter pollution (PM2.5) is associated with a reduction in cognitive function in older adults. However, primary evidence comes from high-income countries, and no specific studies have been conducted in low and middle-income countries where higher air pollution levels exist.

To estimate the association between the exposure to PM2.5 and cognitive function in a nationally representative sample of older Mexican adults and the associated effect modifiers.

Data for this study were taken from the National Survey of Health and Nutrition in Mexico carried out in 2012. A total of 7986 older adults composed the analytical sample. Cognitive function was assessed using two tests: semantic verbal fluency and three word recall. The annual concentration of PM2.5 was calculated using satellite data. Association between exposure to PM2.5 and cognitive function was estimated using two-level logistic and linear regression models.

In adjusted multilevel regression models, each 10 µg/m3 increase in ambient PM2.5 raised the odds of a poorer cognitive function using the three-word memory test (OR = 1.37, 95% CI: 1.08, 1.74), and reduced the number of valid animal named in the verbal fluency test (β = -0.72, 95% CI: -1.05, -0.40). Stratified analyses did not yield any significant modification effects of age, sex, indoor pollution, urban/rural dwelling, education, smoking and other factors.

This study supports an association between exposure to PM2.5 concentrations and cognitive function in older adults. This is particularly relevant to low- and middle-income countries, which are marked by a rapid growth of their aging population and high levels of air pollution [1)].

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Salinas-Rodríguez A, Fernández-Niño JA, Manrique-Espinoza B, Moreno-Banda GL, Sosa-Ortiz AL, Qian ZM, Lin H. Exposure to ambient PM(2.5) concentrations and cognitive function among older Mexican adults. Environ Int. 2018 Apr 25;117:1-9. doi: 10.1016/j.envint.2018.04.033. [Epub ahead of print] PubMed PMID: 29704751.