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Ambient air pollution exposure linked to sleep apnea

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(HealthDay)—Ambient air pollution exposure is associated with sleep

apnea, according to a study recently published online in the *Annals of the American Thoracic Society*.

Martha E. Billings, M.D., from the University of Washington in Seattle, and colleagues analyzed data from a sample of participants in the Multi-Ethnic Study of Atherosclerosis who took part in the Sleep and Air studies to examine whether ambient-derived pollution exposure was correlated with obstructive sleep apnea and objective sleep disruption. Spatio-temporal models were used to estimate mean annual and five-year exposure levels to nitrogen dioxide and fine particulate matter ($PM_{2.5}$) at participants' houses. Data were included for 1,974 participants.

The researchers found that 48 percent of participants had sleep apnea and 25 percent had a sleep efficiency of ≤88 percent. There were increases of 39 percent (95 percent confidence interval, 1.03 to 1.87) and 60 percent (95 percent confidence interval, 0.98 to 2.62) in the odds of sleep apnea for a 10-ppb annual increase in nitrogen dioxide exposure and a 5 $\mu g/m^3$ greater annual $PM_{2.5}$ exposure, respectively. In fully adjusted models, there was no correlation for sleep efficiency with air pollution levels.

"Chronic exposure to greater levels of air pollution may adversely influence breathing during sleep, suggesting possible etiologies of sleep health disparities," the authors write. "Future studies are needed to discern the effects of specific air pollutants from other neighborhood and regional features, to explore possible mechanisms, and to evaluate if improving air quality improves sleep health."

More information: Abstract/Full Text (subscription or payment may be required)

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