

Prenatal exposure to non-tailpipe air emissions associated with autism in offspring

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Prenatal exposure to non-tailpipe air pollution emissions is associated

with development of autism spectrum disorder (ASD) in young children, according to a study published in the January issue of *Environment International*.

Md Mostafijur Rahman, Ph.D., from the University of Southern California in Los Angeles, and colleagues examined associations between ASD and [fine particulate matter](#) (PM_{2.5}) tracers of tailpipe (elemental carbon [EC] and [organic carbon](#) [OC]) and non-tailpipe (copper [Cu], iron [Fe], and manganese [Mn]) sources during pregnancy. The analysis included 318,750 children born in Kaiser Permanente Southern California hospitals from 2001 to 2014 and followed until age 5 years.

The researchers found that increased ASD risk was associated with gestational exposures to tracers of both tailpipe and non-tailpipe emissions in single-pollutant models. For EC, OC, Cu, Fe, and Mn, the ASD hazard ratios per interquartile increment of exposure were 1.11, 1.09, 1.09, 1.14, and 1.17, respectively. For non-tailpipe sources, the estimated effects of Cu, Fe, and Mn were largely unchanged in two-pollutant models when adjusting for PM_{2.5}, nitrogen dioxide, EC, or OC. There was marked weakening of ASD associations observed for EC and OC when adjusting for non-tailpipe sources.

"Implications are that reducing tailpipe emissions, especially from vehicles with [internal combustion engines](#), may not eliminate ASD associations with traffic-related air pollution," the authors write.

More information: Md Mostafijur Rahman et al, Prenatal exposure to tailpipe and non-tailpipe tracers of particulate matter pollution and autism spectrum disorders, *Environment International* (2023). [DOI: 10.1016/j.envint.2023.107736](https://doi.org/10.1016/j.envint.2023.107736)

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