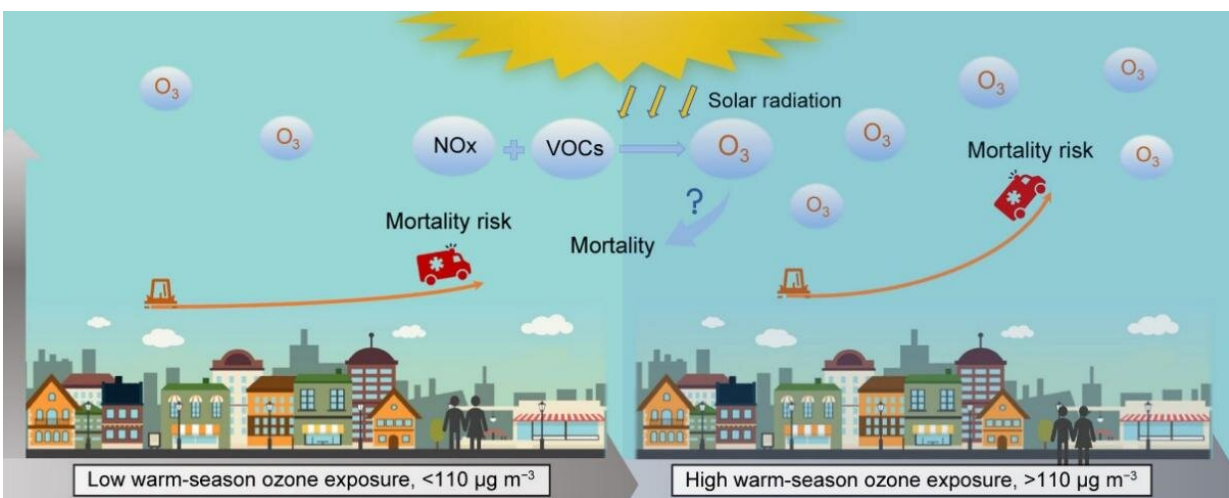


High ozone exposure linked to increased mortality: New insights from a comprehensive Chinese national cohort study

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Graphical abstract. Credit: *Environmental Science and Ecotechnology*

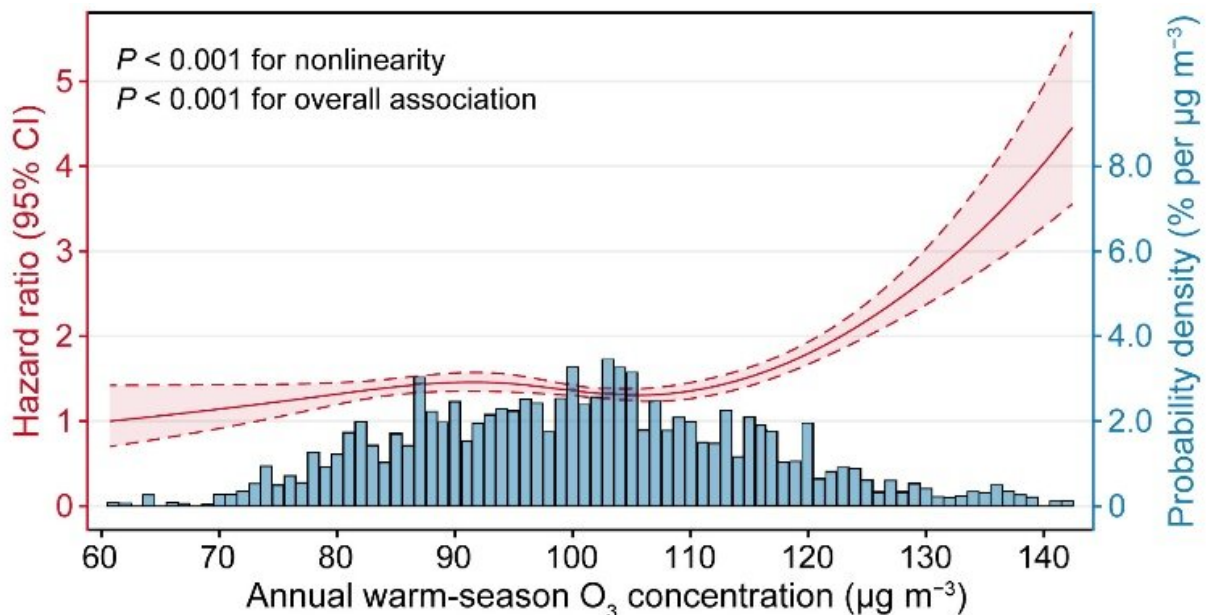
In a new study published in *Environmental Science and Ecotechnology*, researchers from Wuhan University of Science and Technology revealed that even a modest increase of $10 \mu\text{g m}^{-3}$ in O_3 concentration was associated with a hazard ratio of 1.18 for all-cause mortality, indicating an 18% higher risk of death.

The investigation encompassed a robust cohort of 20,882 participants nationwide and spanned a comprehensive seven-year period from 2011

to 2018. An intriguing aspect of this study is its particular focus on warm-season O₃ exposure, which, despite the implementation of the Air Pollution Prevention and Control Action Plan in 2013, remains a significant concern in China.

Furthermore, the relationship between long-term O₃ exposure and [mortality risk](#) exhibited a J-shaped pattern, implying a non-linear association with a potential threshold of O₃ concentration. A crucial discovery highlights that people in [colder climates](#) face heightened mortality risks due to long-term O₃ exposure.

This underscores the necessity of considering geographical and climate factors when assessing the health impacts of air pollution. The study also revealed a notable regional discrepancy, with China exhibiting higher risk estimates than recent estimates from Europe and North America. These variations could be attributed to variances in exposure metrics, population susceptibility, and generally lower O₃ concentrations in developed nations.



The C–R curve for O₃ and all-cause mortality was fitted using a natural cubic spline. A nonlinear association between long-term O₃ exposure and mortality risk (P for nonlinearity ₃ levels fell below approximately 110 µg m⁻³, while the slope (i.e., increase in mortality risk) was steeper at higher concentrations. Credit: Environmental Science and Ecotechnology

However, it is essential to note that despite the significant findings, the study had certain limitations. The assessment of O₃ exposure was based on data at the city level rather than individual-level exposure

Furthermore, the study did not consider factors such as indoor O₃ exposure and potential unmeasured confounders (e.g., traffic noise or other climatic factors). Additionally, the lack of clinical diagnoses regarding the cause of death restricts the exploration of associations between O₃ exposure and cause-specific [mortality](#).

More information: Yang Yuan et al, Excess mortality associated with high ozone exposure: A national cohort study in China, *Environmental Science and Ecotechnology* (2023). [DOI: 10.1016/j.esec.2023.100241](https://doi.org/10.1016/j.esec.2023.100241)

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