Ethnic minorities most affected by long-term pollution in the UK, study suggests

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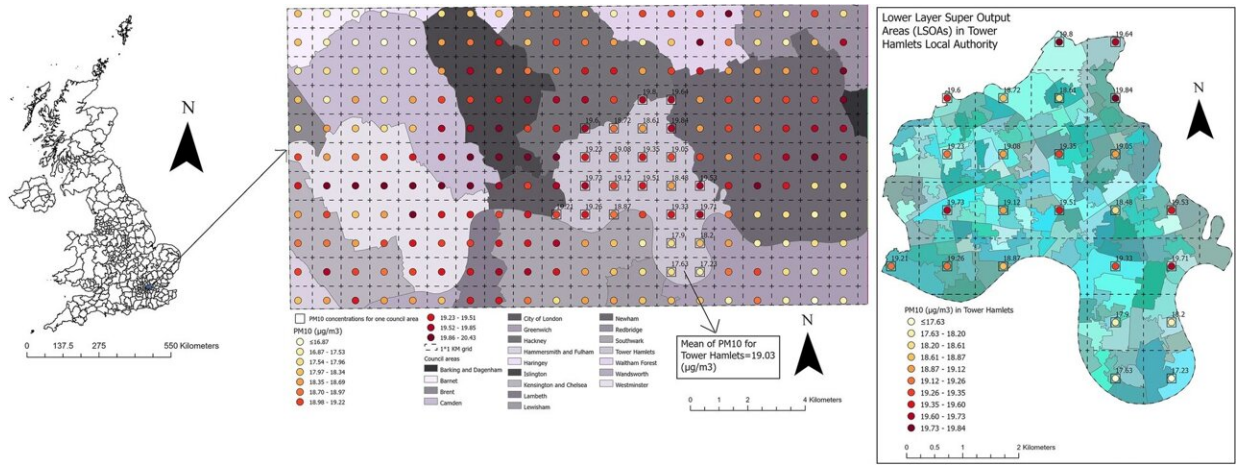

A map showing the local authorities in the UK and an enlarged subset of 20 local authorities in the south-east of the UK with an example of PM10 concentrations at 1 × 1 km^2 grid for the year 2017 for Tower Hamlets local authority and its corresponding LSOAs. The green–blue colored polygons in the LSOAs map represent the LSOAs; The map was constructed by the authors in ArcGIS Pro software using PM10 air pollution shapefile for the year of 2017 downloaded from the DEFRA online data repository [44], local authorities UK boundaries shapefile downloaded from the Office for National Statistics [45], and LSOAs and data zones UK boundaries also downloaded from the Office for National Statistics, National Records of Scotland, and Northern Ireland Statistics [46]. Both DEFRA and Office for National Statistics shapefiles are governed under the Open Government License v.3.0. Credit: *BMC Public Health* (2023). DOI: 10.1186/s12889-023-15853-y

A new study by researchers at the University of St Andrews suggests that ethnic minorities and non-UK-born individuals are more affected by higher exposure to air pollution than the rest of the UK population.

Exposure to air pollution has been shown to be a major reason behind poor health outcomes, mostly related to cardiovascular and respiratory systems. Ethnic inequalities in health and environmental exposures have also been shown to exist in society.

The research, led by Mary Abed Al Ahad, from the University's School of Geography and Sustainable Development, investigated the association between long-term exposure to air pollution and poor self-reported health in the UK. It sought to find out if people from different ethnic backgrounds and those born outside the UK are more affected by air pollution than the rest of the population.

The research used data from the Understanding Society: The UK household Longitudinal Study, which asked around 68,000 adults about their health over a period of 11 years. Researchers also used detailed information about air pollution in the areas where the participants lived.

The results showed that higher levels of certain air pollutants were linked to worse health overall. This was mostly because of where people lived, not because of changes in pollution over time.

The study also found that people from Indian, Pakistani/Bangladeshi, and Black/African/Caribbean backgrounds tended to report worse health if they were exposed to higher levels of air pollution compared to white British people. People born outside the UK also had worse health when they were exposed to more air pollution compared to those who were born in the UK.

Abed Al Ahad said, "This study provides evidence that outdoor air

pollution is bad for health and highlights the ethnic inequalities in health and air pollution exposure. Air pollution mitigation is necessary to improve individuals' health, especially for ethnic minorities who are affected the most."

Professor Frank Sullivan from the School of Medicine added, "There is increasing recognition of the role that air pollution plays in long-term health problems. This novel research following people across time and in different locations demonstrates a strong association between several pollutants and self-reported health. This was particularly true for people in ethnic minorities and people born overseas who now live in the UK."

The findings follow on from research carried out by Abed Al Ahad last year on the link between living in more polluted areas and mental well-being.

The research is published in the journal *BMC Public Health*.

More information: Mary Abed Al Ahad et al, The spatial–temporal effect of air pollution on individuals' reported health and its variation by ethnic groups in the United Kingdom: a multilevel longitudinal analysis, *BMC Public Health* (2023). DOI: 10.1186/s12889-023-15853-y

Provided by University of St Andrews