Study links combined road noise and air pollution with raised blood pressure

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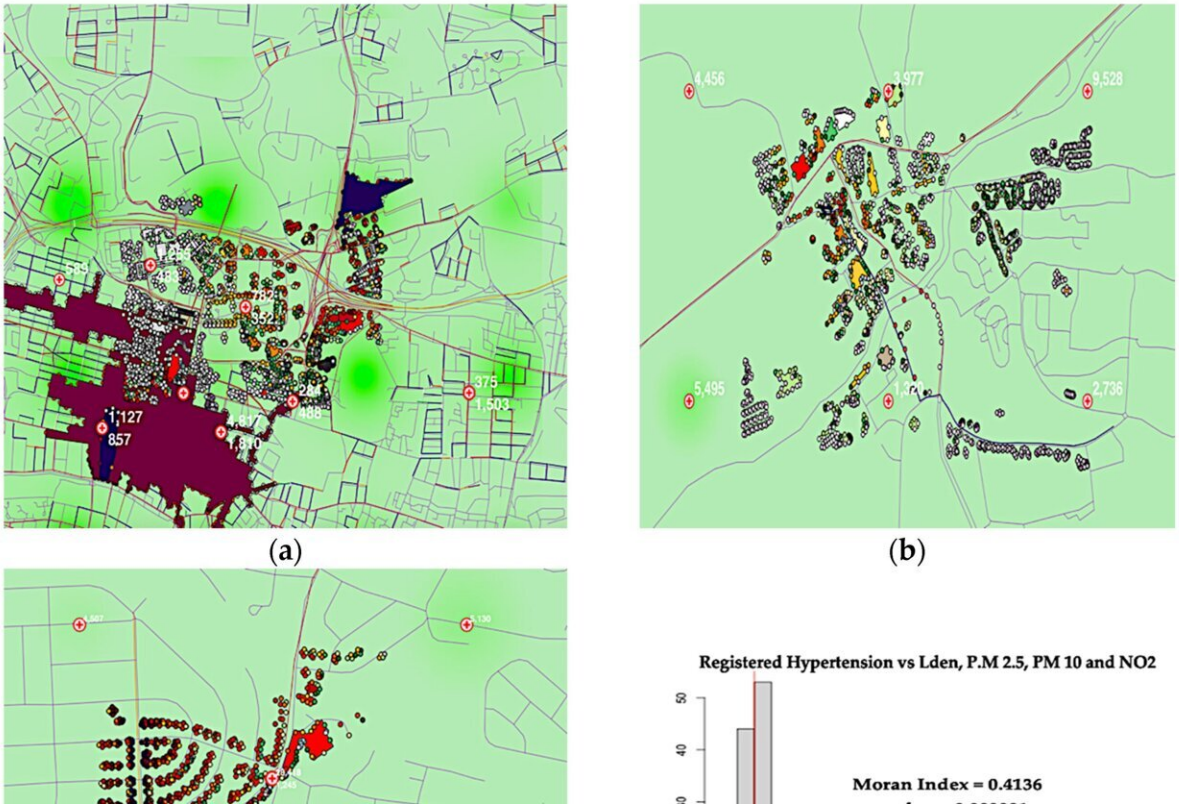

(a) (b)

Joint annual average NO_2, PM_{10}, and $PM_{2.5}$ concentrations ($\mu g/m^3$) and noise level (Lden) at five monitoring locations (23 November 2021): (a) joint air–noise pollution and hypertension at GK, GT, and GHS; (b) joint air–noise pollution and hypertension at EDK; and (c) joint air–noise pollution and hypertension at EDB. Credit: *International Journal of Environmental Research and Public Health* (2023). DOI: 10.3390/ijerph20032238

A link between noisy road traffic with air pollutant and an increased chance of hypertension—a top risk factor for heart attack and stroke—has been identified by University of the West of Scotland (UWS) researchers.

Published in *International Journal of Environmental Research and Public Health*, the study looked at the relationship between environmental quality and direct health impacts, monitoring traffic noise at different frequencies and registered hypertension cases in a number of locations in urban Glasgow. A significant correlation between noise, air pollution and hypertension were observed within high-traffic-flow residential areas.

This research provides an important case study for an increasing international evidence base to support future environment policy and support public health measures, such as setting stricter noise guidelines and improving technology on quieter vehicles and urban design.

Professor Andrew Hursthouse, lead supervisor, UWS's School of Computing Engineering and Physical Sciences, said, "This work is the result of an interdisciplinary collaboration with Mr. Jan Miller, HLS and Dr. Daniel Boakye, formerly HLS, to support the efforts of Ph.D. student Wisdom Adza, highlighting the potential of joining skills to address societal problems.

"The increasing evidence highlighting environmental conditions and public health impacts is a game-changer when it comes to the prevention of hypertension at individual and societal level."

The research demonstrates that multiple environmental indicators can be combined to provide information to support impact assessment for public health in urban environments. Additionally, the findings could support local authorities in planning and managing the built environment, as well as affording opportunities for tools to be developed to improve

public heath decision making.

Mr. Wisdom Adza, UWS Ph.D. student, and main investigator of the study, added, "A review of this area identifies opportunities for including broader indicators in public health policy.

"Although further investigation is needed, this should not delay actions to recognize that traffic noise is a potential risk factor for hypertension, and heart diseases more generally, in the development of clinical guideline and environmental policy."

More information: Wisdom K. Adza et al, Exploring the Joint Association of Road Traffic Noise and Air Quality with Hypertension Using QGIS, *International Journal of Environmental Research and Public Health* (2023). DOI: 10.3390/ijerph20032238

Provided by University of the West of Scotland