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Hong Kong finds strong link between air quality and neurological disorders

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Call to improve air quality for public health's sake

A comprehensive, systematic meta-analysis conducted by scientists at the Hong Kong Baptist University (HKBU) found a significant association between exposure to PM2.5, i.e., fine particulates with equivalent diameters of less than 2.5 microns suspended in the air, and neurological disorders.

These include stroke, dementia, Alzheimer's disease, Parkinson's disease and autism spectrum disorder (ASD). Neurological disorders are the leading cause of disability and the second leading cause of death worldwide, posing serious challenges to global health.

The results revealed that exposure to PM2.5 in general increases the risks of stroke and stroke mortality, with the risk associated with long-term exposure more significant than with short-term exposure.

It also showed that the risk of stroke in heavily polluted areas is higher than that in lightly polluted areas.

The results also revealed that PM2.5 exposure is strongly associated with increased risks of Alzheimer's disease, ASD, Parkinson's disease and dementia.

"While various hypotheses were suggested on the underlying mechanisms of how PM2.5 causes different types of neurological disorders, it remains an area with many unknowns for biomedical scientists to explore. More vigorous research endeavours are required before we can fully understand the mechanisms, based on which we can formulate effective environmental and public health strategies in response," said Professor Ken Yung Kin-lam, Professor of the Department of Biology.

Image caption- Professor Ken Yung Kin-lam (right) and Dr Fu Pengfei, Postdoctoral Research Fellow of the Department of Biology of HKBU, find a strong association between PM2.5 and a wide range of neurological disorders.