

# The alarming link between air pollution and human mental health.

An alarming correlation exists between air pollution and its negative impact on people's mental health.

A recent study has revealed an alarming correlation between air pollution and negative impacts on people's mental health.

Specifically, new research conducted by a team of experts from King's College London (UK) on residents living in Southeast London has found that an increase in the concentration of particulate matter smaller than 2.5 micrometers (PM2.5) suspended in the air, as well as nitrogen dioxide and other toxic oxides, is strongly associated with an 18 to 39% increase in the incidence of common mental disorders. Meanwhile, this figure for particulate matter smaller than 10 micrometers remains almost constant at 33%.

This dangerous correlation was also found in a study by US scientists, which showed a significant link between regular exposure to air pollution and an increase in the rate of mental disorders in people living in large cities with high traffic density and high levels of fine particulate matter in the air. Furthermore, several other studies have shown that air pollution may cause more deaths than COVID-19, and noise from traffic may significantly increase the incidence of Alzheimer's disease.



The nitrogen dioxide (NO<sub>2</sub>) we are exposed to today mainly originates from diesel engine exhaust, as well as fossil fuel-based heat generation activities in general. Meanwhile, particulate matter (PM) mainly comes from vehicle tires and brakes and construction activities. Studies have found profound differences between areas with low to high traffic density regarding the increase in mental health problems in people.

These studies included interviews with residents and considered a wide range of factors from age to smoking status, alcohol use, physical activity, and socioeconomic status. Scientists even modeled traffic noise and "real-world neighborhood disorder." The results showed a twofold increase in common mental health disorders directly linked to annual PM<sub>2.5</sub> exposure in urban residential areas with PM<sub>2.5</sub> levels greater than 15.5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Notably, this figure is actually not high at all, and is even lower than the EU's general standard of 25  $\mu\text{g}/\text{m}^3$ . Meanwhile, the US standard set by the EPA requires an annual PM<sub>2.5</sub> concentration limit of no more than 12  $\mu\text{g}/\text{m}^3$ , and a 24-hour limit of 35  $\mu\text{g}/\text{m}^3$ . This could very well explain the increase in common mental disorders in recent years, such as depression, bipolar disorder, Alzheimer's disease, and generalized anxiety disorder.

Commenting on this alarming situation, the head of the research team, Dr. Loannis Bakolis, remarked:

*"We need to pay special attention to measures that help improve air quality, such as promoting the deployment of environmentally friendly vehicles like electric buses and cars. Improving air quality is a challenging problem, but it is entirely solvable with the determination of each individual and, especially, effective policies from the authorities. All for the goal of public health."*

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