

- Pregnancy

## Air pollution risk to babies in womb

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FROM respiratory ailments to cancer and cardiovascular disease, air pollution is understood to affect physical health in many ways, but scientists have also been looking at its effects on mental health.



A new study has established a link between prenatal exposure to air pollution and mental health issues in adolescence.

And this could be a major cause for concern, considering that billions of people breathe polluted air.

Can air pollution be a source of stress, anxiety or even depression? That's a question that many researchers around the world are trying to answer.

A study published in April by the European Society of Cardiology reported an increased risk of episodes of stress and depression in those most exposed, which, by extension, could increase the risk of death from cardiovascular disease.

"Our results reveal a dual threat from air pollution: it not only worsens mental health but also significantly amplifies the risk of heart-related deaths associated with poor mental health," the study's lead author, Dr Shady Abohashem, said.

While the latest report from the Swiss company IQAir showed that only seven cities and countries worldwide met World Health Organisation (WHO) standards for air quality, new findings from researchers at Bristol University in the United Kingdom bring further cause for concern.

Indeed, the research reports that a baby's exposure to air pollution while in the womb is associated with the development of certain mental health issues in adolescence.

“It is important to emphasise that these findings, by themselves, do not prove a causal association.

“However, other recent studies have shown that low emissions zones appear to have a positive impact on mental health,” the study’s lead author, Dr Joanne Newbury, said.

The aim of this research was to assess the long-term impact of exposure to noise and air pollution during three key periods (pregnancy, infancy, adolescence) on three mental health disorders (psychotic experiences, depression and anxiety).

The scientists analysed data from 9,065 participants in the Avon Longitudinal Study of Parents and Children, a study that included over 14,000 pregnant women in the early 1990s.

While exposure to noise pollution during childhood and adolescence was linked to anxiety symptoms, exposure to air pollution was associated with an increased risk of psychotic experiences and depression.

#### HALLUCINATIONS, PARANOIA, DEPRESSION

Published in the journal ‘JAMA Network Open’, the research reports that each 0.72 microgram per cubic metre increase in fine particles during pregnancy and childhood was linked to an 11 and nine per cent increase, respectively, in the risk of psychotic experiences in adolescence or early adulthood.

The researchers also report an increased risk of depression for this level of exposure during pregnancy.

While this is an observational study, it is important to note that these associations were still significant after controlling for other risk factors, including family psychiatric history.

Dr Newbury said: “Childhood, adolescence and early adulthood are critical periods for the development of psychiatric disorders: worldwide, nearly two-thirds of those affected become unwell by the age of 25.

“Our findings add to a growing body of evidence — from different populations, locations and using different study designs — suggesting a detrimental impact of air pollution (and potentially noise pollution) on mental health.”

She added: “This is a major concern because air pollution is now such a common exposure and rates of mental health problems are increasing globally.

“Given that pollution is also a preventable exposure, interventions to reduce exposure, such as low emissions zones, could potentially improve mental health.

“Targeted interventions for vulnerable groups including pregnant women and children could also provide an opportunity for more rapid reductions in exposure.”

According to the World Health Organisation (WHO) data, in 2019, almost all the world’s population (99 per cent) was living in places where air pollution guideline levels were not met.

IQAir’s latest report said Bangladesh, Pakistan, India, Tajikistan and Burkina Faso were the five most polluted countries in 2023, with annual exposure to fine particles up to 15 times higher than the annual WHO recommendation of 5 ug/m<sup>3</sup> or less.

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