

# Air pollution in childhood linked to schizophrenia

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Air pollution affects physical health, and research results now conclude that it also affects our psychological health. The study, which combines genetic data from iPSYCH with air pollution data from the Department

of Environmental Science, shows that children who are exposed to a high level of air pollution while growing up, have an increased risk of developing schizophrenia.

"The study shows that the higher the level of air pollution, the higher the risk of [schizophrenia](#). For each  $10 \mu\text{g}/\text{m}^3$  (concentration of air pollution per cubic metre) increase in the daily average, the risk of schizophrenia increases by approximately twenty per cent. Children who are exposed to an average daily level above  $25 \mu\text{g}/\text{m}^3$  have an approximately sixty per cent greater risk of developing schizophrenia compared to those who are exposed to less than  $10 \mu\text{g}/\text{m}^3$ ," explains Senior Researcher Henriette Thisted Horsdal, who is behind the study.

To put these figures into perspective, the lifetime risk of developing schizophrenia is approximately two per cent, which equates to two out of a hundred people developing schizophrenia during their life. For people exposed to the lowest level of air pollution, the lifetime risk is just under two per cent, while the [lifetime risk](#) for those exposed to the highest level of air pollution is approximately three per cent.

## Unknown cause

The results of the study have just been published in the scientific journal *JAMA Network Open*.

"The risk of developing schizophrenia is also higher if you have a higher genetic liability for the disease. Our data shows that these associations are independent of each other. The association between air pollution and schizophrenia cannot be explained by a higher genetic liability in people who grow up in areas with high levels of air pollution," says Henriette Thisted Horsdal about the study, which is the first of its kind to combine air pollution and genetics in relation to the risk of developing schizophrenia.

The study included 23,355 people in total, and of these, 3,531 developed schizophrenia. Though the results demonstrate an [increased risk](#) of schizophrenia when the level of air pollution during childhood increases, the researchers cannot comment on the cause. Instead they emphasise that further studies are needed before they can identify the cause of this association.

**More information:** Henriette Thisted Horsdal et al, Association of Childhood Exposure to Nitrogen Dioxide and Polygenic Risk Score for Schizophrenia With the Risk of Developing Schizophrenia, *JAMA Network Open* (2019). [DOI: 10.1001/jamanetworkopen.2019.14401](https://doi.org/10.1001/jamanetworkopen.2019.14401)

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