

# Air Pollution and BIRTH OUTCOMES

Research looks at the impact of air pollution exposure during pregnancy on birth outcomes

**A**ir pollution has become a major environmental issue worldwide, and the impact of ambient air pollution on human health is a growing concern. Exposure to air pollution during pregnancy has been linked to adverse birth outcomes, including low birth weight, preterm birth, and being small for the gestational age.


A recent [study](#), partly funded by the National Research Foundation and conducted by a team of researchers from the University of KwaZulu-Natal, examined the impact of prenatal exposure to air pollution on adverse birth outcomes. The study assessed household-level air pollution estimates of exposure to pollutants nitrogen oxide (NO<sub>2</sub>); particle pollution or particulate matter (PM<sub>2.5</sub>) and sulphur dioxide (SO<sub>2</sub>) from land use regression models.

Using data collected from the Mother and Child in the Environment (MACE) birth cohort in Durban, South Africa from 2013 to 2017, and a generalised structural equation model to account for socio-demographic, behavioral, physical activity, and clinical risk factors – which also have an impact of adverse birth outcomes - the study found that:

- Annual exposure to particle matter and sulphur dioxide air pollution results in strong prenatal risk factors of adverse birth outcomes.
- The effects of air pollution in prenatal exposure to particle matter and sulphur dioxide on low birthweight and small gestational age were mediated in preterm birth. According to the researchers, this may be put down to an

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- increase in the mother's exposure to particle material throughout the entire pregnancy, thus leading to an extra risk of preterm birth and low birthweight.
- Elevated prenatal maternal exposure to particle material was positively associated with low birthweight, preterm birth, and being small for the gestational age.
- Higher levels of prenatal exposure to sulphur dioxide were associated with being small for the gestational age.
- Nitrogen oxide exposure had a weak positive indirect effect on low birthweight and being small for the gestational age through preterm birth.

**A**ccording to the study, reducing exposure levels of pollution could reduce preterm birth, but its effect on reducing the likelihood of low birthweight and small for gestational age requires further investigation. Thus, the researchers recommend that local government should aim to control air pollution and healthcare providers should advise pregnant females about the risks of air pollution during pregnancy. 

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