Smog increases the risk of adverse health effects in pregnant mothers and babies

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Mild exposure to common smog pollutants such as inhalable airborne particles and carbon monoxide during pregnancy results in adverse maternal and fetal health outcomes, a new study of women in China

finds. The research, published in *Open Medicine*, was led by researchers from The First Hospital of Hebei Medical University in Shijiazhuang, China.

China has experienced significant economic growth in recent decades. While this has increased prosperity, it has come at a cost in the form of industrial pollution. The air quality in many Chinese cities is very poor compared with most cities in developed countries with less than 1% of the largest Chinese cities meeting acceptable standards of air quality. Smog seriously threatens human health, and pregnant women and fetuses are more susceptible to its effects than the general population.

Lead author Yijing Zhai and colleagues studied the effects of common smog pollutants on pregnancy outcomes in Baoding, Hebei, an area in China that experiences significant air pollution. They correlated levels of different pollutants with pregnancy outcomes in 842 women over a three-year period. These pollutants included inhalable airborne particles, carbon monoxide, sulfur dioxide, and nitrogen dioxide.

The researchers found that mild exposure to inhalable particles during an entire pregnancy increased the risk of low birth weight, and mild exposure to carbon monoxide during the third trimester had the same effect. Similarly, mild exposure to inhalable particles increased the risk of high blood pressure during pregnancy, with particular sensitivity in the first and third trimesters. Exposure to nitrogen dioxide during the second trimester had a similar effect. Finally, exposure to airborne particles during the third trimester increased the risk of waters breaking early.

The study paints a stark picture of the ill effects of common air pollutants on pregnant women and their unborn children, and highlights the need to couple economic growth and industrialization with environmental protection.

"The findings of our analysis may help decision-makers to develop targeted policies and environmental measures to reduce the health hazards of air pollution," the authors conclude.

More information: Yijing Zhai et al, Smog and risk of maternal and fetal birth outcomes: A retrospective study in Baoding, China, *Open Medicine* (2022). DOI: 10.1515/med-2022-0489

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