

Adapted from: Ambient Air Pollution and Birth Weight in Full-Term Infants in Atlanta (2010)

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i Introduction and Purpose

There is evidence suggesting a relationship between outdoor air pollution and pregnancy outcomes.

This study looked at a mother's **exposure** to air pollution while pregnant and the baby's birth weight. All mothers lived in the metropolitan Atlanta area.

p How the Study Was Done (Methods)

To investigate the association between air pollution during pregnancy and birth weight, the health records of full-term live births and air quality during the timing of the mother's pregnancy were compared. Data were obtained from the Georgia Division of Public Health and local air monitoring stations.

✓ Results of Study

Exposure to air pollution during the third trimester was associated with lower birth weight. This association was generally stronger in black and Hispanic babies relative to non-Hispanic white babies, with Hispanic babies having the strongest association.

Notably, **PM_{2.5} water-soluble metals** were associated with low birth weight for all three racial and ethnic groups.

All of these results were **statistically significant**.

— Limitations (Why we can't draw stronger conclusions)

This study used air pollution levels from stationary air monitors rather than personal air monitors for the pregnant women. These stationary monitors may not accurately characterize the air pollution **exposure** of the expecting mothers.

? What does this mean?

While it is hard to draw strong conclusions from one study, these results indicate that outdoor air pollution **exposure** during pregnancy is associated with lower birth weight. The birth weight findings also indicate that there is a racial difference in the association between air pollution exposure and lower birth weights. Later studies done in other places have also shown associations between air pollution and birth weight.

Key Words

Exposure: when a contaminant from the environment enters the body. For example, humans are exposed to air pollution (the contaminant) mainly by breathing it in.

PM₁₀ and PM_{2.5}: Particulate matter (PM) is a mixture of liquid droplets and solid particles (such as dirt or soot) found in the air. Some particles are large enough to be seen with the eye, while others, like PM, are so small they are only detectable using a microscope. PM₁₀ is particulate matter 10 micrometers in size or smaller. PM_{2.5} is particulate matter 2.5 micrometers in size or smaller. 1 micrometers is 10⁻⁶ meter, or one millionth of a meter.

Statistically significant: A statistical term that means there is enough evidence that the results obtained were not likely due to chance.

Water-soluble metals: Metals that can be altered by the addition of water (in this study: chromium, copper, iron, manganese, nickel, and vanadium). This form of metals is generally an ion (a molecule with an electrical charge). These ions can be found in the air. Water-soluble metals are a concern because they have the potential to cause significant damage to living cells.

Tips

If you are pregnant, consider following the air quality alert recommendations for sensitive groups.

Read the full article here: <http://www.ncbi.nlm.nih.gov/pubmed/21156397>

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