New research links indoor air pollution to autism risks

By DAVID T. SIMON
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The average American spends approximately 90 percent of his or her time indoors. And while most people are aware that outdoor air pollution can damage their health, many do not know that indoor air pollutants can also do the same. Indeed, studies of human exposure to air pollutants by the Environmental Protection Agency indicate that indoor levels of pollutants may be two to five times — and occasionally more than 100 times — higher than outdoor pollutant levels.

Indoor air pollutants have been ranked among the top five environmental risks to public health. Yet because the problems caused are not always easily recognized or produce immediate impacts on health, the general public continues to assume that our homes, offices, schools, day-care and senior centers are safe. If only they were.

Indoor air pollutants originate from many expected sources, such as tobacco, heating and cooking appliances and fireplaces. These can release harmful combustion by-products such as carbon monoxide and particulate matter directly into the indoor environment.

However, few homeowners realize that the chemicals they use to clean and maintain their home also can be killing them. Cleaning supplies, paints, insecticides and other commonly used products introduce volatile organic compounds directly into the indoor air. Building materials, whether through degrading compounds (such as asbestos fibers released from building insulation) or from new materials, contribute to pollutants in the air.

Even the family's beloved pets and sentimental memorabilia can negatively impact air quality with substances of natural origin such as pet dander and mold.

NEW EVIDENCE

Such environmental factors during a woman's pregnancy have long been suspected to play a role in the well-being of her child. Now scientists are offering proof.

New studies presented at the International Society for Autism Research annual conference in Spain back up the notion that environmental factors before birth may play an important role in the development of autism.

Researchers have previously listed genetics as a contributing factor, but new research shows that up to one-third of all autism cases could be due to an inflammatory illness suffered by the pregnant mother. Immune dysregulation due to environmental factors has been shown to seriously affect the health of the unborn child. For example, a viral infection (the flu) during the first trimester triples the woman's odds of having a child with autism. Additionally, a bacterial infection during the second trimester increases a woman's odds of having a child with autism by 40 percent. If we can reduce a mother's chances of getting ill during her pregnancy, we can significantly encourage fetal brain development.

This can be done by limiting a mother's exposure to dangerous environmental hazards.

The ISAR studies released at the conference found that pregnant women who were exposed to certain levels of air pollution were more likely to have a child with autism. A higher risk of autism also has been linked to the use of various household insecticides.

Granted, the new research doesn't prove causality, but it certainly shows associations.

And these findings, combined with previous research, provide more evidence that environmental influences in the womb are meaningful in terms of autism risk.

INTERVENTION

"The exciting thing about looking at environment, or environment and genes in conjunction with each other, is this provides the possibility of intervention," explained Irva Hertz-Picciotto, Ph.D., an environmental epidemiologist at the University of California, Davis,who presented the study on insecticides.

Exactly! A 1980 study showed that 1 in about 5,000 children was diagnosed with autism. That number later grew to 1 in 500 and just this year was updated to 1 in 55 — that's one child on every school bus. Why? What is different now from 30 years ago?

Outside of occupational exposure to pollutants, the air quality within a person's home plays the largest role in health and well-being. This becomes especially critical during the months of a woman's pregnancy. This should be a major wake-up call for us as a community.

Good indoor air quality contributes to a favorable learning environment for students, productivity for employees and adds to the sense of comfort, health, and welfare for hospitals, senior-living and child-care occupants. This most recent evidence has us take into consideration the health and mental development of our unborn babies.

Instead of thinking of air quality on a personal level, it is time for a safe and healthy indoor environment to become a community priority.

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