

Smoking while pregnant linked to ADHD in children

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Expectant moms' use of nicotine-replacement therapy could also spell problems for kids, study suggests.

(HealthDay)—Children born to women who smoked during pregnancy appear to have an increased risk of developing attention-deficit/hyperactivity disorder (ADHD), according to new research.

The new study also hints—but doesn't prove—that nicotine-replacement products used during pregnancy, such as patches and gum, could pose the same risk to [children](#). Still, this study suggests that nicotine itself, not just tobacco, may be a hazard during pregnancy.

"We've been lulled into a false sense of security, thinking that if we can just get [mothers](#) to stop [smoking](#) and onto nicotine replacement, it will protect against any kinds of fetal damage in the developing child. This is

a stark injection of reality about how that may not be the case," said Dr. Timothy Wilens, director of the Center for Addiction Medicine and acting chief of child psychiatry at Massachusetts General Hospital in Boston.

Researchers have long tried to pinpoint the hazards of smoking during pregnancy. Among other things, lighting up during pregnancy seems to boost the risk of miscarriage, pregnancy complications, premature deliveries, [low birth weight](#) and even obesity in the child's life, said study lead author Dr. Jin Liang Zhu, an assistant professor of epidemiology at Aarhus University in Denmark.

It's not clear how smoking and nicotine use in mothers may affect the brains of developing fetuses. Zhu said nicotine may cause abnormalities in the brain, while the products of cigarette smoke—such as carbon monoxide—could affect the brain, too.

It's also possible that other factors are behind the association between smoking in pregnancy and ADHD in children, the study authors suggested. ADHD tends to run in families, and people in families with ADHD are more likely to smoke. So, it's possible that the association seen in this study isn't a direct cause of expectant mothers' smoking, but may be the result of genetics or a shared environment where smoking is present, according to background information in the study.

ADHD is a common behavioral disorder in childhood, according to the U.S. Centers for Disease Control and Prevention. Symptoms include difficulty paying attention, impulsive behavior and problems with sitting still and getting along with others.

Previous research has already linked ADHD in children to mothers who smoked during pregnancy, noted Wilens, who was not involved with the study.

In the new study, researchers examined the medical records of nearly 85,000 children born in Denmark to mothers who were recruited to be part of the study from 1996 to 2002.

Signs of ADHD were present in slightly more than 2,000 children. The numbers were lower among kids of nonsmoking parents (1.8 percent) and in households where mom quit smoking and dad was a nonsmoker (2 percent). The rates of ADHD were highest among kids in families in which both parents smoked—4.2 percent.

Among those whose fathers didn't smoke, ADHD rates were highest among those whose pregnant mothers were on nicotine-replacement therapy (3.8 percent) or were smokers (3.4 percent). In households where the father smoked and the mother was on nicotine-replacement therapy, rates of ADHD in children were 2.9 percent, according to the study.

The researchers cautioned that the number of [pregnant mothers](#) on nicotine-replacement therapy in the study was small—just 29 mothers of children with ADHD used these products during pregnancy. As a result, "the findings are more uncertain," Zhu said. In another caveat, the study authors noted that many parents and kids didn't take part in a seven-year follow-up designed to monitor how the children were doing.

Still, there are many good reasons to stop smoking before conceiving, the experts said.

"If at all possible, try not to smoke when conceiving," Wilens said. "If you think you've conceived and you're smoking, it's best to come off cigarettes as quickly as possible. If you need to use nicotine-replacement therapy, use it for as short a time as possible."

The good news is that smoking prior to [pregnancy](#) doesn't seem to boost

the risk of ADHD in the unborn child, he said.

The study was released online July 21 in advance of publication in the August print issue of the journal *Pediatrics*.

More information: For more about ADHD, visit the [U.S. Centers for Disease Control and Prevention](#).

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