

Mothers' second-hand smoke exposure linked to psychological problems for kids

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Children whose mothers were exposed to second-hand smoke while they were pregnant have more symptoms of serious psychological problems compared to the offspring of women who had no prenatal exposure to smoke, according to a new University of Washington study.

Writing in the current issue of *Child Psychiatry and Human Development*, UW psychologists Lisa Gatzke-Kopp and Theodore Beauchaine provide the first evidence linking mothers' second-hand smoke exposure while pregnant to their children's attention deficit hyperactivity disorder (ADHD) and conduct disorder. Psychologists call these behaviors externalizing psychopathology and their symptoms include aggressive behavior, ADHD, defiance and conduct disorder, which encompasses truancy, fighting, school failure, breaking rules, substance use, stealing and destruction of property.

The research also supports a 2006 report by the U.S. Surgeon General that found passive smoke exposure poses a substantial risk to the general health of those who breathe the smoke, as well as to the fetuses of pregnant women.

Gatzke-Kopp and Beauchaine compared patterns psychopathology among three groups of 7- to 15-year-old children, all of whom had significant behavioral and/or emotional problems. One group experienced no prenatal smoke exposure. The second was made up of children whose mothers smoked during the final two trimesters of pregnancy. The third consisted of children whose mothers were exposed

to second-hand smoke at work or in the home in the last two trimesters during pregnancy. A total of 171 children, primarily boys, and 133 women participated in the project.

The UW researchers found that those children whose mothers had been exposed to tobacco smoke either by smoking or by being around smokers when they were pregnant had more symptoms of ADHD and conduct disorder than children whose mothers spent their pregnancies in a smoke-free environment. However, they did not show more symptoms of emotional disorders such as depression or anxiety.

“This is a matter of severity,” said Gatzke-Kopp, a post-doctoral researcher. “Children with these disorders have a range of behaviors that stretch from problematic to severe. It is a continuum based on the number of symptoms, and children who were exposed to smoke exhibited more symptoms.”

She and Beauchaine controlled for a number of other factors including family income, parents’ substance use, birth weight and parents’ anti-social behavior, but second-hand exposure to smoking persisted as the primary predictor of conduct disorder and ADHD.

Nicotine, an alkaloid compound in tobacco, is believed to be the chemical that causes these behavior problems in children. Animal studies have shown that nicotine affects brain development during the second and third trimesters of pregnancy, causing changes in brain regions critical to the development of externalizing psychopathology in humans.

“Evidence suggests that the dopamine system in the brain gets over stimulated during pregnancy,” Beauchaine said. Dopamine is a brain chemical that plays an important role in behavior and cognition, among other functions.”

“As a consequence, children who were exposed to smoke in utero have colic and are hard to sooth as infants. As toddlers they are overactive and oppositional. Later on they are irritable, inattentive and low on pleasure.”

Gatzke-Kopp and Beauchaine believe a message needs to be distributed widely that regardless of how women are exposed to tobacco smoke, either directly or second-hand smoke, their unborn children’s behavior can be affected.

Source: University of Washington

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