Study finds intrauterine exposure to drugs does not affect academic achievement test scores

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Researchers from Boston University Schools of Medicine (BUSM) and Public Health along with Boston Medical Center have found children's academic achievement test scores not affected by intrauterine exposure to cocaine, tobacco or marijuana. However, alcohol exposure in children who had no evidence of fetal alcohol syndrome (FAS) did lead to lower scores in math reasoning and spelling even after controlling for other intrauterine substance exposures and contextual factors. These findings currently appear on-line in the journal of *Vulnerable Children and Youth Studies*.

There has been widespread concern that intrauterine cocaine exposure (IUCE) may have harmful effects on children's academic performance, particularly at higher grades requiring abstract reasoning and greater attention and control. Also unresolved is whether other intrauterine exposures, such as alcohol (IUAE), tobacco, and marijuana, which often co-occur with IUCE, independently affect children's academic abilities after controlling for other exposures.

Academic achievement scores (Wechsler Individual 15 Achievement Test-Second Edition (WIAT-II) were collected from 119, low-income, urban 11-year-olds who had been enrolled in a prospective longitudinal study of IUCE. The results indicate that neither IUCE nor intrauterine exposure to marijuana or tobacco was associated with lower WIAT-II scores.

"Our results are consistent with growing evidence that IUCE exposure does not independently predict poorer achievement scores in school-age children exposed to multiple other substance exposures and psychosocial stressors," explained lead author Ruth Rose-Jacobs, ScD, associate professor of pediatrics at BUSM and a research scientist at BMC.

However, according to Rose-Jacobs, the negative associations of IUAE on arithmetic reasoning and spelling were significant because the analyses had controlled for other substances; the children did not have FAS and had not been born preterm, all of which might negatively influenced achievement scores. The relationship between IUAE and achievement scores in this sample was partially explained on the Children's Depression Inventory. Children's depressive symptoms could precede or be a response to school achievement difficulties but whatever the pathway, relatively low achievement scores of children with IUAE are of potential educational importance. "Study finding suggest the children with histories of even low-level IUAE who experience school difficulties should be evaluated particularly for arithmetic skills and depressive symptoms and offered enhanced educational methods/interventions tailored to their needs," she added.

Provided by Boston University Medical Center

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