



Cannabis Use During Pregnancy May Affect Brain Development in Offspring

Reports new study in Biological Psychiatry

Philadelphia, PA, June 20, 2016 – Cannabis use during pregnancy is associated with abnormal brain structure in children, according to a new [study](#) in *Biological Psychiatry*.

Compared with unexposed children, those who were prenatally exposed to cannabis had a thicker prefrontal cortex, a region of the brain involved in complex cognition, decision-making, and working memory.

Author of the study Dr. Hanan El Marroun, of Erasmus University Medical Center in The Netherlands, said: “this study is important because cannabis use during pregnancy is relatively common and we know very little about the potential consequences of cannabis exposure during pregnancy and brain development later in life.”

An estimated 2–13% of women worldwide use cannabis during pregnancy. Previous studies have identified short and long-term behavioral consequences of prenatal cannabis exposure, but effects on brain morphology were unknown.

“Understanding what happens in the brain may give us insights in how children develop after being exposed to cannabis,” said El Marroun.

In the recently published study, the researchers used structural magnetic resonance imaging to examine the brains of 54 children, 6 to 8 years old, who were prenatally exposed to cannabis. Most of the children exposed to cannabis were also exposed to tobacco, so the researchers compared them to 96 children prenatally exposed to tobacco only, as well as to 113 control children with no exposure. The children were part of a prospective population-based study in The Netherlands.

Comparing tobacco-exposed children with children exposed to both tobacco and cannabis revealed differences in the cortical thickness, suggesting that cannabis exposure has different effects than tobacco. No differences were found in overall brain volume in the cannabis-exposed children.

“The growing legalization, decriminalization, and medical prescription of cannabis increases the potential risk of prenatal exposure,” said Dr. John Krystal, Editor of *Biological Psychiatry*. “This important study suggests that prenatal exposure to cannabis could have important effects on brain development.”

“We have to be careful interpreting the results of the current study,” said El Marroun, noting that further research is necessary to explore the causal nature of the relationship between prenatal cannabis exposure and structural brain abnormalities.

“Nevertheless, the current study combined with existing literature does support the importance of preventing smoking cannabis and cigarettes during pregnancy,” she said.

Notes for editors

The article is "Prenatal Cannabis and Tobacco Exposure in Relation to Brain Morphology: A Prospective Neuroimaging Study in Young Children," by Hanan El Marroun, Henning Tiemeier, Ingmar H.A. Franken, Vincent W.V. Jaddoe, Aad van der Lugt, Frank C. Verhulst, Benjamin B. Lahey, and Tonya White (doi: [10.1016/j.biopsych.2015.08.024](https://doi.org/10.1016/j.biopsych.2015.08.024)). It appears in *Biological Psychiatry*, volume 79, issue 12 (2016), published by [Elsevier](#).

Full text of the article is available to credentialed journalists upon request; contact Rhiannon Bugno at +1 214 648 0880 or Biol.Psych@utsouthwestern.edu. Journalists wishing to interview the authors may contact Hanan El Marroun at h.marrounel@erasmusmc.nl.

The authors' affiliations, and disclosures of financial and conflicts of interests are available in the article.

John H. Krystal, M.D., is Chairman of the Department of Psychiatry at the Yale University School of Medicine, Chief of Psychiatry at Yale-New Haven Hospital, and a research psychiatrist at the VA Connecticut Healthcare System. His disclosures of financial and conflicts of interests are available [here](#).

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Media contact

Rhiannon Bugno

Editorial Office, *Biological Psychiatry*

+1 214 648 0880

Biol.Psych@utsouthwestern.edu