



**PRESS RELEASE**

European Congress of Psychiatry 2024

**Cannabis use during pregnancy linked to increased risk of ADHD, autism and intellectual disability in children**

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A new study presented at the European Psychiatric Association Congress 2024 reveals a significant association between prenatal cannabis use disorder (CUD) and an increased risk of neurodevelopmental disorders in offspring, including attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and intellectual disability (ID).

Cannabis remains by far the most consumed illicit drug in Europe. Around 1.3% of adults in the European Union (3.7 million people) are estimated to be daily or almost daily users of cannabis.<sup>1</sup> Though males have a typically higher prevalence with regards to cannabis use, the latest statistics show that women are catching up with men in drug use, especially in the younger population.<sup>2</sup> There is increasing concern around the increase in cannabis use observed in younger females in the EU, especially among pregnant and breastfeeding women. This concern is amplified by recent studies that have shown that the content of delta9-tetrahydrocannabinol (THC) is currently around 2-fold higher than it was 15–20 years ago, therefore increasing the risk of adverse effects for young women and their offspring following use when pregnant.<sup>3</sup> Additionally, it has been noted that the prevalence of ADHD and ASD in children and adolescents is on the rise with estimates of 5.3% to 5.9% worldwide and 4.6% for Europe for ADHD and 1 in 2000 for ASD across the EU.<sup>4 5 6</sup>

This large-scale study, conducted by researchers at Curtin University in Australia, analysed data from over 222,000 mother-offspring pairs in New South Wales, Australia. The research team utilised an innovative approach, leveraging linked data from health registries, ensuring both the exposure (prenatal CUD) and outcomes (neurodevelopmental disorders) were confirmed using diagnostic tools based on the ICD-10-AM classification system.

Key findings from the study include:

- Children born to mothers with prenatal CUD displayed a 98% increased risk of ADHD, a 94% increased risk of ASD, and a 46% increased risk of ID compared to offspring without such exposure.
- The study also identified a significant interaction effect between prenatal CUD and maternal smoking. Children born to mothers with both prenatal CUD and a history of smoking during pregnancy exhibited an even higher risk of developing ADHD, ASD, and ID.
- Additionally, the research found synergistic effects between prenatal CUD and other pregnancy complications, such as low birth weight and premature birth, further increasing the risk of neurodevelopmental disorders in offspring.

These findings highlight the potential long-term consequences of cannabis use during pregnancy and emphasise the importance of preventive strategies.



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Abay Woday Tadesse, lead researcher of the study at the Curtin School of Population Health commented on the findings, stating "The increased risk of neurodevelopmental disorders in children of mothers diagnosed with prenatal cannabis use that we have observed in this study underscores the critical needs for preventive measures, including preconception counselling, to mitigate the potential adverse outcomes."

Professor Rosa Alati, Head of the Curtin School of Population Health and senior author of the study, added "These findings highlight the need to increase awareness of the risks associated with cannabis use during pregnancy among women planning to become pregnant."

"This study is unique because it utilises linked data with confirmed diagnoses, providing a more robust picture of the potential risks associated with prenatal cannabis use. The results underscore the need for public health education campaigns and clinical interventions to raise awareness about the potential risks of cannabis use during pregnancy and to support women in making informed decisions regarding their health and the well-being of their children," explains Dr Julian Beezhold the Secretary General of the European Psychiatric Association.

The European Congress of Psychiatry takes place from 6-9 April 2024 in Budapest, Hungary, and represents Europe's largest congress dedicated to psychiatry, with 4000 participants: [epa-congress.org](https://epa-congress.org).

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### Notes to editors

#### **Prenatal Cannabis Use Disorder and Risk of Neurodevelopmental Disorders in Offspring: A Linked Data Cohort (O0046)**

**Introduction:** Cannabis use has been increasing among women of reproductive age in the last few decades. In-utero cannabis exposure could be associated with an increased risk of neurodevelopmental disorders such as attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and intellectual disability (ID) during childhood and adolescence; however, existing evidence was generated based on maternal self-report of cannabis use in pregnancy. We conducted a large-scale with data linkage cohort study, in which both exposure and outcome of interests were confirmed using diagnostic tools, ICD-10-AM.

**Objectives:** This study aimed to examine the association between prenatal cannabis use disorder (CUD) and neurodevelopmental disorders in offspring using a large-scale cohort study.

**Methods:** We conducted an administrative health data-based cohort study of 222,569 mother-offspring pairs using linked data obtained from health registries in New South Wales (NSW), Australia. Data were drawn from the NSW Perinatal Data Collection (PDC), which included all live births in the Australian state of NSW between January 2003 and December 2005. These were linked with the NSW in-patient and ambulatory data collections for mothers and offspring. The prenatal cannabis use disorder (exposure) and neurodevelopmental disorders in offspring (outcomes of interest) were measured by using ICD-10-AM. Generalized linear regression with a binomial family model was used to explore the association. We also carried out a modification/interaction



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effect of low birth weight (LBW), smoking and premature births (PTB), which enhanced the methodological robustness of the study.

Results: This study found that offspring from mothers with prenatal CUD had a 98%, 94% and 46% increased risk of ADHD [aRR = 1.98: 95 % CI 1.36 – 2.88], ASD [aRR = 1.94: 95 % CI 1.34 – 2.82], and ID [aRR = 1.46: 95 % CI 1.01 – 2.63] compared to those non-exposed offspring, respectively. We observed a significant interaction effect between CUD during pregnancy and maternal smoking on the risk of childhood ADHD, ASD and ID [CUD\*smoking: RR = 5.62: 95 % CI 3.77 – 8.39, RR = 2.72: 95 % CI 1.78 – 4.18, and RR = 2.84: 95 % CI 1.54 – 5.22, respectively]. Furthermore, we also found significant associations between PCUD and ADHD, ASD and ID when interacting with LBW, and PTB.

Conclusions: Maternal prenatal CUD is associated with a higher risk of ADHD, ASD, and ID in offspring. The effect of maternal CUD on neurodevelopmental disorders was also found to be stronger when mothers also reported smoking during pregnancy, compared to the individual effects of cannabis use or smoking alone. The findings highlight the importance of implementing preventive strategies to reduce cannabis use in pregnancy.

Disclosure of interest: None declared.

## About the European Psychiatric Association

With active individual members in as many as 88 countries and 44 National Psychiatric Association Members who represent more than 78,000 European psychiatrists, the European Psychiatric Association is the main association representing psychiatry in Europe. The EPA's activities address the interests of psychiatrists in academia, research and practice throughout all stages of career development. The EPA deals with psychiatry and its related disciplines and focuses on the improvement of care for the mentally ill as well as on the development of professional excellence. More information: <https://www.europsy.net/>

## References

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