

Medical record analysis links cannabis use disorder in pregnancy to infant health problems

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A new study of nearly five million live births recorded in California from 2001 to 2012 found that babies born to mothers diagnosed with cannabis use disorders at delivery were more likely to experience negative health outcomes, including preterm birth and low birth weight, compared to babies born to mothers without a cannabis use disorder diagnosis. The analysis, published today in *Addiction* and funded by the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health, adds to a growing body of evidence that prenatal exposure to cannabis (marijuana) may be associated with poor birth outcomes, and sheds light on infant health one year after birth.

Recent studies have shown the use of cannabis during pregnancy is rising, with some expectant parents reporting using the drug to alleviate nausea and vomiting associated with pregnancy. Medical experts have expressed concern around these patterns because an active component of cannabis, delta-9-tetrahydrocannabinol (THC), has been shown to reach fetuses and infants through the placenta and breastmilk, respectively. Further,

THC disrupts the normal function of the endocannabinoid system, which has been shown to play a key role in fetal brain development and in pregnancy, including implantation of the embryo in the uterus and maintenance of the placenta.

In the current study, investigators found that among the 4.83 million mother-infant pairs analyzed in the study, 20,237 women received a delivery discharge diagnosis of cannabis use disorder, which goes beyond occasional cannabis use and involves meeting specific criteria for a pattern of continued cannabis use despite negative consequences. Not all people who use cannabis meet the criteria for cannabis use disorder, and in this study, diagnoses were based on self-reported information. Because of this, investigators noted that the actual incidence of cannabis use and cannabis use disorder in the study population were likely much higher than reported.

"While we cannot establish that cannabis use caused negative outcomes in this study, these data reinforce the case for caution around using cannabis during pregnancy," said NIDA Director Nora D. Volkow, M.D. "Careful analysis of data like these is one way we can responsibly study how cannabis use affects the developing child, all while a natural experiment is playing out across our country in places where cannabis is becoming widely available to pregnant consumers."

The analysis revealed diagnoses of cannabis use disorders based on medical records at delivery rose from 2% in 2001 to 6.9% in 2012. To assess the correlation between cannabis use disorder and [infant health](#) outcomes, investigators compared the mother-infant pairs linked to a cannabis use disorder diagnosis to 40,474 control mother-infant pairs with similar demographics and maternal health factors, including other substance use

disorder diagnoses and tobacco use. Infants born to women with cannabis use disorders were more likely than control group infants to be born preterm, have a low birth weight, and be small for their gestational age. These findings were consistent with previous studies in similar populations.

Investigators also analyzed infant death certificates linked to birth records and found that, while infant mortality was rare overall (less than 1% in either group), infants born to women with a cannabis use disorders diagnosis at delivery were 35% more likely to die within a year of birth than control group infants. Analysis of additional health records revealed that infants born to mothers with cannabis use disorders were less likely to be hospitalized within the same year than control group infants, which differs from previous analyses that found a correlation between prenatal cannabis exposure and neonatal intensive care unit admission.

"Because we are looking only at medical records, there is a lot we don't know about the mothers and infants in this study," said lead author Dr. Yuyan Shi of the Herbert Wertheim School of Public Health and Human Longevity Sciences at the University of California, San Diego. "But our analysis supports the recommendation that health professionals screen for and address cannabis use disorders in their pregnant clients—to protect both their health and potentially the health of their infants."

Currently, it is not standard practice for healthcare professionals to screen for cannabis use or cannabis use disorders during pregnancy, nor is it standard to provide counselling on the lack of safety data around cannabis use during pregnancy. Both strategies may be helpful in addition to encouraging pregnant women who use cannabis to discontinue use during pregnancy and breastfeeding and to refer them to treatment when appropriate.

Investigators also analyzed how tobacco use—a confounding factor in previous analyses of prenatal cannabis exposure—impacted infant health outcomes among mothers diagnosed with cannabis use [disorders](#). Compared with infants born to mothers who did not use tobacco, [infants](#) born to

mothers who self-reported tobacco use were at greater risk of [preterm birth](#) and low birth weight, as well as hospitalization and death within their first year. These findings are consistent with previous findings that suggest concurrent tobacco use is common among pregnant women who use cannabis and underscore the importance of analyzing tobacco use and other confounding factors that may occur in cases of cannabis use disorder captured by [medical records](#).

More information: Y Shi et al. The associations between prenatal cannabis use disorder and neonatal outcomes, *Addiction* (2021). DOI: [10.1111/add.15467](https://doi.org/10.1111/add.15467)

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