

Perinatal Cannabis Use: Current Evidence, Health Risks, and Clinical Implications

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Abstract

Objective: This article reviews current evidence on perinatal cannabis use, its prevalence, associated health outcomes, the role of adverse childhood experiences (ACEs), and potential clinical approaches, emphasizing both harm-reduction and symptom management.

Background: As cannabis becomes increasingly legalized and socially accepted, its use among pregnant and breastfeeding women is rising. THC, the psychoactive compound in cannabis, crosses the placenta and is excreted in breast milk, posing potential health risks to infants.

Methods: A review of current literature and analysis of recent studies examining the prevalence, biological effects, motivations for use, and implications of perinatal cannabis consumption.

Results: Cannabis use during pregnancy is associated with increased risk of preterm birth, low birthweight, and NICU admission. Breastfeeding while using cannabis exposes infants to THC in breast milk. Chronic use increases the amount of THC in milk over time. If abstinence is not possible, strategies to reduce frequency of use can lower infants' exposure to THC. Mothers frequently report using cannabis to manage physical and mental health symptoms, which complicates abstinence-focused recommendations. Health problems, which are often sequelae of adverse childhood experiences (ACEs), mediate the frequency of use.

Conclusions: Perinatal cannabis use is multifactorial, and can be related to trauma and untreated health needs. Clinical care should incorporate harm-reduction strategies and screen for underlying conditions. Addressing mental and physical health symptoms may reduce frequency of cannabis use in pregnant and women.

Keywords: Cannabis, Breastfeeding, Pregnancy, Adverse Childhood Experiences, Health Problems

Perinatal Cannabis Use: Current Evidence, Health Risks, and Clinical Implications

Cannabis contains over 60 bioactive compounds known as cannabinoids [1]. Delta-9 tetrahydrocannabinol (THC), the main psychoactive component, was isolated in 1964 and identified in 2002. THC is lipid-soluble, enabling it to cross both the placenta and into breast milk. Major health organizations, including the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) [2], Centers for Disease Control and Prevention (CDC) [3], and the March of Dimes [4], advise against cannabis use during pregnancy and breastfeeding to avoid infant exposure to THC.

Prevalence of Cannabis Use in Pregnancy and Postpartum

Approximately 5% of U.S. pregnant or postpartum women report

using cannabis [5]. As legalization continues, usage rates are expected to rise. While 5% may seem modest, the prevalence significantly increases among women with specific risk factors. Using Pregnancy Risk Assessment Monitoring System (PRAMS) data, Crume et al. [6] reported substantially higher usage among women with certain behaviors or stressors. For instance, 27% of those who smoked tobacco in the third trimester also used cannabis; 55–57% of women with unintended pregnancies or three or more stressors used cannabis; and 83% of those not taking daily multivitamins also reported cannabis use.

Cannabis Use During Pregnancy

Neonatal Effects of Prenatal Cannabis Exposure

Cannabis use during pregnancy influences birth outcomes, such as gestational age and birthweight. Studies show that THC may alter



placental function [7]. Corsi et al. [8], using a large Canadian sample, found that cannabis use doubled the risk of preterm birth and significantly increased rates of NICU admission, small for gestational age "infants", and low APGAR scores. Crume et al. [6] found that cannabis use raised the risk of low birthweight by 50%, even after adjusting for tobacco use and other maternal characteristics.

Using longitudinal data from the British ALSPAC study (N=15,013), researchers found that cannabis use during pregnancy was associated with decreased infant birthweight and length [9]. Cannabis use also increased the risk of NICU admission by 64%. Meta-analyses support these findings. Duko et al. [10] conducted a cumulative meta-analysis of 27 studies, concluding that prenatal cannabis use significantly increased risk for preterm birth (aOR=1.35). Solmi et al. [11] found high-quality evidence linking cannabis use to small-for-gestational-age infants and low birthweight.

Long-Term Developmental Outcomes

The longer-term effects of prenatal cannabis exposure are much more difficult to document. One reason is that social adversity is a significant confound of any possible long-term effects of cannabis use: people who experience high levels of social adversity also have higher rates of cannabis use. For example, using the ALSPAC data, Corsi et al. [9] found an inverse effect for socioeconomic status and cannabis use during pregnancy. Among those with higher socioeconomic status (SES), only 2% used cannabis while pregnant, compared the 8.4% of those with the lowest SES. Mothers who used cannabis were more likely to be young, and to have smoked and used alcohol during pregnancy.

Longitudinal studies cited by Velez et al. [5] suggest that cognitive and behavioral effects of prenatal cannabis exposure may not manifest until adolescence or early adulthood. However, these effects have been much more difficult to ascertain. Were they caused by the cannabis or by the social adversity that correlates with cannabis use? For example, in the ALSPAC data, Corsi et al. [9] found that maternal cannabis use during pregnancy was related to some makers of infant and child cognitive development, but when SES was adjusted for, it attenuated the effects of in utero exposure. Nevertheless, they concluded that maternal cannabis use during pregnancy is still a marker of possible high-risk neonatal and longer-term effects.

Similarly, a retrospective birth cohort study of 141,570 infants born to 117,130 mothers found that 5.7% used cannabis while pregnant [12]. These mothers were identified via universal-screening protocols that included urine screening and self-report. Offspring did not have higher rates of attention-deficit hyperactivity disorder (ADHD) and disruptive behavior disorders (DSD) after SES was accounted for. However, they noted that prenatal cannabis use was a risk factor for adverse neonatal outcomes and indicated that there were many reasons why mothers should not use it while pregnant.

Another article using an overlapping dataset also found that cannabis use during pregnancy was related to autism spectrum disorders [13]. Autism was diagnosed at the Kaiser Permanente Northern California autism spectrum disorder clinic in 3.6% of the sample. This study included 178,948 pregnancies enrolled in the Kaiser Permanente Health Maintenance Organization in Northern California. The initial analysis appeared significant between daily use and ASD. However, after adjusting for maternal demographics, this relationship was no longer significant. Mothers' demographic data included race/ethnicity, age, education, and score on the Neighborhood Deprivation Index.

In contrast, an Australian study used the Perinatal Data Collection birth cohort study from New South Wales (N=259,150) [14]. They examined prenatal cannabis use disorder and autism identified by ICD-10 Australian Modified diagnostic criteria. They found a relationship between maternal cannabis use and autism, particularly for

males. For the total sample, cannabis use increased the risk of autism by more than 3 times. More than a third of children with autism spectrum disorders were from disadvantaged backgrounds, but even after controlling for maternal characteristics, the relationship was still significant.

Cannabis and Breastfeeding

Cannabis use during breastfeeding is a relatively new area of study and cannabis use might influence feeding pattern. Two recent studies, both based on PRAMS data, had contradictory findings. The first study found that cannabis negatively impacted feeding pattern [6]. Cannabis users were less likely to initiate breastfeeding and more likely to cease by 9 weeks postpartum. The second study found no difference in initiation and breastfeeding past 12 weeks if mothers believed that it cannabis was safe to use while breastfeeding [15]. If they believed that cannabis was unsafe, then they were less likely to initiate breastfeeding and more likely to stop before 12 weeks.

Accumulation of THC in Breast Milk

Another important consideration is cannabis's transfer into human milk. THC exhibits high lipophilicity, enabling it to bind readily to fat molecules in human milk and to cross the infant's blood-brain barrier. This pharmacokinetic property raises concerns about potential neurodevelopmental impacts on exposed infants. Although isolating the effects of THC transferred through breast milk alone vs infants' exposure in utero remains challenging; most women who used cannabis while breastfeeding have also used it while pregnant. We do not know much about the independent effects of THC in milk, but we do understand how THC accumulates in milk.

Two studies published in the same year highlight some of the complexities in measuring THC in milk but highlight variables related to high accumulation [16,17]. In the first study, Baker and colleagues [16] collected breast milk samples from eight lactating mothers who smoked cannabis. Samples were obtained at baseline (prior to use), and then at 20 minutes, 1 hour, 2 hours, and 4 hours post-inhalation. Results indicated that THC concentrations in milk peaked approximately 1 hour after cannabis use and declined thereafter. No measurable levels of THC metabolites were detected in the milk within 4 hours following use. Based on these findings, the authors estimated a relative infant dose of 2.5% of the mother's dose suggesting limited acute transfer under single-use conditions.

Conversely, the second study involved a larger sample of 50 breastfeeding mothers, yielding 54 milk samples, and produced markedly different findings [17]. In this study, THC was detectable in 63% of milk samples, even up to 6 days following the last reported use. The concentration of THC varied substantially between participants, with higher levels observed among mothers who reported frequent and chronic cannabis use. The authors recommended that future investigations incorporate both maternal and infant plasma samples to pharmacokinetic and metabolic processes in both mothers and infants.

Influence of Frequency of Use on THC Accumulation in Milk

Frequency and chronicity of cannabis use are critical variables in determining THC concentration in breast milk and may explain the discrepancy in findings between the two previously cited studies [16,17]. In the Baker et al. (16) study, cannabis use was standardized—participants were instructed to use a specific brand and dose of cannabis, and were limited to a single administration. Under these controlled conditions, THC cleared from breast milk within a relatively short window of 4 hours.

By contrast, Bertrand et al. [17] did not control for dosage, cannabis potency, or method of administration. This design arguably provides a more ecologically valid representation of real-world maternal canna-



bis use. In this study, THC concentrations varied widely and remained detectable in 63% of milk samples up to 6 days post-use. Participants with higher frequency and chronicity had higher THC concentrations in their milk.

A more recent longitudinal study by Moss et al. [18] further highlights the relationship between frequency of use and THC accumulation. This study included 20 mothers who used cannabis frequently and examined THC concentrations in both breast milk and plasma at two time points: 2 weeks and 2 months postpartum. Between these time points, participants continued to use cannabis frequently, which led to an exponential increase in breast milk THC concentrations—an average increase of 30.1 ng/mL.

Notably, THC levels in breast milk were consistently higher than those in maternal plasma. This pattern suggests that THC preferentially accumulates in lipid-rich breast milk and with frequent use, never has a chance to fully clear from milk, leading to ongoing infant exposure through breastfeeding.

The next question is why do some mothers persist in frequent use? Researchers have identified two potential factors: adverse childhood experiences and health problems.

Adverse Childhood Experiences, Health Problems, and Frequency of Cannabis Use

Two key drivers of frequent cannabis use are self-reported health issues and histories of adverse childhood experiences (ACEs). In a study of 1,343 mothers who used cannabis while pregnant or breastfeeding, 89% cited physical or mental health symptoms—such as anxiety, depression, pain, sleep problems, and PTSD—as reasons for use [19]. Frequency of use increased with higher numbers of health conditions.

Multiple studies confirm that ACEs increase the likelihood of cannabis use in perinatal women [20–22]. For example, Thomas et al. [22] found that women with four or more ACEs were over three times as likely to use cannabis during pregnancy. Hicks et al. [23] examined the link between health problems, recent interpersonal violence, and cannabis use in their sample of undergraduates. They used a mediation model to explain the relationship: interpersonal violence increases trauma symptoms, which in turn increased frequency of cannabis use.

In our sample of 1,343 women who used cannabis while pregnant or breastfeeding, 93% of mothers reported at least one ACE and 59% reported four or more [24]. ACEs were directly associated with frequency of use until the number of health problems was added into the model. Once they were, mediation analyses showed that ACEs predicted health problems, which in turn predicted frequency of cannabis use. The number of ACEs no longer had a significant effect on frequency of use. We suggested that one possible way to lower frequency of use was to address the health problems mothers were trying to treat with cannabis.

Recommendations for Practice

Given that cannabis use is often specifically used to treat health problems, especially for those with histories of trauma, clinicians might consider adopting a harm-reduction approach rather than simple telling mothers to abstain using the following suggestions.

1. Screening: Conduct non-judgmental, repeated screenings using both self-report and urine tests. Cultivate an environment where mothers may speak openly about their cannabis use. Brainstorm with them about other ways to address their with the aim of reducing their frequency of use.

2. Tailored Support: Address other possible maternal stressors,

such as housing, food security, domestic-violence services, and mental health. High levels of stress can drive cannabis use.

3. Substitution Strategies: For symptom relief, explore other treatment possibilities. Since many mothers are using cannabis because they believe that it is safer than medications, discuss non-drug treatment options, especially for sleep, depression, anxiety, and PTSD, and pain. Giving mothers other tools to cope with these conditions may lessen their frequency of cannabis use.

4. Safer Use: Recommend strategies to lessen infant harm. For example, if mothers smoke cannabis, discuss whether edibles might be an alternative to reduce infants' exposure to second-hand smoke. Mothers must also be told to never sleep with their infants while using cannabis. Practitioners can also recommend that mothers time their breastfeeding to lower infant exposure to THC (e.g., breastfeed right before using cannabis). Mothers who use cannabis infrequently should wait 4 hours for THC to clear from their milk. Mothers should plan to have milk on hand (pumped milk or formula) to feed to their babies while they wait for THC to clear.

5. Infant Monitoring: Recommend that mothers watch their infants for signs of sedation or feeding difficulties. Practitioners should monitor this too.

6. Guidelines Development: When mothers use cannabis several times a day, the amount of THC in their milk may mean that breastfeedings contraindicated. We do not really know where that “too much” line is, but less is always preferred. With high and daily frequency, breastfeeding is likely contraindicated.

7. Equity in Care: There have been many instances where infants are removed from their homes because of cannabis use. However, statistically speaking, children are more likely to be removed from their homes if they are in ethnic minorities or low-income. Because of this, mothers may be very reluctant to share with you about their struggles. To counter that, ensure that your care is culturally sensitive and equitable. One place to begin is in screening. If you screen for cannabis, screen every mother, not just ones you assume will be “at risk.” Policies should apply to everyone.

Conclusions

Health problems, which are possible sequelae of adverse childhood experiences, increase the frequency of cannabis use in perinatal women. This is why simply telling mothers to abstain is unlikely to work. They are using cannabis for a reason. A more realistic approach involves identifying and addressing these health problems, which may reduce cannabis use. Non-pharmacologic treatments aligned with maternal preferences should be considered first. Collaborative, trauma-informed care models are essential for effective intervention.

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