

Cannabis: Implications for Pregnancy, Fetal Development, and Longer-Term Health Outcomes



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CANNABIS USE AND WOMEN

After tobacco and alcohol, cannabis is the most commonly abused substance by women of child-bearing age,¹ and in the United States, cannabis represents 64% to 79% of female drug use.^{1–3} The Canadian Alcohol and Drug Use Monitoring Survey found that among women of child-bearing age, 90.1% reported past-year substance use; nearly 11% reported past-year use of cannabis.⁴

As cannabis becomes more widely legalized, use by women may increase. Women appear to be more sensitive to the behavioural and physiological effects of cannabis and cannabis-like substances,⁵ and use disrupts female endocrine and reproductive function.⁶ Carefully controlled regulation of the endocannabinoid system is required for successful reproduction, and exogenous cannabinoids may disrupt the delicate balance of the endocannabinoid system in the female reproductive system.⁶

The population of substance users is diverse in its composition. The health issue is complex and differs across populations groups. Currently, it is estimated that women account for approximately 40% of the substance-using (licit and illicit) population.⁷ However, this gender inequality is decreasing as the proportion of women using addictive substances increases.^{8,9} Specifically, women are most at risk of substance use during their reproductive years, especially between the ages of 18 and 29 years.¹⁰ Those women who use substances in pregnancy are the women most

likely to have additional risk factors, and this group includes women who use cannabis as a coping mechanism for stresses in their lives. Those stresses are additional risk factors for fetal growth and neurocognitive development, and multiple stresses have an amplifying impact on the fetus. The epigenetic effects of cannabis on pregnancy and pregnancy outcome are entirely unknown.

Key Messages

The overwhelming advice of researchers in this field is that the safest course of action is to avoid cannabis exposure in utero, and to the developing infant, yet women and cannabis dispensers are likely to believe it is safe. There is a very real risk that legalization may be equated with safe in the minds of the public. In legalizing cannabis, which comes from a plant containing hundreds of active chemicals, the government needs to

1. Take immediate steps to ensure that the message regarding safety in pregnancy is clear and unambiguous.
2. Recognize that we are in the unique position to address the enormous gap in research in the neurodevelopmental safety of these substances and should commit to supporting this research.
3. Provide mechanisms to support clinical and population health research, including long-term follow-up.
4. Provide guidance on regulation to ensure that false health claims are not made regarding cannabis in pregnancy.
5. Support the development of clinical practice guidelines and evidence-based educational initiatives for cannabis dispensaries, health providers, and pharmacists, as well as knowledge dissemination.

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CANNABIS USE DURING PREGNANCY

Several trends suggest that, of all substances used during pregnancy, tobacco is the most prevalent, followed by alcohol, cannabis, cocaine, and other illicit drugs.^{5,11–13} Substance use among pregnant women varies widely and reflects differences in race, ethnicity, age, socioeconomic status, and modes of screening.^{5,13–16} Additionally, simplifying “substances” to mean only one drug is not necessarily reflective of the reality of the situation. Polysubstance use (the use of multiple substances at any given time) is common during pregnancy and may occur in as many as one half of all pregnancies by women who use substances.^{4,11,17}

The epidemiology of cannabis use in pregnancy in Canada is relatively unknown. According to the Canadian Tobacco, Alcohol, and Drugs Survey (CTADS), 10.6% of women in Canada reported past-year cannabis use in 2015,¹⁸ and this use likely is underreported because of the current illicit status. In one study exploring the outcomes of prenatal cannabis and alcohol exposure on academic achievement, Goldschmidt et al.¹⁹ reported on the frequency of concurrent cannabis and alcohol use during pregnancy. In their study, 14% of women reported heavy use of cannabis (i.e., one or more joints per day) during the first trimester of pregnancy, compared with 5.3% and 5.0%, respectively, during the second and third trimesters of pregnancy.

Recent studies from the United States report that prevalence of past-month cannabis use by pregnant women is increasing and is between 4% and 8%. Among past-year cannabis users ($n = 17\,934$), use almost daily was reported by 16.2% of pregnant women, and 18.1% of pregnant women met criteria for abuse and/or dependence.²⁰

In one prospective study, data suggested that many women achieve abstinence in pregnancy. In the sample of former users in this study, 78% reported abstaining from cannabis during pregnancy.¹⁷ Similarly, Chasnoff et al. in 2005 also reported decreased cannabis use in women after pregnancy recognition, but not abstinence.²¹ Forray and Foster in 2015 found that of those who women achieved abstinence during pregnancy, 41% who used cannabis experienced a relapse by 3 months postpartum.¹⁷ These findings suggest a need to improve the general understanding of substance use over the course of pregnancy and in the postpartum period and of the tools and strategies that would be most helpful to promote lifelong abstinence.

The potential risks of cannabis use during pregnancy remain largely unknown. There is a prevalent belief that

cannabis is “natural” and an “herb” and “vegan” and can be safely used for nausea in pregnancy.²² One study reported that approximately 70% of both pregnant and non-pregnant women believe there is slight or no risk of harm from using cannabis once or twice a week.²⁰ In a cross-sectional convenience sample survey of women presenting for prenatal care, investigators examined pregnant women’s cannabis use patterns in the context of their views on legalization and knowledge regarding potential harms. Of 306 women surveyed, 35% reported current use, and 34% of those women planned to continue use in pregnancy. Almost all participants (96%) with ongoing use reported using marijuana for nausea. Overall, 70% of participants reported perceived risks of use in pregnancy, and 62% cited risk to the pregnancy as a reason to cut back or quit. Women with ongoing use were more likely to believe there was no harm of use during pregnancy compared with women who quit (75% vs. 26%, $P = 0.001$). Ten percent reported they would be more likely to use cannabis during pregnancy if it were legalized.²²

In Colorado, a recent survey of cannabis dispensaries found that 69% recommended the use of cannabis for nausea and vomiting during pregnancy. Medical dispensaries were even more likely to recommend use; 83% of those with a medical license to dispense gave this advice. The evidence base most frequently cited was personal experience.²³

Few studies have specifically examined the effects of cannabis on pregnancy, delivery, and lactation. Observational studies in humans can be confounded by inaccurate self-reporting of cannabis use and of behavioural and sociodemographic variables that correlate with prenatal cannabis use and may affect pregnancy outcomes (e.g., age, socioeconomic status; prenatal care access; and use of tobacco, alcohol, and other illicit drugs).

A recent meta-analysis of 31 studies by Conner et al. showed an association between heavy use and adverse outcomes.²⁴ Another meta-analysis, however, revealed that infants exposed to cannabis in utero had a decrease in birth weight compared with infants whose mothers did not use cannabis during pregnancy and were also more likely to need placement in the neonatal intensive care unit compared with infants whose mothers did not use cannabis during pregnancy.²⁵

Another study showed that prenatal cannabis use was associated with a 50% increased likelihood of low birth weight, independent of maternal age, race or ethnicity, level of education, and tobacco use during pregnancy.²⁶

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