

# **MARIJUANA USE AMONG PREGNANT AND POSTPARTUM WOMEN**

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The health risks of marijuana use are not the same for all people. A group of special concern is pregnant and postpartum women because of potential short and long-term effects of marijuana exposure on the baby.



## AS MORE STATES LEGALIZE MEDICINAL AND RECREATIONAL MARIJUANA, USE IS INCREASING AMONG WOMEN

Marijuana use rates among women age 18-44 years:

2014	Pregnant	Non-pregnant
Past-month use	3.85%* *age 18 to 25 years had highest rate: 7.47%	9.27%
Past-year use	11.63%	15.9%

In both groups use has increased by over 60% from 2002 to 2014.

Brown et al., 2017; Natl. Survey on Drug Use and Health



## POSTPARTUM MARIJUANA USE

Pregnancy Risk Assessment Monitoring (PRAMS) data in 3 states (N = 4969) show:

- 6.8% of postpartum women (2 to 9 months after delivery) reported use.
- Compared to non-users, users were more likely to smoke cigarettes (49% vs. 20%), report depressive symptoms (14% vs. 9%), and breastfeed for less than 8 weeks (35% vs 18%).

Ko et al., 2018

## EFFECTS OF PRENATAL MARIJUANA EXPOSURE: THE EVIDENCE IS MIXED

Research in this field is expanding, yet evidence about risks of prenatal exposure is not consistent or clear cut.

**Why is this?**



## CO-USE OF TOBACCO AND ALCOHOL IS A FACTOR

Most pregnant women who use marijuana also use tobacco and/or alcohol.



The effects of prenatal tobacco and alcohol exposure on fetuses and infants has been widely studied.  
***Evidence is abundantly clear that these substances have harmful and long-term effects.***

Gunn et al. (2016) conducted a meta-analysis of 24 studies on effects of marijuana use during pregnancy and found:

- Decreased infant birth weight
- Increased placement of newborns in the neonatal intensive care unit

Limitations: Most studies relied on self-report and included women who used alcohol and/or tobacco during pregnancy.

**It is unclear to what extent outcomes were related to marijuana use alone, or co-use of marijuana, alcohol, and/or tobacco.**



Chabarria et al. (2016) studied marijuana use in pregnancy (N= 12,069) and found after adjustment for sociodemographic factors:

- **Marijuana use** *was not associated* with adverse perinatal outcomes.
- **Co-use of marijuana and tobacco** *was associated* with a significantly increased risk of preterm birth, lower birth weight [ $< 25^{\text{th}}$  %], decreased head circumference [ $< 25^{\text{th}}$  %], and pre-eclampsia.
- The association between co-use of tobacco and marijuana and adverse outcomes was stronger than that of tobacco use alone.

**Co-use of marijuana and tobacco may have a synergistic or additive effect.**



Conner et al. (2016) conducted a meta-analysis of 31 studies and found:

- Overall, no association between marijuana use alone and low birth weight (< 2,500 g) or preterm birth < 37 weeks compared to nonusers.
- Women who used marijuana heavily (at least weekly) were at increased risk for low birth weight and preterm birth.
- Women who smoked marijuana and tobacco were at increased risk for preterm delivery.

**“Data suggest that the association between maternal marijuana use and adverse pregnancy outcomes may be attributable to concomitant tobacco use and other confounding factors and not marijuana alone.”**

## OTHER METHODOLOGIC ISSUES

- **Potency of cannabis.** Much of the research on effects of prenatal marijuana exposure on infants was done in the 1980s and 1990s. *THC levels have increased over 7-fold since then.*
- **Self-report.** Most studies rely on maternal self-report, which may underestimate amount and frequency of use because of social desirability or recall bias.
- **Adverse socioeconomic conditions .** Poverty, malnutrition, intimate partner violence may contribute to outcomes attributed to marijuana. Studies account for these factors in different ways.

## LONG-TERM NEUROLOGIC EFFECTS



**Executive functioning (EF).** Regions of the prefrontal area of the brain are responsible for EF. These regions continue to develop into late adolescence, so some aspects of EF may be affected by prenatal marijuana exposure while others are not.

Longitudinal studies among adolescents show that affected aspects of EF include *problem-solving skills requiring sustained attention and visual memory, analysis, and integration.*

Fried et al. 2001; 2002;

2003



## BEHAVIOR, COGNITION, ACADEMIC ACHIEVEMENT

### Prenatal marijuana exposure

- May be associated at age 10 years with problems in behavioral functioning: inattention, impulsivity, and subtle learning and memory deficits.
- May have possible effects on achievement in reading and spelling by age 10.
- Has no apparent effect on overall IQ.

Goldschmidt et al., 2000 and 2004; Richardson et al.,

2002

# MARIJUANA AND BREASTFEEDING



Baker et al. (2018) enrolled mothers who regularly smoked pot, were 2–5 months postpartum, and exclusively breastfeeding their infants. Mothers smoked 0.1 g (3 to 4 hits) of mj over about 15 minutes. They collected breast milk samples 20 minutes and 1, 2, and 4 hours later.

## Results

THC was detected at low concentrations at all time points. No metabolites were detected at any time point. THC was transferred into mother's milk such that infants ingested an estimated mean of 2.5% of the maternal dose.

## MARIJUANA AND BREASTFEEDING

“The long-term neurobehavioral effect of exposure to THC during this critical neurobehavioral development period is unclear. These questions will require an enormous effort to determine.”

American College of Obstetricians and Gynecologists' (ACOG) recommends: *“There are insufficient data to evaluate the effects of marijuana use on infants during breastfeeding. In the absence of such data, marijuana use is discouraged.”*



## PREGNANT WOMEN'S PERSPECTIVES



An anonymous survey of 306 women receiving prenatal care in Maryland found:

- 35% reported current marijuana use at pregnancy diagnosis. *Almost all (96%) reported using marijuana for nausea.*
- Among users, 66% planned to cut back/quit using during pregnancy; 34% planned to continued.
- Overall, 70% of participants reported perceived risks of use in pregnancy as a reason to cut back or quit.

Mark et al., 2017

## PREGNANT WOMEN'S PERSPECTIVES

### **Other reasons cited for cutting back or quitting:**

- To avoid being a bad example (74%)
- To avoid Child Protective Services (CPS) involvement (66%)
- To save money (63%)

### **One of the least common reasons given for cutting back/quitting:**

- Because they were told to do so by a doctor (27%)

## WHY THIS MATTERS: IMPLICATIONS FOR PUBLIC HEALTH

- Marijuana use during pregnancy is increasing as legalization increases.
- Marijuana is far more potent now than in the past, so prior research may underestimate effects on infants. Long-term neurologic effects are a concern.
- Most women who use marijuana also use tobacco or alcohol. Co-use of marijuana and tobacco may have a synergistic or additive effect. Is the same true of alcohol co-use?



## WHY THIS MATTERS: IMPLICATIONS FOR PUBLIC HEALTH

The negative effects of prenatal marijuana, alcohol, and tobacco exposure are preventable if pregnant women don't use.

- Do medical care providers ask about use?
- Do they know about/offer resources to help women quit/cut back?
- Do women follow their advice?

## MOVING FORWARD: PREVENTION

- Screening is critical. All women who are pregnant or contemplating pregnancy should be asked about their use of *tobacco, alcohol, marijuana* and other substances used for nonmedical reasons.
- Women reporting use should be counseled about potential health consequences, encouraged to discontinue use, and offered resources.
- Women who use marijuana for medicinal purposes (e.g., nausea) should be encouraged to use an alternative therapy that is pregnancy-safe.

American College of Obstetricians and Gynecologists' (ACOG)

## MOVING FORWARD

The science is incomplete and ongoing, but the public health message is straightforward:

**Why take the risk?**