

Marijuana use,  
pregnancy, and birth  
outcome: is there a  
correlation?



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## Introduction

With the increase in legalization of marijuana for medical and recreational use birth centers are seeing an increase in infants born to mothers who have used marijuana during pregnancy, often times from dispensaries. The potency of marijuana today compared with the 1970s or even 80s is much higher. The availability through dispensaries also makes it more accessible, controlled and considered, by some, 'safer' than street sold marijuana. This impact on the use of marijuana during pregnancy is being felt throughout the United States, especially, in states where marijuana sales are now legal. This rise in use prompted statements from the American Academy of Pediatrics (AAP), almost every state and health department, American College of Obstetrician and Gynecologists (ACOG), and AWHONN regarding use of marijuana during pregnancy, concerns for effect on the infant, and breastfeeding with marijuana use after birth. Currently there is a large quantity of evidence exploring the impact of marijuana use and birth outcomes.

### Picot

In newborn infants (neonatal period defined as <28 days of age) (P), how does marijuana use during pregnancy (I) compared with no marijuana use during pregnancy (C) effect infant growth and development or NICU admission (O) after birth (T).

### Discussion Board

The discussion board for MN504 showed a great interest in this subject with a varying amount of knowledge regarding marijuana use and birth outcomes. First, the original (P) in the PICOT is now newborns (<28 days) rather than the pregnant mom. Second the (O) was changed to be more specific. This focuses the review of EBP research.

Student, Raegan McCorkle, commented regarding the change in laws in California and the effect on self-reported marijuana use rising from 4% in 2009 to 7% in 2016. The report also noted, that the positive toxicology screens in California are not grounds for a child abuse or neglect report according to one article (Goler et al., 2018). In Nevada, in my experience as the reporting nurse on a newborn infant, child protective services will not take a report for the infant until the infant tests positive on a urine screen. Follow up is with a hospital social worker in the hospital and a scheduled home visit with the family after discharge. For marijuana use only, without any other extenuating factors, children are not removed from the mother.

The discussion also included questions and research regarding breastfeeding while continuing marijuana use and whether a mom's marijuana use impacts prenatal care. Both of these posts were interesting. Of note, in evaluating the mom's marijuana use and whether she accesses prenatal care and the effect on the infant, the research needs to account for lack of prenatal care as a variable that impacts birth outcome separate and in conjunction with marijuana use.

Continuing breastfeeding after birth has multiple positive health, as well as cognitive and neuro development impacts for the infant (Dieterich et al.,

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2013). Evaluating the impact of breastfeeding with or without marijuana use prenatally or postnatally is challenging. First, in evaluating IQ in the infant exposed to marijuana use in utero, IQ, as well as, neuro and cognitive development need to be evaluated separately and in conjunction with the feeding source. Nutrition's impact on growth needs to be accounted for separately and in conjunction with infants exposed to marijuana use in utero. In other words, exclusively artificial baby milk fed unaffected newborn infants compared with affected artificial baby milk fed newborn infants need to be compared in studies assessing long term impact of marijuana use during pregnancy. I would also add, that those infants exclusively or partially breastfed need to be included in this study to see what the risk benefit is when breastfeeding while continuing marijuana use vs the risk of feeding artificial baby milk. It may also be important to include pumped milk or donor milk fed infants in this assessment as well, since the positive impact of breastfeeding is not just the breastmilk (nutrition), but the interaction and action of feeding at the breast. Furthermore, Fransquet et al. (2017), found no significant impact to DRD4 from cannabis use during pregnancy, and the nominally significant impact reported is not altered with 8 weeks of breastfeeding postpartum.

### Marijuana Use and Infant Outcome

There is a body of research that shows no impact on birth weight, nicu admission, or prematurity. Mark et al. (2016) found, “ no differences in birth outcomes or utilization of prenatal care by marijuana exposure” (Mark et al., 2016, p. 105). More currently, research is being done specifically in states where marijuana is legal. Crume et al. (2018) found that with cannabis use <https://assignbuster.com/marijuana-use-pregnancy-and-birth-outcome-is-there-a-correlation/>

any time during pregnancy there was a 50% increase in LBW, independent of tobacco use. Also noted was no increased risk of preterm or NICU admission. (Crume et al., 2018)

Marijuana use during pregnancy, in a systematic review, is not noted to be linked to differentials in neurodevelopmental outcomes up until 3 years of age (Zhang et al., 2017). An increased risk of addictive behaviors after the age 14 was not found in this systematic review either (Zhang et al., 2017). The effect of in utero exposure to marijuana as the child ages, in this study, is minimally lower IQ scores at age 6 and minimally impulsivity and hyperactivity at 10 years of age were noted (Zhang et al., 2017). This study does not account for how the child was fed as an infant and the impact of nutrition on these factors.

Fransquet et al. (2017), found the opposite in a meta-analysis of 24 studies. Results demonstrated cannabis exposed, “ infants had a higher risk of anemia, decreased birth weight, and a greater chance of being placed in intensive care.” (Fransquet et al., 2017, p. 671). These infants also showed deficits in verbal reasoning and short term memory as they aged if the mothers used cannabis daily in the first trimester as well as other long term detrimental effects (Fransquet et al., 2017).

Warshak et al., 2015, found an increase in SGA infants as well as nicu admissions. Of note in this study is that of the 361 marijuana users, 208 also used tobacco (58%). Prenatal care and no prenatal care rates in the marijuana users group were the same. Of note, when tobacco users were

excluded and when tobacco users were included in the results, there was no change in the infant health outcome after birth. (Warshak et al., 2015).

### Root Cause?

To get to the heart of marijuana use during pregnancy and infant health outcome at birth one must first evaluate for the effect on in utero development. In the study, by Franscquet et al. (2017), the effect epigenetically on infant DNA methylation of the dopamine receptor DRD4 is evaluated. THC is known to pass through to the placenta and can have an epigenetic impact on development, and therefore can negatively impact the fetus in utero. (Fransquet et al., 2017) The study focused on DRD4 methylation patterns because this gene is associated with substance use and addiction. This gene is also linked to infant birth outcomes including birth weight, behavior, and neurodevelopment (Fransquet et al., 2017). The study allotted for tobacco smoking as well since this is already known to impact infant peripheral DNA methylation. Also well known is the, “ dose-dependent relationship between cigarette smoking and birth weight reduction” (Sherwood et al., 1999, p. 488). The results showed no significant impact to DRD4 from cannabis use during pregnancy (Fransquet et al., 2017). The researchers in acknowledging that they did not find the root cause, recommended to continue research and evaluate for marijuana’s impact on CNR1 in utero (Fransquet et al., 2017).

### Conclusion

Further investigation is needed on how marijuana use during pregnancy impacts utero growth which impacts birth outcomes. More research is also <https://assignbuster.com/marijuana-use-pregnancy-and-birth-outcome-is-there-a-correlation/>

needed on whether or not continued marijuana use while breastfeeding exacerbates the impact of the already present marijuana use in utero, has no effect, or may be protective for the infant. Furthermore, in reviewing the research there is evidence that the use of marijuana may reduce the immune response in the infant. This is also of concern as it may have a great impact on infant mortality rates long term as well as long term health of children (Zumbrun et al., 2014).

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