

Marijuana Use among Pregnant Women in a High-Risk Population



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Background

- Infant mortality, the death of an infant before his/her first birthday, is used as an indicator of the health of a nation.¹
- Ohio's infant mortality rate (IMR) in 2016 was 7.4 infant deaths per 1,000 live births and Montgomery County's was 6.8 deaths per 1,000 births, both higher than the national rate of 5.9.²
- Montgomery County's IMR per 1,000 live births by race:²
 - Black: 15.2 deaths
 - Hispanic: 7.3 deaths
 - White: 5.8 deaths
- Prematurity related conditions such as preterm birth (<37 weeks gestation) and low birth weight are the most significant contributors to infant mortality.³
- Most common preventable factor contributing to prematurity is cigarette smoking. There is also an increased use of marijuana, often concurrently with tobacco. Rates of use are higher in lower socioeconomic populations (15%-28%). Effects of marijuana use on infant unknown. The current recommendation is to refrain from use.⁴
- Healthy Start and CenteringPregnancy--Community interventions implemented to tackle factors contributing to high infant mortality rates in Ohio and especially Montgomery County. Shown to improve birth outcomes and decrease illicit substance use in pregnancy.⁵

Purpose

The purpose of this study was to first establish a baseline of marijuana use among pregnant women in zip codes at highest risk of adverse birth outcomes in Montgomery County, OH who were enrolled in the Expanded Healthy Start program at the Five Rivers Center for Women's Health. This study also sought to answer three questions:

1. Are rates of marijuana use lower at the completion of a CenteringPregnancy program compared to women who are enrolled in Healthy Start alone?
2. Is there an association between marijuana use and preterm birth?
3. What role do community organizations such as CenteringPregnancy and Healthy Start play in improving birth outcomes?

Methods

Participants

- All women living in high-risk zip codes in Montgomery County, OH (45402, 45403, 45405, 45414, 45416, 45417, 45426) presenting to the clinic for initial obstetrical visit
- Delivered between January 2016 and April 2017
- Women with truly high risk pregnancies due to medical reasons and non-English speaking women excluded from participating
- All women enrolled in Healthy Start; some chose to also enroll in CenteringPregnancy

Data Collection

- Collected by medical staff at Five Rivers Center for Women's Health
- Demographics; urine drug screen at intake to screen for common substances, including tetrahydrocannabinol (THC); chart reviews

Data Analysis

- De-identified data used for analysis; ethical review not required
- Independent variables: maternal age, race, highest education level, poverty level, type of insurance
- Outcomes of interest: positive THC at intake and delivery, gestational age at delivery
- Frequencies and demographics were used to describe study participants

Results

Demographics

- Of the 182 total study participants, 40 women enrolled in both CenteringPregnancy and Healthy Start and 142 enrolled in Healthy Start alone.
- The participants were 79% Black and 21% White. Forty-one percent (41%) had a high school degree and 71% lived below the poverty line.
- Table 1 shows the rates of positive THC tests at intake and delivery. Black women living below the poverty line had the highest rates of positive tests.
- Table 2 shows the rates of preterm and term births by demographic characteristics. Overall, the majority of women delivered at term (88%). The largest proportion of women who delivered prematurely were Black women living below the poverty line.

Table 1. Positive THC by Characteristics

	THC at Intake (N=61)	THC at Delivery (N=21)
Race		
Black	53 (86.9)	20 (95.2)
White	8 (13.1)	1 (4.8)
Other	0	0
Education		
<HS	16 (26.2)	5 (23.8)
HS	25 (41)	11 (52.4)
Some College or more	20 (32.8)	5 (23.8)
CenteringPregnancy		
Yes	11 (18)	6 (28.6)
No	50 (82)	15 (71.4)
Poverty		
Below	49 (80.3)	16 (76.2)
At	11 (18)	5 (23.8)
Above	1 (1.6)	0

Note: Results reported as n(%).

Table 2. Birth Outcomes by Variables

	Preterm Birth (N=21)	Term Birth (N=161)
Race		
Black	19 (90.5)	125 (77.6)
White	2 (9.5)	33 (20.5)
Other	0	3 (1.9)
Education		
<High School	5 (23.8)	36 (22.4)
High School Degree	10 (47.6)	64 (39.8)
Some College or more	6 (28.6)	61 (37.9)
Poverty Level		
Below	13 (61.9)	116 (72)
At	7 (33.3)	41 (25.5)
Above	1 (4.8)	4 (25.5)
Zip Code		
45402	1 (5.6)	17 (94.4)
45403	1 (3.6)	27 (96.4)
45405	4 (11.8)	30 (88.2)
45414	3 (12)	22 (88)
45416	0 (0)	4 (100)
45417	7 (13)	14 (87)
45426	5 (26.3)	14 (73.7)

Note: Results reported as n(%).

Inferential Analysis

- The odds of a negative THC result at delivery were lower for those who participated in CenteringPregnancy compared to those who did not (Table 3).
- There was a statistically significant decrease in the proportion of women testing positive for THC at delivery compared to intake but only among the women who did not participate in CenteringPregnancy.
- The odds of delivering preterm were higher for those who tested positive for THC at intake and lower for those who participated in CenteringPregnancy (Table 4).

Results (continued)

Table 3. THC at Delivery Based on Participation in CenteringPregnancy

CenteringPregnancy	THC at Delivery		OR	CI
	No	Yes		
Yes	34 (21.1)	6 (28.6)	0.67	0.24-1.86
No	127 (78.9)	15 (41.4)		

Note: Frequencies reported as n(%); odds ratio unadjusted.

Table 4. Preterm Birth Based on Positive THC at Intake and Participation in CenteringPregnancy

THC at Intake	Preterm Birth		OR	CI
	Yes	No		
Yes	9 (42.9)	52 (32.3)	1.57	0.622-3.96
No	12 (57.1)	109 (67.7)		
CenteringPregnancy				
Yes	2 (9.5)	38 (23.6)	0.34	0.08-1.53
No	19 (90.5)	123 (76.4)		

Note: Frequencies reported as n(%); percentage reported as % within gestational age at delivery; odds ratios unadjusted.

Discussion

- Black women with a high school education living below the poverty line had higher rates of marijuana use in this population—consistent with previous literature.
- No statistically significant association between participation in CenteringPregnancy and a negative THC result at delivery— in contrast to previous literature. Perhaps more barriers for Black women to overcome within this population.
- Results corroborate previous literature which found group prenatal care improves birth outcomes.

Recommendations

- Group prenatal care— provides support and resources to women in disadvantaged communities.
- Better tailor CenteringPregnancy sessions to target population— may need to include session specifically for marijuana cessation.

Limitations

- Small sample size— difficult to have enough power for statistical significance.
- Frequency, amount, and duration of marijuana use unknown; tobacco use was also unknown.
- Non-English speaking women were excluded from this study.
- All women enrolled in Healthy Start— overlap makes it difficult to assess the facets of each program that are effective and those that could be improved.

References

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