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Postpartum Marijuana Use, Perceptions of Safety, and Breastfeeding Initiation and Duration: An Analysis of PRAMS Data From Seven States, 2017

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Abstract

Background: Little is known about breastfeeding initiation and duration in the context of postpartum marijuana use and safety beliefs.

Research Aims: (1) To describe characteristics of women who used marijuana postpartum; (2) to evaluate the relationship between postpartum marijuana use and breastfeeding behaviors; and 3) to assess, among women who used marijuana postpartum, how safety perceptions are associated with breastfeeding behaviors.

Methods: Data from the cross-sectional Pregnancy Risk Assessment Monitoring System, a United States national governmental survey, 2017, were analyzed for participants with infants aged ≥ 12 weeks (seven states, unweighted $N = 4604$). Chi-square tests were used to compare characteristics and counseling for postpartum marijuana use. For participants with postpartum use, adjusted prevalence ratios (aPR) were calculated to evaluate relationships between safety perceptions and breastfeeding initiation and duration.

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Declaration of Conflicting Interests

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Supplemental Material

Supplemental material for this article is available online.

Results: Overall, 5.5% (95% CI [4.6, 6.6]) of participants reported postpartum marijuana use; among these women, 47.2% (CI [37.6, 56.9]) were breastfeeding at the time of the survey. Overall, 25.7% of participants indicated that they had been advised, by their prenatal care provider, against marijuana use while breastfeeding. Breastfeeding initiation or duration did not differ by postpartum marijuana use. Among participants with postpartum use, those who perceived marijuana was safe for breastfeeding women to use were more likely to have breastfed (aPR = 1.22, CI [1.04, 1.43]) and have a breastfeeding duration > 12 weeks (aPR = 1.57, CI [1.08, 2.27]) compared to those who perceived it to be unsafe.

Conclusions: Understanding maternal safety beliefs and provider education about the latest evidence and guidance related to postpartum marijuana use may improve clinical care.

Keywords

breastfeeding; breastfeeding duration; breastfeeding initiation; lactation counseling; maternal behavior; postnatal

Background

Marijuana use is increasingly prevalent and perceived as safe among pregnant and postpartum populations (Brown et al., 2017; Jarlenski et al., 2017; Metz & Borgelt, 2018; Metz & Stickrath, 2015). Although many states in the United States are legalizing medical and adult non-medical use, marijuana is the most commonly used drug that is illicit at the federal level during pregnancy (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019a). In a 2018 national population-based survey, 4.7% of pregnant and 7.1% of nonpregnant women self-reported marijuana use during the past month (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019a). Other population-based studies have estimated self-reported postpartum use to be 6.8% in three U.S. states (Alaska, Hawaii, and Vermont) in 2009–2011 (Ko et al., 2018) and 5.0% in Colorado in 2014–2015 (Crume et al., 2018). In an older (2015) survey, lactation support providers estimated that 15% of their patients used marijuana postpartum (Bergeria & Heil, 2015). In this paper, we use the term marijuana to refer to the cannabis plant and to the THC-containing drug made from the plant.

Little is known about postpartum marijuana use in terms of infant safety and breastfeeding; there are conflicting data about the potential outcomes of exposed infants. Historically, and recently, researchers have suggested that breastfeeding infants were likely to be exposed to the main psychoactive component in marijuana, Δ−9-tetrahydrocannabinol (THC), as well as cannabidiol (CBD) and cannabinol (CBN), via consumption of human milk (Baker et al., 2018; Bertrand et al., 2018; Djulus et al., 2005; Drugs and Lactation Database, 2006; Huestis (2007); National Academies of Sciences, Engineering, & Medicine, 2017). One older study by Astley and Little (1990) found decreased motor development at 1 year of age among infants exposed to THC through human milk, but the association may have been confounded by marijuana use during early pregnancy. Another research team found no significant differences in motor or mental development at 1 year of age by postpartum marijuana exposure, but a small sample size limited the analyses, and dose and duration of exposure were not collected (Tennes et al., 1985). It is unknown how

long marijuana remains in human milk, the resultant infant dose, the potential long-term effects on the infant, and whether there is a minimum time to wait after using marijuana before breastfeeding to minimize infant exposure (Anderson, 2017). In the absence of definitive data about infant safety, reducing or ceasing marijuana use during breastfeeding is encouraged by the Academy of Breastfeeding Medicine (ABM), the American College of Obstetricians and Gynecologists (ACOG), and the American Academy of Pediatrics (AAP; Committee on Obstetric Practice, 2017; Eidelman & Schanler, 2012; Metz & Borgelt, 2018; Reece-Stremtan & Marinelli, 2015).

Despite current uncertainty about maternal and infant outcomes related to marijuana use, perceptions of marijuana as harmless are prevalent (Bayrampour et al., 2019; Metz & Borgelt, 2018). These perceptions were expressed by 4% of participants with no use and 26% of participants with past-month use in a population-based survey of pregnant women (Jarlenski et al., 2017). In smaller studies, researchers have found similar results: one research team found that 30% of pregnant women felt that marijuana use during pregnancy was not harmful to an infant (Mark et al., 2017) and another qualitative study of pregnant women found that perceptions of marijuana as natural and safe was a key theme (Jarlenski et al., 2016). Differing opinions on the safety of marijuana use during pregnancy and while breastfeeding could be the result of conflicting opinions held and expressed by health care professionals and then expressed to their patients (Bayrampour et al., 2019). In a 2015 survey of lactation support providers in New England, conflicting opinions about breastfeeding in the context of maternal marijuana use were reported: 41% would still recommend breastfeeding, given its benefits; 15% would recommend discontinuing breastfeeding; and 44% reported that their recommendation would depend on the amount of marijuana used (Bergeria & Heil, 2015). More recently, in qualitative studies, researchers have reported obstetric providers not being familiar with marijuana risks and perceiving marijuana to be less harmful than other drugs (Holland et al., 2016). Additionally, pregnant participants have reported being unable to get clear information about the safety of marijuana from their healthcare providers or social workers, despite all receiving prenatal care (Jarlenski et al., 2016). No researchers have yet published about the influence of perceptions of marijuana safety while breastfeeding on mothers' breastfeeding behaviors, although population-based studies using the Pregnancy Risk Assessment Monitoring System (PRAMS) have examined postpartum marijuana use and breastfeeding. It was reported in a study using data from Colorado that 30% of participants who used marijuana postpartum breastfed < 9 weeks compared to 15% of participants who did not use marijuana; researchers found no association between marijuana use and breastfeeding initiation (Crume et al., 2018). Researchers using data from Alaska and Vermont reported that 35% of participants who used marijuana postpartum had a breastfeeding duration of < 8 weeks compared to 18% of participants who did not (Ko et al., 2018). Among both samples, about one in 10 participants reported never breastfeeding. As marijuana policies change globally, understanding the relationship between marijuana use and perceptions about its safety during lactation with breastfeeding behaviors has international relevance.

As access to marijuana expands with increasing medical and nonmedical legalization, a need to understand perceptions regarding marijuana use during the postpartum period exists along with its potential influences on breastfeeding outcomes (Azofeifa et al., 2016;

Brown et al., 2017). The study aims were: (1) to describe characteristics of women who used marijuana postpartum; (2) to evaluate the relationship between postpartum marijuana use and breastfeeding behaviors; and 3) to assess, among women who used marijuana postpartum, how safety perceptions are associated with breastfeeding behaviors.

Methods

Design

This study was a secondary data analysis of cross-sectional, retrospective, observational survey data from the Pregnancy Risk Assessment Monitoring System (PRAMS), an on-going population-based surveillance system of the U.S. CDC and state health departments (Centers for Disease Control and Prevention, 2017) and linked birth certificates. These data were used for analysis because they are the most recently available data containing information on postpartum marijuana use, marijuana safety perceptions, and breastfeeding initiation and duration. The CDC and participating state health departments approved the study protocol, and the CDC Institutional Review Board approved the collection and use of these data.

Setting and Relevant Context

The purpose of the PRAMS surveillance system is to provide a population-based sample; therefore, there is the assumption of reaching a broad cross-section of the population. In an attempt to provide uniform questions related to marijuana use before, during, and after pregnancy, an optional twelve-question marijuana supplement was released for use with the PRAMS survey for the first time in 2017. Seven state governments (Alaska, Illinois, Maine, New Mexico, New York, Pennsylvania, and West Virginia) chose to participate and use this marijuana supplement. Annual response rate thresholds of at least 55% were met in each state included in these analyses.

Sample

The target population was women of any age with a recent live birth. The PRAMS is designed to collect a stratified sample of mothers who recently gave birth at participating sites using data from birth certificates. Women are mailed a questionnaire 2–4 months following delivery, and those who do not respond to repeated mailings are contacted by telephone. Detailed information about sampling and survey methodology can be found at www.cdc.gov/PRAMS.

Participants with complete information about postpartum marijuana use, marijuana safety perceptions, breastfeeding duration, and breastfeeding initiation were included. Due to the small sample of participants who breastfed for the recommended minimum of 6 months (Eidelman & Schanler, 2012), participants with infants at least 12 weeks old at the time of the survey were included to capture breastfeeding duration of at least 12 weeks in this analysis. We were unable to evaluate exclusive breastfeeding. Based on these criteria, 4,604 participants were included in this study (weighted to represent 373,470 women).

Measurement

The annual PRAMS questionnaire has two parts—a set of core questions asked by all states (e.g., questions cover topics such as preconception health, breastfeeding, postpartum depression) and remaining standard questions chosen from a pretested list developed by CDC or developed by states on their own. In addition, optional supplements may be developed to appended to the end of the regular PRAMS survey in interested states. Supplements are used for a short period of time for rapid data collection in multiple states on topics of emerging concern, and have covered topics including Zika virus, opioid use, perceptions of and experiences with influenza in American Indian mothers, and teen pregnancy. Full PRAMS questionnaires are available online and in the Supplemental Material.

Participants were asked, “Since your new baby was born, have you used marijuana or hash in any form?” Those who answered yes were considered to have used marijuana during the postpartum period. Safety perceptions related to breastfeeding while using marijuana were assessed by the following question: “How long do you think it is necessary for a woman to wait after using marijuana to breastfeed her baby? Check ONE answer.” Responses of “I don’t think she needs to wait at all,” “I think it is best to wait until she is no longer high,” and “I think it is best to wait at least 2–3 hours after she is no longer high” were categorized as believing it is safe to breastfeed while using marijuana, while a response of “I don’t think it is safe for breastfeeding women to use marijuana at all” was categorized as believing it is unsafe. Respondents also answered four questions about whether a prenatal care (PNC) provider ever asked them about marijuana use, recommended marijuana use, advised against marijuana use, or advised against breastfeeding while using marijuana. Participants who answered yes to the question, “At any time during the 3 months before you got pregnant OR during your most recent pregnancy, did you use marijuana or hash in any form?” were considered to have used marijuana before or during pregnancy.

Breastfeeding initiation was identified from the survey question, “Did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?” Current breastfeeding status was determined by the question, “Are you currently breastfeeding or feeding pumped milk to your new baby?” Self-report of breastfeeding duration was categorized as < 5 weeks, 5–8 weeks, 9–12 weeks, and > 12 weeks from the question, “How many weeks or months did you breastfeed or feed pumped milk to your baby?” Respondents who indicated that they were currently breastfeeding were categorized as breastfeeding for > 12 weeks. None of the questions about breastfeeding or expressing milk were specific to exclusive breastfeeding.

Maternal age (categorized as < 24, 25–29, 30–34, and ≥ 35 years), race/ethnicity (White non-Hispanic, Black non-Hispanic, Hispanic, and other), marital status (married or not married), and parity (first birth or second or later birth) were obtained from the linked birth certificates. Maternal education (< 12 years, 12 years, or > 12 years), attendance at a postpartum checkup (yes/no), postpartum depressive symptoms (yes/no), postpartum cigarette smoking (yes/no), and physical abuse by a husband/partner during pregnancy were obtained from the PRAMS questionnaire.

State-specific maternal annual income questions and a standardized family size question were used to calculate whether participants' incomes were ≤ 200%, compared to > 200%, of the federal poverty level. Responses of "always" or "often" to feeling down, depressed, or hopeless, and/or having little interest or pleasure in doing things that were usually enjoyable since delivery, were categorized as experiencing postpartum depressive symptoms, whereas responses of "sometimes," "rarely," or "never" to both questions were categorized as not experiencing depressive symptoms.

Data Collection

Data were collected during 2017. Participants had been consented prior to completing the PRAMS survey per CDC protocols. Researchers requested de-identified PRAMS data by submitting a proposal to CDC with a data sharing agreement, and a standard application form. Only members of our research team listed on the application had access to these data.

Data Analysis

Prevalence of postpartum marijuana use was estimated among participants in the overall sample. To describe characteristics of participants who used marijuana postpartum, chi-square tests were conducted to assess differences in sociodemographic and breastfeeding characteristics by postpartum marijuana use. Additionally, among participants who used marijuana during the postpartum period, chi-square tests were used to assess differences in breastfeeding behaviors according to safety perceptions of marijuana use while breastfeeding. To evaluate the relationship between postpartum marijuana use and breastfeeding behaviors, marginal proportions were calculated in the context of a main-effects logistic model to estimate adjusted prevalence ratios (aPR) of the association between postpartum marijuana use and breastfeeding initiation (compared to not initiating) and, among those who initiated breastfeeding, duration at > 12 weeks (compared to ≤ 12 weeks). To assess how safety perceptions were associated with breastfeeding behaviors, the aPR of the association between safety perceptions of marijuana use while breastfeeding was estimated with the same outcomes among participants with postpartum marijuana use. Adjusted models controlled for maternal age, race/ethnicity, education, marital status, federal poverty level, postpartum depression, physical abuse by husband or partner during pregnancy, postpartum cigarette smoking, and being discouraged from breastfeeding while using marijuana by a prenatal care provider. Variables included in adjusted models were based on a priori directed acyclic graphs (DAGs).

Analyses were conducted in SAS-callable SUDAAN (Version 11.0.3) to account for the complex sampling survey design of PRAMS. Data were weighted for sample design, non-response, and non-coverage, and represent state residents delivering live births in their respective states.

Results

In our sample of participants delivering in seven states, the overall weighted prevalence of marijuana use during the postpartum period was 5.5% (n = 366; 95% CI [4.6, 6.6]; Table 1). Among participants who used marijuana postpartum, 46.5% (n = 139; CI [36.3, 56.9])

reported currently breastfeeding. Among currently breastfeeding participants, 4.1% (*n* = 139; CI [3.1, 5.5]) reported using marijuana postpartum (data not shown). Overall, 91.8% (*n* = 3,919; CI [90.6, 93.0]) of participants believed it was unsafe to breastfeed while using marijuana and 63.0% (*n* = 3,209; CI [60.7, 65.2]) were asked by a PNC provider about marijuana use. There were no significant differences in breastfeeding initiation or duration between participants who used marijuana postpartum and those who did not (Table 1).

Participants who used marijuana postpartum were more likely to be unmarried and at ≤ 200% of the federal poverty level; have experienced physical abuse by husband/partner during pregnancy; and smoke cigarettes postpartum, compared to those who did not use (*p*-values < .05; Table 1). Distributions of age and education were also different based on postpartum marijuana use; the prevalence of use was highest among participants aged ≤ 24 years and those with > 12 years of education, while non-use was highest among women aged 30–34 and those with > 12 years of education (*p*-values < .05; Table 1). Additionally, participants who used marijuana postpartum were more likely to have used marijuana before or during pregnancy (86.9% vs. 6.2% [*n* = 326 and 318, respectively]) and to believe that it is safe for breastfeeding women to use marijuana (48.6% vs. 5.8% [*n* = 191 and 310]) compared to those who did not (*p*-values < .05; Table 1). In terms of experiences with a PNC provider, participants who used marijuana postpartum were significantly more likely to be asked about marijuana use (77.6% vs. 62.1% [*n* = 313 and 2,896]), have marijuana use recommended (6.5% vs. 1.3% [*n* = 37 and 68]), and be advised against breastfeeding while using marijuana (37.6% vs. 25.0% [*n* = 147 and 1,191]) compared to those who did not use marijuana (*p*-values < .05; Table 1).

Among participants who used marijuana postpartum, those who believed that it was unsafe for breastfeeding women to use marijuana were significantly less likely to have initiated breastfeeding (29.9% vs. 12.2% [*n* = 46 and 14]) and to have breastfed > 12 weeks (19.3% vs. 54.2% [*n* = 37 and 48]) compared to those who believed there was no wait needed between marijuana use and breastfeeding (*p*-values < .05; Table 2).

After adjustment, there was no significant association between postpartum marijuana use and breastfeeding initiation (aPR = 1.02, 95% CI [0.96, 1.08]) or duration of > 12 weeks (aPR = 1.04; CI [0.90, 1.21]; *p*-values > .05; data not shown). Among participants who used marijuana postpartum, those who believed it was safe for breastfeeding women to use marijuana were 1.22 times as likely to initiate breastfeeding (aPR = 1.22; CI [1.04, 1.43]) and 1.57 times as likely to have breastfed for > 12 weeks (aPR = 1.57; CI [1.08, 2.27]) than those who did not believe it was safe for breastfeeding women to use marijuana, after adjustment (*p*-values < .01; Table 3).

Discussion

We found that approximately 1 in 20 postpartum and 1 in 25 currently breastfeeding participants reported using marijuana in our sample. Almost half of participants who used marijuana postpartum reported currently breastfeeding at the time of the survey (≥ 12 weeks postpartum). Postpartum marijuana use was not associated with breastfeeding initiation or duration. Among participants who used marijuana postpartum, those who believed it

was safe for breastfeeding women to use marijuana were more likely to have initiated breastfeeding and more likely to have breastfed > 12 weeks than their counterparts.

Participants who used marijuana postpartum were more likely to be younger, unmarried, and have less education and lower income levels; these findings are concordant with other studies with women who use marijuana during pregnancy or postpartum (Ko et al., 2018; Ko et al., 2015; Brown et al., 2017; Coleman-Cowger et al., 2017, Crume et al., 2018). In our study, there was no significant difference in participants who used marijuana postpartum compared to those who did not in terms of race/ethnicity or breastfeeding behaviors. Existing literature has documented estimates of postpartum marijuana use in pregnancy and/or postpartum differing by race, with highest use reported in population-based studies among women who are non-Hispanic White (Coleman-Cowger et al., 2017; Ko et al., 2015, 2018), and lowest use among women who are non-Hispanic Black (Crume et al., 2018). However, these findings are not consistent across the literature; another research team found the highest rate of postpartum marijuana use in participants who were non-Hispanic Black (Mark et al., 2017). In two separate studies using PRAMS data (including one from Colorado and another from Alaska and Vermont), researchers found that participants who used marijuana during the postpartum period were less likely to breastfeed beyond 8 weeks (Crume et al., 2018; Ko et al., 2018). Our findings of breastfeeding duration and marijuana use may differ from other PRAMS studies because we included more states with differing policies for marijuana legalization (Schauer, 2018) and criminalization of use during pregnancy (Guttmacher Institute, 2020); however, these differences merit further exploration.

Guidelines from ACOG recommend that “women who are pregnant or contemplating pregnancy should be encouraged to discontinue marijuana use” and that “there are insufficient data to evaluate the effects of marijuana use on infants during lactation and breastfeeding, and in the absence of data, marijuana use is discouraged.” They do not recommend the discontinuation of breastfeeding (Committee on Obstetric Practice, 2017, p. 1). Similarly, ABM recommends that providers counsel women who use marijuana “to avoid further use or reduce their use as much as possible while breastfeeding” and additionally states that “the data are not strong enough to recommend not breastfeeding with any marijuana use” (Reece-Stremtan & Marinelli, 2015, p. 139). In addition, AAP notes that marijuana can be detected in human milk and that use of marijuana while breastfeeding is “contraindicated” (Eidelman & Schanler, 2012; Ryan et al., 2018). The science is still emerging, and clinical guidelines are updated as new evidence is introduced.

This study contributes important information about how perceptions of marijuana safety regarding breastfeeding are associated with breastfeeding behaviors in women who use marijuana postpartum. Although there were no differences in initiation and duration in breastfeeding by marijuana use, among participants who used marijuana postpartum, breastfeeding initiation and longer breastfeeding durations were lower in those who believed it was unsafe to use while breastfeeding. We suggest that some women may consider the safety of marijuana use with breastfeeding initiation and duration to protect their infants. Although current clinical guidance discourages the use of marijuana while breastfeeding, information delivered by PNC providers to participants who used marijuana postpartum

varied; two in five participants were advised against breastfeeding while using marijuana, one in two were advised against marijuana use, and one in 15 received a recommendation to use marijuana. These results are consistent with other researchers' findings about providers, and reflect provider uncertainty or differing perspectives of what to communicate to their patients due to a lack of definitive scientific evidence (Bergeria & Heil, 2015; Jarlenski et al., 2016). Because four in five participants who used marijuana postpartum in this study also used it before and/or during pregnancy, preconception or prenatal counseling may be an ideal time to reach this population.

In light of concerns related to postpartum marijuana use while breastfeeding (Astley & Little, 1990; Bertrand et al., 2018; Brown et al., 2018; Metz & Borgelt, 2018; Metz & Stickrath, 2015; Ryan et al., 2018; Tennes et al., 1985), it is important to note that almost half of participants who used marijuana postpartum reported currently breastfeeding at the time of the survey. There is a distinct lack of information about the short- and long-term effects of marijuana exposure via human milk for the infants (Ryan et al., 2018). Longitudinal studies of infants exposed to marijuana through human milk are needed to understand the potential implications on infant health and development, and whether these potential risks outweigh the benefits of breastfeeding. The AAP (Eidelman & Schanler, 2012) emphasizes the importance of breastfeeding for both maternal and child health. Infant outcomes associated with breastfeeding include lower risk of infections, sudden unexpected infant death, allergies and asthma, Type 1 diabetes, and obesity, among others (Eidelman & Schanler, 2012). Maternal benefits include lower risk of breast and ovarian cancers, Type 2 diabetes, and high blood pressure (Eidelman & Schanler, 2012). Although the benefits of breastfeeding are well established, data about the results of infant exposure to marijuana through human milk are currently limited and conflicting. Thus, to limit potential risk to the infant, breastfeeding mothers should be advised not to use marijuana or marijuana-containing products in any form while breastfeeding (CDC, 2020; Substance Abuse and Mental Health Services Administration [SAMHSA], 2019b).

Limitations

First, marijuana use was self-reported and may be an under-estimate of the true prevalence due to social desirability bias. In a clinical sample, toxicology results were similar to self-report ofmarijuana use (Yonkers et al., 2011). However, in a health maintenance organization/system study 54.9% of pregnant women with a positive marijuana test result were-positive only on toxicology tests, compared to the 29.2% that were positive onboth toxicology tests and self-report, and 15.9% that were positive only onself-report (Young-Wolff et al., 2017). Misclassification of exposure status due to underreporting may have occurred, so our results may be biased toward the null. Second, these data are cross-sectional, and we cannot conclude causality regarding postpartum marijuana use, safety perceptions, and breastfeeding outcomes. Third, these results are likely not generalizable outside the study states as differing legalization status of marijuana may influence social norms and safety perceptions. Additionally, the PRAMS question asked about general postpartum marijuana use and we are unable to further evaluate frequency, mode, timing, or duration of use. The sample was limited to those surveyed at or after 12 weeks postpartum, which may mean that a greater proportion of respondents who participated by phone were

captured compared to those who may have been early responders by mail. This may result in greater inclusion of those from demographic groups that are harder to contact, including Hispanics, non-White women, adolescents, and those with less than 12 years of education (Shulman et al., 2018). Another limitation is that breastfeeding duration does not capture exclusive breastfeeding, and some participants may have fed their infants both formula and human milk and altered their breastfeeding practices while using marijuana. Finally, participants were only asked about marijuana and/or hash, so use of CBD may not be captured and cannot be differentiated from marijuana use.

Conclusions

Perceptions of safety of marijuana use while breastfeeding may influence breastfeeding behaviors among women who used marijuana postpartum. Public health initiatives may consider educating providers and women about the available guidance relevant to marijuana use while breastfeeding. In future studies, researchers could explore the short- and long-term results of marijuana exposure in infants and children exposed via human milk; the impact of marijuana legislation on use during and after pregnancy and safety perceptions; and on the extent of provider education, knowledge and attitudes related to marijuana use during and after pregnancy.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Key Messages

- Little is known about breastfeeding initiation and duration in the context of postpartum marijuana use and safety beliefs.
- Postpartum marijuana use was not associated with a decreased likelihood of breastfeeding initiation or a duration of > 12 weeks, but, among participants who used marijuana postpartum, the belief that marijuana was safe for use during breastfeeding was associated with an increased likelihood of breastfeeding initiation and a duration of > 12 weeks compared to those who believed that it was not safe.
- More scientific evidence about the safety of marijuana use while breastfeeding is necessary to inform clinical guidance and counseling.

Table 1.

Demographic, Pre-Pregnancy and Prenatal Marijuana Use, and Breastfeeding Behavioral Characteristics of the Sample Grouped by Postpartum Marijuana or Hash Use ($N = 4.604$)[a].

Characteristics	Total	% (CI)	Postpartum Marijuana Use		X^2[b]	*p*
			Yes *n* = 366 (5.5%) % (CI)	No *n* = 4,238 (94.5%) % (CI)		
Maternal Characteristics						
Age (yr.)						
≤24	1,040	20.7 (18.9, 22.7)	35.6 (27.2, 44.9)	19.9 (18.0, 21.9)	6.24	0.001
25–29	1,423	29.7 (27.7, 31.9)	32.0 (23.8, 41.5)	29.6 (27.5, 31.8)		
30–34	1,348	30.4 (28.4, 32.6)	17.2 (11.7, 24.7)	31.2 (29.1, 33.4)		
≥35	793	19.1 (17.4, 21.0)	15.2 (9.2, 24.0)	19.3 (17.5, 21.3)		
Race/ethnicity						
Non-Hispanic White	2,816	65.6 (63.3, 67.8)	66.8 (56.9, 75.4)	65.5 (63.2, 67.8)	1.16	0.325
Non-Hispanic Black	344	9.5 (8.2, 11.0)	13.0 (7.2, 22.2)	9.3 (8.0, 10.8)		
Hispanic	882	16.3 (14.5, 18.2)	10.7 (5.9, 18.8)	16.6 (14.8, 18.6)		
Other	562	8.7 (7.5, 10.0)	9.6 (5.3, 16.8)	8.6 (7.4, 10.0)		
Education (yr.)						
<12	555	12.0 (10.4, 13.7)	14.3 (8.3, 23.5)	11.9 (10.3, 13.6)	5.88	0.003
12	1,115	23.1 (21.2, 25.1)	37.5 (28.8, 47.0)	22.3 (20.3, 24.4)		
>12	2,934	64.9 (62.6, 67.2)	48.2 (39.0, 57.6)	65.9 (63.5, 68.2)		
Marital status						
Married	2,705	59.6 (57.2, 61.9)	31.1 (23.6, 39.9)	61.2 (58.8, 63.6)	30.56	<0.001
Not married	1,899	40.4 (38.1, 42.8)	68.9 (60.2, 76.4)	38.8 (36.4, 41.2)		
Parity						
First birth	1,823	37.3 (35.1, 39.5)	38.3 (29.9, 47.6)	37.2 (35.0, 39.5)	0.060	0.807
Second or later birth	2,781	62.7 (60.5, 64.9)	61.7 (52.5, 70.1)	62.8 (60.5, 65.0)		
Federal poverty level						
≤200%	2,400	51.4 (49.0, 53.8)	73.8 (64.5, 81.3)	50.1 (47.6, 52.6)	22.74	<0.001
>200%	1,824	48.6 (46.2, 51.0)	26.3 (18.7, 35.5)	49.9 (47.4, 52.4)		
Physical abuse by partner during pregnancy						
Yes	69	1.4 (0.9, 2.0)	6.8 (3.3, 13.7)	1.0 (0.7, 1.6)	4.99	0.025

Characteristics	Total	% (CI)	Postpartum Marijuana Use		X^{2} [b]	p
			Yes *n* = 366 (5.5%) % (CI)	No *n* = 4,238 (94.5%) % (CI)		
No	4,535	98.6 (98.0, 99.1)	93.2 (86.3, 96.7)	99.0 (98.4, 99.3)		
Attended postpartum visit						
Yes	4,129	90.5 (88.9, 91.8)	84.5 (74.5, 91.0)	90.8 (89.3, 92.2)	2.14	0.143
No	458	9.5 (8.2, 11.1)	15.6(9.0,25.5)	9.2 (7.8, 10.7)		
Postpartum depression symptoms						
Yes	536	11.2 (9.8, 12.7)	15.9 (10.5, 23.4)	10.9 (9.5, 12.5)	2.27	0.132
No	4,068	88.8 (87.3, 90.2)	84.1 (76.6, 89.5)	89.1 (87.5, 90.5)		
Cigarette use after pregnancy						
Yes	699	13.6 (12.1, 15.3)	50.4 (41.1, 59.7)	11.5 (10.0, 13.1)	39.21	<0.001
No	3,905	86.4 (84.7, 87.9)	49.6 (40.3, 58.9)	88.5 (86.9, 90.0)		
Perinatal Marijuana Use Characteristics						
Used marijuana before or during pregnancy						
Yes	645	10.6 (9.3, 12.1)	86.9 (79.2, 92.0)	6.2 (5.1, 7.4)	103.83	<0.001
No	3,941	89.4 (87.9, 90.7)	13.1 (8.0, 20.8)	93.8 (92.6, 94.9)		
Belief about how long to wait after using marijuana to breastfeed						
No wait	181	2.8 (2.2, 3.6)	19.0 (13.3, 26.4)	1.9 (1.4, 2.6)	18.43	<0.001
Until no longer high	99	1.5 (1.1, 2.1)	7.6 (4.3, 13.1)	1.2 (0.8, 1.7)		
2–3 hours after no longer high	221	3.8 (3.1, 4.8)	22.0 (14.7, 31.8)	2.8 (2.2, 3.6)		
Not safe for BF women to use	3,919	91.8 (90.6, 93.0)	51.4 (41.8, 60.8)	94.2 (93.0, 95.1)		
A prenatal care provider:						
Asked about marijuana use	3,209	63.0 (60.7, 65.2)	77.6 (68.2, 84.9)	62.1 (59.8, 64.4)	11.78	0.001
Recommended marijuana use	105	1.6 (1.1, 2.3)	6.5 (3.8, 11.0)	1.3 (0.9, 2.0)	8.69	0.003
Advised against marijuana use	1,937	38.7 (36.5, 41.0)	47.7 (38.4, 57.0)	38.2 (35.9, 40.5)	3.55	0.059
Advised against BF while using	1,338	25.7 (23.7, 27.8)	37.6 (28.9, 47.2)	25.0 (23.0, 27.1)	6.28	0.012
Breastfeeding Experiences						
Currently BF or expressing milk						
Yes	2,419	59.0 (56.5, 61.4)	46.5 (36.3, 56.9)	59.7 (57.1, 62.1)	5.32	0.021
No	1,583	41.0 (38.6, 43.5)	53.5 (43.1, 63.7)	40.4 (37.9, 42.9)		
BF initiation						
Ever BF or expressed milk	4,004	86.3 (84.6, 87.8)	81.4 (73.2, 87.5)	86.6 (84.8, 88.1)	1.95	0.163

Characteristics	Total	% (CI)	Postpartum Marijuana Use		X^2[b]	p
			Yes *n* = 366 (5.5%) % (CI)	No *n* = 4,238 (94.5%) % (CI)		
Never BF or expressed milk	600	13.7 (12.2, 15.4)	18.7 (12.6, 26.8)	13.4 (11.9, 15.2)		
BF duration[c]						
Never BF	600	13.7 (12.2, 15.4)	18.7 (12.6, 26.8)	13.4 (11.9, 15.2)	1.75	0.136
<5 wks.	748	18.5 (16.7, 20.4)	23.7 (16.2, 33.3)	18.2 (16.4, 20.2)		
5–8 wks.	201	4.0 (3.2, 4.9)	4.2 (1.8, 9.8)	3.9 (3.2, 4.9)		
9–12 wks.	531	11.1 (9.7, 12.6)	13.0 (7.9, 20.7)	11.0 (9.6, 12.5)		
> 12 wks.	2,524	52.8 (50.5, 55.1)	40.5 (31.8, 49.8)	53.5 (51.1, 55.9)		
Discussed BF at a prenatal care visit						
Yes	4,237	91.5 (90.2, 92.7)	94.0 (87.6, 97.2)	91.4 (90.0, 92.6)	1.17	0.280
No	313	8.5 (7.3, 9.9)	6.0 (2.8, 12.4)	8.6 (7.4, 10.1)		

Note. BF = breastfeeding. Sample size is unweighted; percentages are weighted; not all percentages may add to 100 due to rounding. Variables with missing observations: federal poverty level (*n* = 380); attended postpartum visit (*n* = 17); used marijuana before or during pregnancy (*n* = 18); beliefs on how long to wait after using marijuana to breastfeed (*n* = 184); PNC provider asked about marijuana use (*n* = 13); PNC provider recommended marijuana use (*n* = 2); currently breastfeeding or expressing milk (*n* = 600); and discussed breastfeeding at a prenatal care visit (*n* = 54).

[a]Includes 2017 marijuana supplement data from Alaska,Illinois, Maine, New Mexico, New York, Pennsylvania, and West Virginia.

[b]Comparison between women who did and did notuse marijuana postpartum.

[c]Includes both breastfeeding discontinuers andcurrently breastfeeding women.

Table 2.

Breastfeeding Initiation and Duration Stratified by Safety Beliefs Among Participants Who Used Marijuana Postpartum, (unweighted $n = 346$)[a].

		How long to wait between marijuana use and breastfeeding					
BF Behavior	***n*(%)**	**Not safe for BF women to use *n* = 155 (44.8%) % (CI)**	**2–3 hours after no longer high *n* = 67(19.4%) % (CI)**	**Until no longer high *n* = 34 (9.8%)) % (CI)**	**No wait n = 90 (26.0%) % (CI)**	***X*²**	***p***
BF initiation						5.33	0.001
Never BF	65(18.8)	29.9 (19.0, 43.6)	0.8 (0.2, 3.4)	2.4 (0.4, 12.8)	12.2 (4.9, 27.2)		
Ever BF	281(81.2)	70.1 (56.4, 81.0)	99.2 (96.6, 99.8)	97.6 (87.2, 99.6)	87.8 (72.8, 95.1)		
BF duration[b]						4.23	<0.001
Never BF	65(!8.8)	29.9 (19.0, 43.6)	0.8 (0.2, 3.4)	2.4 (0.4, 12.8)	12.2 (4.9, 27.2)		
< 5 weeks	70(20.2)	32.0 (19.8, 47.2)	9.4 (2.5, 30.0)	0.0	24.1 (11.1, 44.7)		
5–8 weeks	19(0.5)	5.8 (1.6, 18.7)	1.5 (0.4, 5.1)	2.4 (0.4, 12.8)	5.2 (2.1, 12.2)		
9–12 weeks	39(11.3)	13.1 (6.4, 25.1)	20.4 (7.9, 43.1)	22.2 (4.9, 61.2)	4.4 (1.8, 10.1)		
> 12 weeks	153(44.2)	19.3 (11.2, 31.2)	68.0 (45.7, 84.3)	73.0 (38.4, 92.2)	54.2 (36.5, 70.9)		

Note. Sample size is unweighted and includes both breastfeeding discontinuers and currently breastfeeding women; percentages are weighted; not all percentages may add to 100 due to rounding. The only variable with missing observations is beliefs on how long to wait after using marijuana to breastfeed ($n = 20$).

[a]Includes 2017 marijuana supplement data from Alaska, Illinois, Maine, New Mexico, New York,Pennsylvania, and West Virginia.

[b]Includes both breastfeeding discontinuersand currently breastfeeding women.

Table 3.

Beliefs About Safety and Breastfeeding Initiation and Duration Among Women Who Used Marijuana Postpartum (n = 346).

BF behaviors	PR (95% CI)	*p*	aPR (95% CI)[a]	*p*
Ever BF or Expressed Milk				
Believes it is safe to use while BF	1.35 (1.12, 1.62)	< .001	1.22 (1.04, 1.43)	.010
BF Duration > 12 Weeks				
Believes it is safe to use while BF	2.44 (1.42, 4.19)	< .001	1.57 (1.08, 2.27)	.007

Note. PR = prevalence ratio; aPR = adjusted prevalence ratio.

[a]Adjusted for age, race, education, marital status, parity, federal poverty level, postpartum depression, physical abuse by partner during pregnancy, postpartum smoking, and prenatal care provider discouraging breastfeeding while using marijuana.

[b]Includes 2017 marijuana supplement data from Alaska,Illinois, Maine, New Mexico, New York, Pennsylvania, and West Virginia.