

Self-Reported Cannabis Use in Pregnancy and Maternal Psychological Health

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ABSTRACT

Objective: Cannabis use is increasing in the United States, including among pregnant women. Legalization of cannabis and decreased public perceptions of risk have contributed to increased cannabis use. Relatively few studies have examined the association of cannabis use with maternal mental health in pregnancy, particularly among Black women who have higher rates of adverse pregnancy outcomes. **Method:** Biosocial Impacts on Black Births (BIBB) is a prospective study conducted from 2017-2022 in three prenatal care sites in Michigan, Ohio and Florida with pregnant Black women ($n = 1,066$). We examined the associations between self-reported cannabis use in pregnancy and psychological health. Psychological health was assessed using the Center for Epidemiologic Studies Depression Scale (CES-D), the Cohen's Perceived Stress Scale, and the Psychological General Well-Being (PGWB) Index. **Results:** Over 20% of women ($n = 227$) reported cannabis use during pregnancy. The mean age was 27 years, >60% of the participants completed a high school education, and 85% were living with the father of the baby. The most common reasons for use were to reduce stress and nausea. After controlling for confounding by state of residence, maternal age, education level, marital status, current financial status, gestational age at enrollment, and tobacco use, cannabis use in pregnancy was associated with higher levels of depressive symptoms ($\beta = 3.44$; 95% CI: 1.8, 5.1), higher perceived stress ($\beta = 2.78$; CI: 1.8, 3.7), and lower levels of maternal psychological well-being ($\beta = -4.5$; CI: -7.1, -1.9). **Conclusions:** These findings highlight the importance of health care provider awareness about prenatal cannabis use and psychological health in pregnant women. Prospective studies are needed to examine factors related to cannabis use in pregnancy to potentially reduce adverse outcomes associated with use.

Key words: = cannabis; marijuana; mental health; pregnancy; maternal health; prenatal cannabis exposure

Legalization of medical and recreational cannabis use (National Conference of State Legislatures [NCSL], 2025), along with decreased public perceptions of risk (McKenzie et al., 2022; Young-Wolff et al., 2022), have contributed to increased cannabis use in the general population

(Lee et al., 2022; Hasin & Walsh, 2021; Caulkins, 2024). Cannabis use in pregnancy is prevalent and increasing in the United States (Caulkins, 2024). Prevalence ranges from 4%-22%, with the highest self-reported use in the first trimester of pregnancy and a higher range of prevalence

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estimates based on urinalysis (Singh et al., 2020; Howard et al., 2019; Volkow et al., 2019; Alshaarawy & Anthony, 2019; Ko et al., 2020). Prevalence estimates vary widely depending how dose, composition, and timing of exposure are queried (Young-Wolff et al., 2024; Metz et al., 2019).

The 2025 results from the National Survey on Drug Use and Health (NSDUH) demonstrated that self-reported cannabis use among pregnant women has tripled over the last two decades, from 1.5% in 2002 to 5.4% in 2020, and in 2025, 6.8% of pregnant women reported past-month cannabis use (Grigsby et al., 2025). Previous research has shown cannabis use in pregnancy is higher among younger, socioeconomically disadvantaged, and non-Hispanic White women (Alshaarawy & Anthony, 2019; Caulkins, 2024). Furthermore, self-reported recall of cannabis exposure may underestimate the true use prevalence.

Reasons for using cannabis specifically in pregnancy include pregnancy-related and pre-existing conditions including stress, anxiety, nausea/vomiting, pain management, as well as to improve well-being (Ko et al., 2020; Chang et al., 2019). Reported use is more frequent in the first trimester, which may reflect symptom management (e.g., nausea) and delayed pregnancy recognition (Volkow et al., 2019). While supporting psychological well-being is important for non-pregnant and pregnant women, numerous studies have reported factors such as stress and depressive symptoms to be associated with higher rates of preterm birth (< 37 completed weeks gestation) and other adverse birth outcomes (Avalos et al., 2024; Marchand et al., 2022; Conner et al., 2016; Baia & Domingues, 2024; Gunn et al., 2016; Klebanoff et al., 2021; Vanderziel et al., 2025; Nguyen & Harley, 2022; Duko et al., 2023; Lo et al., 2024; Ragsdale et al., 2024). Stress has also been associated with both adverse maternal health and birth outcomes among Black women (Dailey & Humphries, 2011).

Emerging research has explored the association between prenatal cannabis use and maternal psychological health. Cannabis use during pregnancy may be associated with, and impact, maternal psychological health (Young-Wolff et al., 2020; Mark et al., 2021; Metz et al., 2022; Young-Wolff et al., 2018). Pitt (2025) found cannabis use beyond the first trimester was associated with depressive symptoms in later

pregnancy in a sample with ~15% Black women. Goodwin (2020) found that cannabis use in pregnancy was associated with depression symptoms and perceived stress in a sample with <20% Black women.

Few studies, however, have included many Black women or adjusted for relevant confounders (e.g. poly-substance use). Chabarría (2016) found an interaction between cannabis and nicotine use, with evidence of a synergistic effect on pregnancy outcomes (preterm birth, low birthweight) when both substances were used concurrently. Further, most studies of cannabis use in pregnancy are limited, as they rely on self-report retrospective data collected prior to widespread cannabis legalization and increases in use (Lo et al., 2024) and don't account for variability in THC levels and potency.

Examining cannabis use during pregnancy among Black women is important given Black women experience disproportionately higher rates of adverse maternal and infant health outcomes, including preterm birth, low birth weight, and maternal morbidity and mortality (Jiles et al., 2024). Pregnant Black women are more likely to experience depressive symptoms compared with pregnant White women (Kelly-Taylor et al., 2025). As cannabis is believed by many lay people to ameliorate depressive symptoms, pregnant Black women may thus be more likely to use cannabis. A comprehensive understanding of cannabis use among Black pregnant women can guide culturally appropriate public health messaging, clinician training, and evidence-based maternal health care to help reduce the gap in disparities (Akinade et al., 2023). Furthermore, people of color are underrepresented in the research literature. The participation of underrepresented groups in research studies is important for understanding and addressing health disparities.

To address these gaps, our study explores the relationship between the maternal psychological health of pregnant women who used cannabis during their pregnancy and those who did not, given that psychological factors are established risk factors for adverse birth outcomes (Avalos et al., 2024; Marchand et al., 2022; Conner et al., 2016; Baia & Domingues, 2024; Gunn et al., 2016; Klebanoff et al., 2021; Vanderziel et al., 2025; Nguyen & Harley, 2022; Duko et al., 2023; Lo et al., 2024; Ragsdale et al., 2024). Specifically, this

study enrolled a cohort of pregnant Black women from multiple health care systems to examine the associations between cannabis use during pregnancy and maternal psychological health, adjusting for clinical and sociodemographic confounding factors.

METHODS

Biosocial Impacts on Black Births (BIBB) is a prospective study conducted from 2017 – 2022. The overarching goal of the BIBB study was to examine the associations among maternal psychosocial factors, systemic inflammation, and birth outcomes among pregnant Black women. The research team recruited participants in early to mid-pregnancy from three prenatal care sites in metropolitan areas of Michigan, Ohio and Florida. BIBB study flyers were posted at prenatal clinics. Participants were recruited before or after their prenatal visit or ultrasound examination. Clinic staff described the BIBB study procedures to pregnant women who were interested in participating. Participants completed questionnaires by tablet at enrollment (T1), at 17-23 weeks (T2), and at 28-32 weeks (T3), if eligible. Participants received a \$30 gift card after completing questionnaires at each time point. Participants who enrolled prior to 14 weeks gestational age were eligible to complete the T2 and T3 questionnaires in addition to their T1 questionnaire. Participants who enrolled after 14 weeks gestational age only completed the questionnaires at 28-32 weeks (T3). This analysis only includes data from the T1 questionnaires, as the data from T2 and T3 are still being compiled. Medical records were abstracted for maternal health measures and birth outcomes.

Women were recruited and data were collected from 2017 through 2022, which overlaps with changing legalization in states where women were recruited. In Ohio, medical cannabis was legalized in 2016, and recreational cannabis was legalized in 2023; in Michigan, medical cannabis was legalized in 2008, and recreational cannabis was legalized in 2018; in Florida, recreational cannabis is not legal, and medical cannabis was approved in 2016 (NCSL, 2025).

The study was approved by the Institutional Review Board (IRB) at the three participating universities and clinical sites. A HIPAA waiver was granted to the Principal Investigator to access

medical records for women who received prenatal care at the participating sites to determine eligibility. Women completed an informed consent process and provided approval to collect data from their obstetrical and medical records. We obtained a Certificate of Confidentiality from the National Institutes of Health for this study.

Study Sample

Women were eligible to participate in the BIBB study if they identified as Black or African American, had a singleton pregnancy, were 18-45 years of age, and were less than 32 weeks' gestation at enrollment. Women with multifetal pregnancies were excluded. Eligible pregnant women were invited to participate by the trained research staff who described the BIBB study procedures to pregnant women who were interested in participating. The response participation rate was > 75%. Women in the study sample (n = 1,120) completed the written informed consent process and then completed self-administered questionnaires by iPad tablet using Qualtrics (Qualtrics, Provo, UT). Participants provided information about socio-demographic characteristics (e.g., maternal age, level of education, employment) and medical history (e.g., chronic conditions). A \$30 gift card was offered for study participation.

Measures

Cannabis exposure. Participants were asked four questions about cannabis exposure: 1) cannabis use in pregnancy ("At any time during your most recent pregnancy, did you use marijuana or hash in any form?"; yes/no); 2) frequency ("During your most recent pregnancy, how often did you use marijuana products in an average week?"; number of days 1-7); 3) mode ("During your most recent pregnancy, how did you use marijuana?; select all that apply: 'smoke it,' 'vaporize it,' 'drink it,' 'eat it/edibles,' 'oil,' 'dab it'") and; 4) reasons for cannabis use ("Why did you use marijuana products in pregnancy?; select all that apply: 'to relieve vomiting,' 'to relieve stress or anxiety,' 'to relieve symptoms of a chronic condition,' 'to relieve pain,' 'to increase appetite,' 'for fun or to relax,' 'other'"). We added the detailed questions on cannabis April 4, 2019 (~ 15 months after first participant was enrolled in

December 2017). Forty-four women who used cannabis completed the survey prior to the addition of the questions.

Depressive symptoms. The Center for Epidemiologic Studies Depression Scale (CES-D) is a 20 items instrument (e.g., 'I was bothered by things that don't usually bother me') on a 4-point scale (0 = rarely to 3 = most of the time) that assesses the presence of salient symptoms of depression within the past seven days (Radloff, 1977). The total scores can range from 0-60, with higher scores representing more depressive symptoms. The CES-D scores were also categorized for scores ≥ 16 representing clinically significant depressive symptoms and scores ≥ 23 representing severe prenatal depressive symptoms (Giurgescu & Misra, 2018; Orr et al., 2007). The Cronbach's α for this sample was 0.89.

Perceived stress. The Cohen's Perceived Stress Scale (PSS) is 10-item instrument on a 5-point scale (0 = never to 4 = very often) that measures perceived stress during the prior month (e.g., "How often have you felt upset because of something happened unexpectedly?"; Cohen et al., 1983). The total score can range 0 to 40 with higher scores indicating higher levels of perceived stress. The Cronbach's α for this sample was 0.83.

Psychological wellbeing. The Psychological General Well-Being (PGWB) Index includes 22 items on a 6-point scale (most distress to least distress) that assesses subjective feelings of psychological well-being or distress during the past month (e.g., "Have you been anxious, worried, or upset?"; Dupuy, 1984). The total score can range from 0 to 110. Scores of 72 or lower represent psychological distress. The Cronbach's α for this sample was 0.92.

Covariates. Women self-reported sociodemographic characteristics. Data on gestational age (GA) at time of data collection were collected by information provided in the clinical records. Prenatal and hospital birth records were abstracted to obtain multiple measures of GA. GA was computed using a first trimester ultrasound measurement of crown-rump length. This was corroborated with the reported date of the participant's last monthly period. If the ultrasound measurement of GA differed by more than 7 days from the last monthly period-calculated GA, the ultrasound estimate was used. The GA at delivery was then used to calculate the best estimate of the GA at the time the participant

provided data to the BIBB study. Maternal age, education level, marital status, current financial status, GA at data collection, and tobacco use were examined as potential confounders of the associations between cannabis use in pregnancy and psychological health measures.

Statistical Analysis

Statistical analyses were conducted using IBM SPSS (Version 29), R version 4.2.3 (R Core Team, 2023) and RStudio (Posit Team, 2025). Data were imputed using mice 3.13.0 in R with the predictive mean matching (PMM) method. The PMM method was used for all variables (Austin & van Buuren, 2023; Austin & van Buuren, 2025). We imputed for all sociodemographic and psychosocial variables, but not for substance use. Descriptive statistics (mean, standard deviation, frequency) were conducted to summarize maternal sociodemographic characteristics, cannabis use, and psychological health (depression symptoms, perceived stress, general psychological well-being) post-imputation (see supplemental data file).

Differences in demographic characteristics between women who reported cannabis use during pregnancy and women who did not report cannabis use during pregnancy were examined using Welch's t-test for continuous variables and chi-square test for categorical variables. Bonferroni post hoc tests were used to determine chi-square test significance. The mean and standard deviation (*SD*) for each of the psychological health measures and cannabis use was calculated. Both bivariate linear regression and multiple linear regression were performed to separately examine predictors of CES-D scores, PSS, and PGWB scores. Multiple linear regression was performed for each psychological health outcome. Regression models were adjusted using a stepwise approach for potentially confounding covariates based on previously published literature regarding cannabis use and mental health (state of residence, tobacco use, maternal age, education level, marital status, current financial status, GA at data collection). Unadjusted and adjusted linear regression unstandardized coefficients, standard errors (S.E.), and 95% confidence intervals (CI) are reported. All statistical analyses were performed

in base R with the alpha level of significance at $p < .05$.

RESULTS

Sample Characteristics

Table 1 describes the demographic characteristics and maternal psychological health of participants ($n = 1,066$) by self-reported cannabis use at enrollment. There were no significant differences in sociodemographic characteristics among those with and without data on cannabis use. Over 20% of women ($n = 227$) reported that they used cannabis during their pregnancy. The mean age of the sample was 26.9 ± 5.7 years (range 18-44), and mean GA at data collection was 18.2 ± 6.1 weeks (range 8-31). Approximately 61% ($n = 359$) of the pregnant women had completed a high school education,

77% ($n = 821$) had public health insurance, and over 85% ($n = 651$) were living with the father of the baby. The mean score of the psychological health scales were as follows: 16.8 ± 10.9 (range 0-53) for depressive symptoms; 18.4 ± 6.4 (range 1-36) for perceived stress; and 62.0 ± 16.8 for psychological well-being (range 11-110). Approximately 47% of the women ($n = 498$) reported CES-D scores ≥ 16 , and 19% of women ($n = 309$) reported CES-D scores ≥ 23 , which have been correlated with depression diagnosis (Orr et al., 2007). Thirty-six percent ($n = 81$) of women who reported cannabis use during pregnancy also reported CES-D scores ≥ 23 . Notably, 74% of women ($n = 802$) had PGWB scores ≤ 72 , which represent psychological distress. There were no differences between women who reported cannabis use in pregnancy versus those who did not with regard to maternal age, marital status, GA at enrollment, or health insurance status.

Table 1. *Sample Characteristics (N = 1,066)*

	Total	Cannabis use during pregnancy ^a			Percent missing (imputed in analysis)
		Did not use cannabis <i>N</i> = 839 (78.7%)	Used cannabis <i>N</i> = 227 (21.3%)		
	<i>M</i> $\pm$ <i>SD</i>	<i>M</i> $\pm$ <i>SD</i>	<i>M</i> $\pm$ <i>SD</i>	<i>t p-value</i>	0%
Maternal age (years)	26.9 $\pm$ 5.6	27.2 $\pm$ 5.8	26.6 $\pm$ 5.4	.12	0%
Gestational age at data collection (weeks)	18.2 $\pm$ 6.1	18.1 $\pm$ 6.1	18.2 $\pm$ 6.1	.72	0%
Number of chronic conditions	0.7 $\pm$ 1.0	0.6 $\pm$ 1.0	0.8 $\pm$ 1.2	0.07	0%
CES-D scores	16.8 $\pm$ 10.9	16.0 $\pm$ 10.7	20.2 $\pm$ 11.3	<.001	Item range: 2-2.8%
PSS scores	18.4 $\pm$ 6.4	17.7 $\pm$ 6.4	21.0 $\pm$ 5.8	<.001	Item range: 1.2-1.3%
PGWB scores	62.0 $\pm$ 16.8	63.0 $\pm$ 16.9	58.9 $\pm$ 16.4	<.001	Item range: 0.8-1.9%
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	$\chi^2 p$ -value ^b	
State of residence					
Michigan	450 (42.2%)	368 (43.9%)	82 (36.1%)	<.001	0%
Ohio	442 (41.5%)	315 (37.5%)	127 (55.9%)	<.001	0%
Florida	174 (16.3%)	156 (18.6%)	18 (7.9%)	<.001	0%
Maternal age category (years)					0%

18-24	396 (37.1%)	297 (35.4%)	99 (43.6%)	.11	
25-29	327 (30.7%)	261 (31.1%)	66 (29.1%)	.11	
30-34	218 (20.5%)	181 (21.6%)	37 (16.3%)	.11	
≥ 35	125 (11.7%)	100 (11.9%)	25 (11.9%)	.11	
CES-D categories					See above
< 16	561 (53.0%)	473 (56.8%)	88 (38.9%)	<.001	
16-22	192 (18.1%)	135 (16.2%)	57 (25.2%)	<.001	
≥ 23	306 (28.9%)	225 (27.0%)	81 (35.8%)	<.001	
PGWB					See above
≤ 72	802 (73.9%)	606 (72.2%)	180 (79.3%)	<.05	
Household income					4%
< \$10,000	396 (37.1%)	290 (34.6%)	106 (46.7%)	<.001	
\$10,000 - \$39,999	509 (47.8%)	407 (48.5%)	102 (45.6%)	.08	
≥ \$40,000	161 (15.1%)	142 (16.9%)	19 (8.4%)	<.001	
Education					4%
High School grad/GED	651 (61.1%)	507 (60.4%)	144 (63.4%)	.12	
Some college	305 (28.6%)	234 (27.9%)	71 (31.3%)	.07	
College degree	110 (10.3%)	98 (11.6%)	12 (5.3%)	<0.05	
Marital status ^c					0
Married or living with partner	455 (42.7%)	362 (43.1%)	93 (40.9%)	0.55	
Not Married	611 (57.3%)	477 (56.9%)	134 (59.9%)	0.55	
Living with father of the baby (yes%)	397 (87.3%)	321 (88.7%)	76 (81.7%)	0.55	
Current family financial situation					2.3%
Very poor, not enough to get by	45 (4.2%)	34 (4.1%)	11 (4.8%)	<.001	
Barely enough to get by	163 (15.3%)	114 (13.6%)	49 (21.6%)	<.001	
Have enough to get by but no extras	509 (47.7%)	387 (46.2%)	122 (53.7%)	<.001	
Have more than enough to get by	238 (22.3%)	204 (24.4%)	34 (14.9%)	<.001	
Well to do	111 (10.4%)	100 (11.9%)	11 (4.8%)	<.001	
Health insurance					0%
Private	109 (10.2%)	94 (11.2%)	15 (6.6%)	.9	
Public	821 (77.0%)	629 (74.9%)	192 (84.6%)	.9	
Other	136 (12.8%)	116 (13.8%)	20 (8.8%)	.9	
Health conditions					0%

Asthma (yes%)	284 (39.2%)	211 (38.7%)	73 (42.2%)	<.05	
Hypertension (yes%)	112 (15.5%)	88 (16.1%)	24 (13.9%)	.97	
Thyroid condition (yes%)	42 (5.8%)	30 (5.5%)	12 (6.9%)	.24	
Diabetes (yes%)	79 (10.9%)	61 (11.9%)	18 (10.4%)	.74	
Heart disease (yes%)	31 (4.3%)	25 (4.6%)	6 (3.4%)	.79	
Kidney disease (yes%)	33 (4.6%)	27 (5.0%)	6 (3.4%)	.66	
Any other chronic conditions (yes%)	143 (19.8%)	103 (18.9%)	40 (23.1%)	<.05	
Tobacco use (yes%)	156 (14.6%)	76 (9.1%)	80 (35.2%)	<.001	

Note. Boldface indicates statistical significance $p < .05$. ^a Fifty-four women were enrolled in the study but did not answer question about cannabis use in pregnancy and are not included in analysis. ^b Bonferroni post hoc tests were used to determine chi-square test significance. ^c Marital Status: Not Married is currently widowed OR divorced OR separated OR never married. CES-D = Center for Epidemiological Studies-Depression. PSS = Perceived Stress Scale. PGWB = Psychological General Well-Being Index

With regard to potential confounders, women who reported cannabis use in pregnancy were more likely to report having a chronic condition (23.1% and 18.9%, respectively, $p < .05$); have asthma (42.2% and 38.7%, respectively, $p < .05$); more than 3 times as likely to smoke cigarettes (35.2% and 9.1%, respectively, $p < .001$); and reported lower incomes ($p < .05$) compared with women who did not use cannabis in pregnancy. Focusing on psychosocial factors, women using cannabis during pregnancy reported higher levels of depressive symptoms (20.2 and 16.0, respectively, $p < .001$), and perceived stress (21.0 and 17.7, respectively, $p < 0.001$) and lower levels of psychological well-being (58.9 and 63.0,

respectively, $p < .001$) compared with women who did not use cannabis in pregnancy.

Table 2 describes frequency of use, mode of use, and reasons for using cannabis among those who reported use in pregnancy. Eighty percent of those who used cannabis in pregnancy reported using at least once a week and one third reporting daily or almost daily use. Most women reported smoking as the mode of use. The most common reasons for using cannabis in pregnancy were to relieve stress/anxiety and to reduce nausea. These questions were added later in the study; therefore, not all women using cannabis were asked these questions.

Table 2. *Frequency, Mode and Reasons for Cannabis Use in Pregnancy (n = 227)^a*

	<i>n</i>	%
Frequency		
Daily	62	33.9%
2-3 times per week	63	34.4%
1 time per week	21	11.5%
2-3 times per month	13	7.1%
1 time per month or less	24	13.1%
Not asked	44	
Mode		
Smoke	171	79.5%
Eat (e.g., edible)	24	11.2%
Other (e.g. drink, vaporize, oil)	20	9.3%
Not asked	12	

Reasons/to relieve ^b		
Stress/anxiety	139	61.2%
Vomiting/nausea	118	52.0%
Pain	83	36.6%
Fun/relax	82	36.1%
Symptoms chronic condition/s	38	16.7%
Appetite	21	9.3%
Other (e.g., sleep, didn't know pregnant)	7	3.1%

Note. ^a % of all non-missing responses. ^b Participants who reported use were asked reasons for use. ^b Participants could select more than one response. 86 participants selected multiple reasons for cannabis use during pregnancy

After reviewing the descriptive statistics of maternal psychological health measures (depressive symptoms, perceived stress, and psychological well-being) by cannabis frequency of

use, we determined that cannabis frequency of use did not appear to be associated with maternal psychological health measures (Table 3).

Table 3. *Frequency of Cannabis Use in Pregnancy and Depression, General Well-Being, Stress Scores (n = 183)*

Cannabis Use		CES-D			PGWB			PSS		
	<i>N</i>	Range	Mean	<i>SD</i>	Range	Mean	<i>SD</i>	Range	Mean	<i>SD</i>
Daily	62	0-53	19.46	12.77	0-20	9.18	2.96	11-39	21.74	6.01
2-3 times per week	63	5-53	21.14	11.62	0-20	9.38	3.13	7-36	20.79	5.82
Once a week	21	7-42	20.90	9.67	5-16	9.81	2.56	8-27	19.38	5.51
2-3 times per month	13	6-36	19.15	8.21	8-14	9.77	1.74	15-24	20.54	2.88
Once per month or less	24	3-50	17.71	11.09	0-15	9.75	2.92	11-40	19.79	6.27

Note. CES-D = Center for Epidemiological Studies-Depression. PGWB = Psychological General Well-Being Index. PSS = Perceived Stress Scale

Multiple Linear Regression Models

Table 4 describes the bivariate and multiple linear regression models examining cannabis use in pregnancy (predictor) and the three psychological health measures (CES-D, PSS, PGWB). All regression coefficients are unstandardized and represent mean differences in psychological scale scores associated with cannabis use in pregnancy. The associations between cannabis use and the three psychological health scales were similar. In the bivariate linear regression analysis, cannabis use in pregnancy was associated with higher CES-D scores ($\beta = 4.22$; 95% CI 2.6, 5.2), higher levels of perceived stress ($\beta = 3.29$; 95% CI 2.4, 4.2), and lower levels of psychological well-being ($\beta = -4.1$; 95% CI -6.6, -

1.6). After controlling for confounding by state of residence, women's age, education level, marital status, current financial status, GA at data collection, and tobacco use, cannabis use in pregnancy remained significantly associated with higher levels of depressive symptoms ($\beta = 3.44$; 95% CI 1.8, 5.1) and perceived stress ($\beta = 2.78$; CI 1.8, 3.7), and lower levels of psychological well-being ($\beta = -4.5$; 95% CI -7.1, -1.9). Cannabis use in pregnancy predicted 3.32 points higher scores on the CES-D depressive symptoms (95% CI: 1.7, 4.9) on average; 2.72 points higher PSS (95% CI: 1.7, 3.6), reflecting greater perceived stress; and an average 4.5 points lower PGWB score, indicating poorer psychological well-being (95% CI: -7.1, -1.9), compared to women who did not use cannabis in pregnancy.

Table 4. *Linear Regression Analysis for Cannabis and Maternal Psychological Health (N = 1,066)^a*

Independent variable	Dependent variable					
	Depressive Symptoms CES-D		Perceived stress PSS		Psychological general well-being GWB	
	Unadjusted regression coefficient (95% C.I.)	Adjusted* regression coefficient (95% C.I.)	Unadjusted regression coefficient (95% C.I.)	Adjusted * regression coefficient (95% C.I.)	Unadjusted regression coefficient (95% C.I.)	Adjusted * regression coefficient (95% C.I.)
No Cannabis	Reference	Reference	Reference	Reference	Reference	Reference
Cannabis Use	4.22 (2.6, 5.2)	3.44 (1.8, 5.1)	3.29 (2.4, 4.2)	2.78 (1.8, 3.7)	-4.1 (-6.6, -1.6)	-5.48 (-8.0, -3.0)

Note. Boldface indicates statistical significance ($p \leq .001$). C.I.= Confidence Interval. *Adjusted for state of residence, maternal age, gestational age at data collection, maternal education level, current financial status, marital status, tobacco use. Coefficients are unstandardized.

DISCUSSION

This study highlights the association of cannabis use during pregnancy with maternal psychological health. Examining cannabis use is highly relevant given the legalization of cannabis for recreational use in most states. As of 2025, only two states (Idaho, Kansas) and one territory (American Samoa) do not permit any legal cannabis use, including medical, recreational, or CBD/low-THC use (NCSL, 2025). Legalization of cannabis is associated with a higher prevalence of use (Haider et al., 2025). The examination of data from the National Survey on Drug Use and Health from 2015-2021 found a prevalence of 5.7% for self-reported cannabis use among pregnancy in the past month. Two-thirds (67.0%) of the pregnant women who used cannabis resided in a state where cannabis was legal. In addition, among those who reported cannabis use, 71% did not perceive any potential risk with cannabis use (Haider et al., 2025).

In this sample, 20% of pregnant women reported cannabis use. The prevalence of cannabis use during pregnancy in our cohort was higher than in previous studies, which report cannabis use in pregnancy from 3% to 10%. Previous studies also often report higher use, 10-20%, in the first trimester of pregnancy and among younger ages (Hasin & Walsh, 2021; Volkow et al., 2019; Alshaarawy & Anthony, 2019; Metz et al., 2019). Young-Wolff (2024) reported a 20% prevalence of cannabis use in pregnancy among Black women in 2022 in a population-based cross-sectional study in California. Some studies have found Black women are less likely to use cannabis during pregnancy compared to white women (Ko

et al., 2020). However, most publications, even recent ones, were based on populations prior to legalization. Most previous studies had only a small proportion of Black women or did not report race-specific prevalence rates, making it difficult to compare to our results (Pitt et al., 2025; Chabarría et al., 2016). We also found that over 30% of pregnant women reported daily cannabis use, which is consistent with recent research suggesting that use patterns are changing, with more using daily or nearly daily compared with previously (Caulkins, 2024).

Cannabis use during pregnancy was associated with several measures of psychological health among our sample of pregnant Black women. After adjusting for clinical and sociodemographic factors, cannabis use was positively associated with depressive symptoms and perceived stress, and negatively associated with psychological well-being. Further, GA at study enrollment was not associated with cannabis use and was not a significant predictor in the multivariate analyses which suggests the results are generalizable to women who enrolled later in pregnancy. It is important to note that directional inferences are not possible given that cannabis use and psychological health was measured at the same time.

The relationship between cannabis use in pregnancy and maternal psychological health is complex, and relatively few studies have examined the association of cannabis use with the maternal mental health in pregnancy (Andrade, 2024). It has been hypothesized that 1) cannabis use may contribute to the development of poor psychological health; 2) coping with poor psychological health (e.g., stress) contributes to

prenatal cannabis use; 3) both pathways exist. With increasing cannabis potency paralleling legalization (ElSohly et al., 2024), differences in psychological factors between those who use cannabis and those who do not use cannabis may widen in future research.

We also found the most common reason for cannabis use in pregnancy was to relieve stress/anxiety, which is consistent with prior research (Barbosa-Leiker et al., 2020; Vanstone et al., 2021). The growing acceptability of cannabis use among the public, decreased perceived risk of cannabis use, and the belief that cannabis use is safe to treat symptoms relative to prescription medication (Chang et al., 2019), may partially explain why pregnant women report using cannabis to alleviate stress. It is plausible that stress/anxiety may mediate the relationship between mental health disorders and cannabis use related outcomes. Future research is necessary to evaluate these potential mediated pathways, including interactions between stress associated with pregnancy and/or parenting and mental health disorders as mechanisms of pathways to cannabis use. Further, pregnant Black women are less likely to be prescribed pain medications (Lee et al., 2019) and less likely to receive mental health treatment compared with pregnant white women (Salameh et al., 2019). In addition, there are perceived benefits of cannabis use in pregnancy, including self-medication for nausea and vomiting symptoms (Ko et al., 2020), as was documented in this study to be among the top reasons for cannabis use. However, previous studies have also found that women who used cannabis prior to pregnancy are more likely to experience nausea during pregnancy (Mark et al., 2021; Roberson et al., 2014).

There are reports of dispensaries recommending cannabis use as a safe and effective treatment for nausea and vomiting in pregnancy. In a study conducted in Colorado, approximately 70% of cannabis dispensaries contacted recommended cannabis to treat nausea in the first trimester of pregnancy (Dickson et al., 2018). Misinformation from cannabis dispensaries regarding the safety of cannabis use during pregnancy may also lead to self-medicating mental health disorders (Young-Wolff et al., 2021). A recent study in California found that 20% of over 500 cannabis retailers endorsed cannabis use in pregnancy as safe, further highlighting the

importance of education on health risks of prenatal cannabis use and aligning recommendations with medical guidelines (Young-Wolff et al., 2025).

These results build on previous studies with similar findings. In studies with a high proportion of Black women (thus more comparable to our Black only cohort), we see similar results. In a large national retrospective study of a population that was 85% Black, Derechuk (2025) found cannabis use during pregnancy was significantly associated with adverse mental health, including depressive symptoms. Further, we found over 40% of women who used cannabis in pregnancy had asthma. Smoking cannabis can worsen asthma symptoms (Khoj et al., 2024; Tashkin & Tan, 2022; Vasconez-Gonzalez et al., 2023), and a recent meta-analysis identified a significant association between cannabis use and risk of asthma diagnosis (Malvi et al., 2025).

There is growing attention to research examining prenatal substance exposure, including cannabis use on health and development of the fetus (Constantino-Petit et al., 2024). Maternal prenatal psychological health is also associated with adverse birth outcomes (Avalos et al., 2024; Marchand et al., 2022; Conner et al., 2016; Baia & Domingues, 2024; Gunn et al., 2016; Klebanoff et al., 2021; Vanderziel et al., 2025; Nguyen & Harley, 2022; Duko et al., 2023; Lo et al., 2024; Ragsdale et al., 2024) and postpartum maternal psychological health (Misra et al., 2017; Young-Wolff et al., 2024; Oguntade et al., 2025; Giurgescu et al., 2020; Hawkins et al., 2021; Montrico et al., 2023). Negative psychological health may result in a suboptimal intrauterine environment that may impact the growth and development of the fetus (Giurgescu et al., 2020).

These findings highlight the importance of health care provider awareness about prenatal cannabis use and psychological health in pregnant women to reduce potential harms, particularly as cannabis is widely legalized and perceived as a safe substance, even in pregnancy (Smith et al., 2024). With widespread cannabis legality, there is an urgent and critical need to adequately characterize the effect/s of cannabis on fetal development for health care providers to provide evidence-based recommendations on safety during pregnancy, particularly during the critical period in the first trimester. Of note, it is

reported that over 50% of women who use cannabis continue using in pregnancy (Volkow et al., 2019). It is also important to consider concerns regarding state reporting policies of prenatal substance use to child protective services (Woodruff et al., 2021) which may be a barrier to reporting cannabis use to health care providers (Young-Wolff et al., 2021) and lead to missed opportunities for prevention of cannabis use and treatment, including of mental health disorders.

Currently, a standardized counseling approach does not exist for cannabis use in pregnancy. Provider education on evidence-based approaches for substance use screening during pregnancy, including reasons for cannabis use during pregnancy, may contribute to improved clinical and prenatal care. Effective mental health resources may be protective to buffer the impact of stress on the maternal psychological well-being. Prenatal cannabis use is a modifiable risk factor. In a changing legal landscape, it is imperative to offer clear guidance to women regarding the evidence on risks, benefits and potential adverse effects of cannabis use during pregnancy.

It is important for women to receive cannabis use counseling to inform public health and clinical guidelines, screening tools, and the development of effective prevention programs to improve maternal health and birth outcomes.

Limitations

This study has several limitations. Maternal data were primarily based on self-report, which may have resulted in reporting bias due to social desirability and recall biases. Cannabis use may have been underreported with potential misclassification. Yet our high rates of usage and frequency compared to other studies suggests that this may be less important as a limitation. Further, potency is an important aspect of use, which was not assessed and could have a differential association with maternal psychological health. The measures of are psychological health are nonspecific to pregnancy. Although we adjusted for several covariates, unmeasured confounders may have affected results. The sample in the current study was from three metropolitan sites within the United States and is not representative of pregnant Black women in other regions.

Finally, directionality of this association cannot be determined given the study design. Due to the cross-sectional nature of the data, we cannot assess any causal relationship in the analysis. We examined cannabis use during pregnancy as a predictor of maternal psychological health, given previous research that prenatal cannabis use may adversely affect mood, stress, and well-being (Young-Wolff et al., 2020; Mark et al., 2021; Metz et al., 2022; Young-Wolff et al., 2018). Cannabis use during pregnancy may adversely affect psychological health through neurobiological pathways. It is also plausible that women experiencing depression, anxiety, or high stress may use cannabis to manage symptoms. Pregnant women may perceive cannabis as a natural or safer alternative to pharmacologic treatment. The relationship may be bidirectional. Future longitudinal studies that assess women's use prior to pregnancy are needed to examine the direction of these associations. However, unless women are being queried at least weekly about cannabis use and psychological health, it will be difficult to determine the direction.

Conclusion

Pregnant women who self-reported cannabis use in pregnancy were significantly more likely to have more depression symptoms, report more stress, and lower general well-being compared to pregnant women who did not use cannabis in pregnancy. Women who reported cannabis use in pregnancy were also more likely to use tobacco in pregnancy. Future research is needed to examine directionality of these associations. These findings contribute to a growing body of literature examining maternal mental health in pregnancy. These findings also suggest a need for health care providers to educate patients about cannabis use and impacts on maternal and fetal health.

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