



Published in final edited form as:

Subst Use Misuse. 2024 ; 59(5): 690–698. doi:10.1080/10826084.2023.2294974.

Marijuana Use among Pregnant and Nonpregnant Women of Reproductive Age, 2013–2019

Emily K. Kobernik^{a,b}, Nicole D. Ford^a, Madison Levecke^{a,c}, Romeo R. Galang^{a,d}, Brooke Hoots^{e,f}, Douglas R. Roehler^e, Jean Y. Ko^{a,f}

^aDivision of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, GA, USA;

^bCDC Foundation, Atlanta, GA, USA;

^cOak Ridge Institute for Science and Education, ORISE Fellow, Oak Ridge, TN, USA;

^dCDC COVID-19 Response, Centers for Disease Control and Prevention, Atlanta, GA, USA;

^eDivision of Overdose Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA, USA;

^fU.S. Public Health Service Commissioned Corps, Atlanta, GA, USA

Abstract

Background: Marijuana is the most commonly used federally illicit substance among reproductive-age women in the United States. Updated information on marijuana use in this population can inform clinical and public health interventions.

Methods: Data from the 2013–2019 National Survey on Drug Use and Health was used to report weighted prevalence estimates of marijuana use in the past month, past 2–12 months, and past year among women aged 18–44 years with self-reported pregnancy status. Bivariate analyses and general linear regression models with Poisson distribution using appropriate survey procedures identified factors associated with past-year marijuana use by pregnancy status.

Results: Among pregnant women, 4.9% (95% confidence interval [CI]: 4.1–5.6) reported marijuana use in the past month, 10.4% (95% CI: 9.3–11.5) in the past 2–12 months, and 15.2% (95% CI: 13.9–16.6) in the past year. Among nonpregnant women, 11.8% (95% CI: 11.5–12.0) reported marijuana use in the past month, 7.8% (95% CI: 7.6–8.0) in the past 2–12 months, and 19.5% (95% CI: 19.2–19.9) in the past year. After adjusting for sociodemographic characteristics, past-year marijuana use was 2.3–5.1 times more likely among pregnant, and 2.1 to 4.6 times more

CONTACT Emily K. Kobernik ✉ wux2@cdc.gov Senior Epidemiologist, CDC Foundation, 600 Peachtree St NE, Ste 1000, Atlanta, GA30308, USA.

Declaration of interest

The authors report there are no competing interests to declare.

Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

IRB status

This activity was conducted consistent with applicable federal law and CDC policy (see, eg, 45 C.F.R. part 46, 21 C.F.R. part 56, 42 U.S.C. §241(d); 5 U.S.C. §552a; 44 U.S.C. §3501 et seq).

likely among nonpregnant women who reported past-year tobacco smoking, alcohol use, or other illicit drug use compared to those reporting no substance use.

Conclusions: Pregnant and nonpregnant women reporting marijuana use, alone or with other substances, can benefit from substance use screening and treatment facilitation.

Keywords

Dependence; marijuana; pregnant; reproductive age; substance use

Introduction

Marijuana is the most commonly used federally illicit substance among women of reproductive age in the United States (American College of Obstetricians and Gynecologists, 2017a; Substance Abuse and Mental Health Services Administration, 2020b). Evidence at the national level shows increases in reported past-month marijuana use among both pregnant (Brown et al., 2017; Volkow et al., 2019) and nonpregnant (Brown et al., 2017) women of reproductive age, and has been documented in states like Colorado (Gnofam et al., 2020) following legalization of nonmedical adult marijuana use. Women report that marijuana is easy to acquire (Ko et al., 2015), inexpensive relative to tobacco (Beatty et al., 2012), and perceive that it does not carry risk with regular use (Alshaarawy & Vanderziel, 2022; Ko et al., 2015; Passey et al., 2014). Data show 34–60% of pregnant women report continued use during pregnancy (Mark et al., 2017; Moore et al., 2010). Common reasons for marijuana use during pregnancy include relief of stress or anxiety, nausea or vomiting, and pain (Ko, Coy, et al., 2020). In addition, over 18% of pregnant women reporting past-year use met DSM-IV criteria for marijuana abuse or dependence in 2012 (Ko et al., 2015)—whereby individuals report withdrawal symptoms when not using, or cannot stop using despite physical, legal, social, or interpersonal problems—which other studies have hypothesized may also contribute to continued use during pregnancy (Alshaarawy & Anthony, 2019).

A 2017 review of literature by the National Academy of Sciences found substantial evidence for maternal marijuana use increasing the risk of lower birth weight, but limited or insufficient evidence for effects on other adverse maternal or neonatal outcomes (National Academies of Sciences, Engineering, and Medicine, 2017). However, the specific effects of marijuana use on pregnancy outcomes are difficult to determine because use often co-occurs with other substance use such as tobacco, alcohol, or illicit drugs (Martin, 2020; Passey et al., 2014; van Gelder et al., 2010). For example, estimates among women reporting continuous marijuana use during pregnancy show that 74% also use tobacco (Ko, Coy, et al., 2020). Evidence of concurrent marijuana, tobacco (Haight et al., 2021), and other substance use shows increased risk of adverse outcomes such as low birth weight (Chabarria et al., 2016; Conner et al., 2016; National Academies of Sciences, Engineering, and Medicine, 2017), preterm birth (Chabarria et al., 2016; Conner et al., 2016; National Academies of Sciences, Engineering, and Medicine, 2017), and neonatal intensive care unit admission (Gunn et al., 2016; National Academies of Sciences, Engineering, and Medicine, 2017; Warshak et al., 2015).

National estimates of marijuana use characteristics and prevalence of marijuana abuse or dependence among pregnant and nonpregnant women of reproductive age have not been recently updated. Therefore, this study aims to: 1) describe the prevalence of, and factors associated with marijuana use in the past month, past 2–12 months, and past year among pregnant and nonpregnant women of reproductive age using nationally representative data from 2013 to 2019; and 2) to describe characteristics of marijuana use and prevalence of abuse or dependence among women reporting past-year marijuana use by pregnancy status.

Materials and methods

To obtain a large sample for analysis, data were pooled across 7 years (2013–2019) of the National Survey on Drug Use and Health (NSDUH), an annually administered, nationally representative survey of substance use and mental health measures among noninstitutionalized persons aged 12 years or older in the United States. Details of NSDUH methodology have been described previously (Substance Abuse and Mental Health Services Administration, 2014, 2015, 2016, 2017, 2018, 2019, 2020a). In brief, data are collected using in-person household interviews with computer-assisted interviewing and audio-computer-assisted survey instruments to provide privacy in reporting sensitive information. Weighted interview response rates among adults during the study period ranged between 64.9% and 71.7% (Substance Abuse and Mental Health Services Administration, 2014, 2015, 2016, 2017, 2018, 2019, 2020a).

The primary outcome for this study was marijuana or hashish use in any form during the past year, defined using two questions: “Have you ever, even once, used marijuana or hashish?” and, if yes, “How long has it been since you last used marijuana or hashish?” Individuals were categorized into three groups: “past-months use” (reported marijuana use in the past month), “past 2–12 months use” (reported marijuana use in the past year but not past month), and “nonuse” (no marijuana use reported in the past year). “Past-month use” and “past 2–12 months use” categories were combined into a “past-year use” category to provide sufficient sample for regression modeling.

Pregnancy status and trimester were self-reported at the time of interview. Demographic variables included age (18–25, 26–34, or 35–44 years); race and ethnicity (non-Hispanic White, non-Hispanic Black or African American, Hispanic, or another or multiple non-Hispanic race[s] which included Native American, Alaska Native, Native Hawaiian, Other Pacific Islander, Asian, and respondents indicating more than one non-Hispanic race and ethnicity); educational attainment (less than high school, high school, some college, or college graduate); employment status (full time, part time, other which included students, persons keeping a house or caring for children full time, persons retired or having a disability, or others not in the labor force, or unemployed); annual household income (<\$20,000, \$20,000–\$49,999, \$50,000–\$74,999, or \$75,000); and health insurance (respondents could indicate multiple types of health insurance and were hierarchically categorized into mutually exclusive groups: private; Medicaid, Medicare, or Children’s Health Insurance Program [CHIP]; military-related health insurance or other; or uninsured).

Smoking tobacco in the past year was categorized into three groups: “smoked in the past month” (reported smoking tobacco in the past month), “smoked in the past 2–12 months” (reported smoking tobacco in the past year but not the past month), and “did not smoke” (reported not smoking tobacco in the past year). Alcohol use and other illicit drug use (including hallucinogens, heroin, cocaine, inhalants, and any psychotherapeutic agents) in the past year were categorized in the same manner as tobacco smoking.

Respondents reported the age at which they initiated marijuana use (14 years or younger, 15–17, or 18 or older), frequency of use, in days, in the past year (1–11, 12–49, 50–99, 100–299, or 300) (Substance Abuse and Mental Health Services Administration, 2013), and the difficulty of acquiring marijuana (impossible or very difficult; fairly difficult; fairly or very easy). Criteria for marijuana abuse or dependence in the past year was defined by the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) (American Psychiatric Association, 1994). Substance abuse is indicated if one or more of the following is reported during a 12-month period: failure to fulfill major role obligations at work, school, or home; frequent use of substances resulting in physically hazardous situations; frequent or recurrent legal problems; and continued use despite persistent or recurrent social or interpersonal problems (American Psychiatric Association, 1994). Dependence is indicated if three or more of the following are reported during a 12-month period: tolerance; withdrawal symptoms; substance use in larger amounts or over a longer period; persistent desire to cut or control substance use; involvement in chronic behavior to acquire the substance; reduction or abandonment of social, occupational, or recreational activities; or continued use despite persistent or recurrent physical or psychological problems caused or exacerbated by the substance (American Psychiatric Association, 1994).

The overall weighted prevalence of past-month and past 2–12 months marijuana use was estimated by pregnancy status and trimester among pregnant women. We calculated the prevalence of sociodemographic characteristics and substance use variables and assessed differences across marijuana use groups stratified by pregnancy status using Rao–Scott chi-square tests. We evaluated associations between sociodemographic characteristics and substance use variables, and past-year marijuana use using separate, multi-variable general linear regression models with Poisson distribution within each group of pregnant and nonpregnant women, producing adjusted prevalence ratios (aPR) and 95% confidence intervals (CI). All sociodemographic and substance use variables were selected for model inclusion based on a review of the literature. Respondents with data missing for “tobacco use in past year” (nonpregnant, $n = 2,077$; pregnant, $n = 58$) were excluded from linear regression models. Among participants reporting past-year marijuana use, characteristics of use were compared by pregnancy status using Rao–Scott chi-square tests. Responses for “difficulty in acquiring marijuana” (nonpregnant, $n = 2,731$; pregnant, $n = 153$) were not included in statistical comparisons. All analyses were conducted using SAS 9.4 (SAS Institute Inc., Cary, NC) and Stata 17.0 (StataCorp, College Station, TX). Data were reported as unweighted case counts and weighted percentages, estimated using survey procedures using appropriate weighting to account for the complex survey design and probability of sampling.

Results

Among pregnant women, 4.9% (95% CI: 4.1–5.6) reported marijuana use in the past month, 10.4% (95% CI: 9.3–11.5) in the past 2–12 months, and 15.2% (95% CI: 13.9–16.6) in the past year. Past-month use among pregnant women was highest in the first trimester (8.5%, 95% CI: 6.8–10.3) and lowest in the third trimester (2.8%, 95% CI: 1.9–3.6) (Figure 1). Among nonpregnant women, 11.8% (95% CI: 11.5–12.0) reported marijuana use in the past month, 7.8% (95% CI: 7.6–8.0) in the past 2–12 months, and 19.5% (95% CI: 19.2–19.9) in the past year.

Among both nonpregnant and pregnant women, over 45% of women who reported past-month marijuana use were 18–25 years old, and over 30% had some college education, reported working full time, or had annual household income \$20,000–\$49,999 (Table 1). Among nonpregnant and pregnant women using marijuana in the past month, respectively, nearly half (48.8%, 95% CI: 47.5–50.1 and 49.1%, 95% CI: 40.9–57.2) reported past-month tobacco smoking, 83.6% (95% CI: 82.7–84.5) and 41.0% (95% CI: 33.4–48.6) reported past-month alcohol use, and 19.3% (95% CI: 18.3–20.3) and 13.8% (95% CI: 8.3–19.4) reported other past-month illicit drug use.

After adjusting for sociodemographic and substance use characteristics, pregnant women 18–25 years of age were more likely to report past-year marijuana use (aPR 2.09, 95% CI: 1.47–2.98) compared to women 35–44 years of age (Table 2). Past-year marijuana use among pregnant women also varied by race and ethnicity, employment status, and annual household income. Pregnant women who reported smoking tobacco, alcohol use, or other illicit drug use were 2.3 to 5.1 times more likely to report past-year marijuana use compared to those reporting no use of these substances (range: smoked tobacco in the past month [aPR 2.30, 95% CI: 1.81–2.92] to used alcohol in the past month [aPR 5.14, 95% CI: 3.65–7.23]). Similarly, among nonpregnant women, those 18–25 years old (aPR 2.11, 95% CI: 2.01–2.22) or 26–34 years old (aPR 1.43, 95% CI: 1.36–1.50) were more likely than women 35–44 years old to report past-year marijuana use. Past-year marijuana use also varied by race and ethnicity, education, employment status, annual household income, and health insurance. Like pregnant women, nonpregnant women who reported smoking tobacco, alcohol, or other illicit drug use were 2.1 to 4.6 times more likely to report past-year marijuana use compared to those reporting no use of these substances (range: smoked tobacco in the past month [aPR 2.10, 95% CI: 2.03–2.18] to used alcohol in the past month [aPR 4.64, 95% CI: 4.21–5.11]).

Among women reporting past-year marijuana use, a greater percentage of pregnant women reported initiation of marijuana use at age 15–17 years (43.7%, 95% CI: 38.7–48.8) compared to nonpregnant women (39.0%, 95% CI: 38.0–40.0) (Table 3). Among women reporting past-year marijuana use, 41.3% of pregnant (95% CI: 37.2–45.3) and 38.4% of nonpregnant women (95% CI: 37.5–39.2) reported using marijuana 100 days or more during the past year, with 12.3% (95% CI: 9.6–15.1) of pregnant and 16.9% (95% CI: 16.2–17.6) of nonpregnant women reporting almost daily use (≥ 300 days in the previous year). More than 90% of pregnant (91.8%, 95% CI: 89.0–94.6) and nonpregnant (93.0%, 95% CI: 92.5–93.5) women reporting past-year marijuana use said it was fairly or very easy to acquire. The

prevalence of women who met DSM-IV criteria for marijuana abuse or dependence among those who used marijuana in the past year did not differ significantly between pregnant (7.7%, 95% CI: 5.8–9.6) and nonpregnant women (9.0%, 95% CI: 8.6–9.4).

Discussion

Principal findings

In this nationally representative sample of women of reproductive age between 2013–2019, nearly 1 in 6 pregnant and 1 in 5 nonpregnant women reported marijuana use in the past year. Among both pregnant and nonpregnant women who reported past-year use, approximately one-quarter reported initiating marijuana at or before age 14 years, and over 1 in 10 reported using marijuana almost daily (≥ 300 days in the past year). Nearly half of pregnant and nonpregnant women using marijuana in the past month reported past-month tobacco smoking, 41.0% of pregnant and 83.6% of nonpregnant women using marijuana reported past-month alcohol use, and 13.8% of pregnant and 19.3% of nonpregnant women reported other past-month illicit drug use.

Results in the context of what is known

Past-month marijuana use prevalence estimates for pregnant women for 2013–2019 (4.9%, 95% CI: 4.1–5.6) overlap with those previously reported in a 2015 study using NSDUH data from 2007–2012 (3.9%, 95% CI: 3.2–4.7) (Ko et al., 2015), and align with increasing past-month marijuana use estimates reported using 2002–2017 NSDUH data (2002–2003: 3.4%; 2016–2017: 7.0%) (Volkow et al., 2019). The highest prevalence of past-month marijuana use was observed among women in the first trimester and lowest prevalence in the third trimester of pregnancy, which align with previously published estimates (Alshaarawy & Anthony, 2019; Ko, Coy, et al., 2020; Volkow et al., 2019).

Our results on age of initiation and frequency of past-year marijuana use are similar to estimates in the 2007–2012 data (Ko et al., 2015). Existing literature indicate younger age at initiation (Chen et al., 2009), as well as regular use are associated with marijuana dependence (Hall & Degenhardt, 2007). We found that 7.7% of pregnant and 9.0% of nonpregnant women reporting past-year marijuana use met DSM-IV criteria for abuse or dependence. These estimates for 2013–2019 are lower than those in 2007–2012 (Ko et al., 2015) but similar to another national study of adults 18 years and older for 2004–2005, reporting a 7.1% prevalence of dependency after the first year of use (Lopez-Quintero et al., 2011). However, the prevalence of dependency was not disaggregated by gender or pregnancy status. Future studies may assess potential changes in the prevalence of abuse or dependence given increases in marijuana use among reproductive-age women.

The magnitude of the associations between past-year marijuana use and use of other substances (tobacco smoking, alcohol, or other illicit drug use) among pregnant and nonpregnant women are similar to previous reports (Ko et al., 2015; Passey et al., 2014; van Gelder et al., 2010). Although currently available evidence does not suggest a consistent association between marijuana use alone and pregnancy outcomes (National Academies of Sciences, Engineering, and Medicine, 2017), evaluations of concurrent

marijuana, tobacco (Haight et al., 2021), and other substance use demonstrate increased risk of adverse outcomes in pregnancy such as low birth weight (Chabarría et al., 2016; Conner et al., 2016; National Academies of Sciences, Engineering, and Medicine, 2017), preterm birth (Chabarría et al., 2016; Conner et al., 2016; National Academies of Sciences, Engineering, and Medicine, 2017), and neonatal intensive care unit admission (Gunn et al., 2016; National Academies of Sciences, Engineering, and Medicine, 2017; Warshak et al., 2015). Due to high rates of co-occurrence of marijuana with other substances with known associations of adverse maternal and neonatal outcomes, evidence-based substance use screening protocols can be used to assess use of multiple substances.

Clinical and research implications

These results have implications in clinical and public health settings. The United States Preventive Services Task Force recommends screening for unhealthy alcohol (Curry et al., 2018), tobacco (Krist et al., 2021), and illicit drug use (Krist et al., 2020), including marijuana use in primary care settings among adults 18 years or older, including pregnant women, and providing individuals with behavioral counseling interventions to reduce use, where applicable. In addition, the American College of Obstetricians and Gynecologists (ACOG) recommends that “before pregnancy and in early pregnancy, all women should be asked about their use of tobacco, alcohol, and other drugs, including marijuana,” and that women who are pregnant or contemplating pregnancy should be encouraged to discontinue use (American College of Obstetricians and Gynecologists, 2017a). These guidelines recommend that medicinal use of marijuana be discontinued during pregnancy in favor of alternative therapies with better pregnancy-specific safety data (American College of Obstetricians and Gynecologists, 2017a; Ryan et al., 2018). Inquiry about substance use has been endorsed by ACOG (American College of Obstetricians and Gynecologists, 2008) and the American Academy of Pediatrics (AAP) (Hudak et al., 2012) and is recommended to be performed as part of a routine, non-judgmental conversation using a validated and standardized verbal screening tool (American College of Obstetricians and Gynecologists, 2017b). Furthermore, universal screening practices contribute to important conversations in the postpartum period regarding marijuana use and breastfeeding (Coy et al., 2021). Marijuana has been found in breast milk (Metz & Borgelt, 2018; Metz & Stickrath, 2015), informing the recommendations from both ACOG and AAP to similarly discourage marijuana use when lactating and breastfeeding as well (American College of Obstetricians and Gynecologists, 2017a; Eidelman et al., 2012). Women desire more information from health care providers regarding risks of potential harms (Jarlenski et al., 2016; Mark et al., 2017), and all of these findings highlight the importance of national recommendations for universal screening and the need for public health and clinical professionals to understand the current science, risks, and potential benefits surrounding marijuana use.

A 2020 study showed that 79% of obstetrician–gynecologists frequently screen for substance use, yet only 11% used a validated instrument (Ko, Tong, et al., 2020). It is critical that providers have the education, training, tools, and resources available to appropriately screen, treat, or refer women using marijuana or other substances (Satti et al., 2022). Capturing substance use information *via* screening tools is a strategy to identify women who would benefit from enhanced counseling or other services. Continued surveillance of

national and state trends in marijuana use, abuse, or dependence is important in the evolving landscape of states' legalization of medical and nonmedical adult use. Understanding factors related to changes in marijuana use (e.g., personal behaviors and perceptions of marijuana use in pregnancy), as well as mode and concentration of use, may better explain patterns of use and changing prevalence of abuse or dependence in this population.

Strengths and limitations

A strength of this study is its use of a nationally representative sample of women of reproductive age to provide updated prevalence estimates and factors related to marijuana use by pregnancy status. Our study also has a few limitations. First, pregnancy status was self-reported at the time of interview, thus misclassification may have occurred if women classified as nonpregnant were not yet aware of their pregnancy. Second, depending on the interview date, reported marijuana use during the past 2–12 months may not have occurred during pregnancy. Third, marijuana, tobacco smoking, alcohol, and other illicit drug use were self-reported and therefore may be underreported among reproductive-age women. Many factors, including stigma, sociodemographic factors (Oni et al., 2022; Paris et al., 2020), and state policies (American College of Obstetricians and Gynecologists, 2011) may influence disclosure of substance use during pregnancy. However, the interviews collected for this study were done *via* computer, which may have improved self-reporting of sensitive information (Chromy et al., 2002). Fourth, self-reported nonuse of marijuana, tobacco smoking, alcohol, or other illicit drugs may have included women who used these substances previously but not in the past year. Fifth, estimates of past-month, past 2–12 month, and past-year marijuana use are reported aggregated across the study period (2013–2019), and may mask variation in annual use. Finally, due to small cell sizes, women reporting non-Hispanic Native American, non-Hispanic Alaskan Native, non-Hispanic Native Hawaiian, non-Hispanic Other Pacific Islander, non-Hispanic Asian, and respondents indicating more than one non-Hispanic race were included in the “Another or multiple non-Hispanic race(s)” group. We acknowledge heterogeneity within the race and ethnicity categories included in this analysis but were unable to further disaggregate the data.

Conclusion

This study provides prevalence estimates of marijuana use for 2013–2019, including characteristics of marijuana use, prevalence of other substance use, and prevalence of marijuana abuse or dependence among reproductive-age women by pregnancy status. Marijuana use alone or with other substance use among pregnant and nonpregnant women remains a concern, and options for improving marijuana use screening and facilitating treatment of marijuana abuse or dependence may be considered to improve health.

Funding

The author(s) reported there is no funding associated with the work featured in this article.

References

- Alshaarawy O, & Anthony JC (2019). Cannabis use among women of reproductive age in the United States: 2002–2017. *Addictive Behaviors*, 99, 106082. 10.1016/j.addbeh.2019.106082 [PubMed: 31421581]
- Alshaarawy O, & Vanderziel A (2022). Trends and characteristics of prenatal cannabis use in the U.S., 2002–2019. *American Journal of Preventive Medicine*, 63(5), 846–851. 10.1016/j.amepre.2022.04.027 [PubMed: 35718631]
- American College of Obstetricians and Gynecologists (2008). At-risk drinking and illicit drug use: Ethical issues in obstetric and gynecologic practice. Committee Opinion No. 422. *Obstetrics & Gynecology*, 112(6), 1449–1460. 10.1097/AOG.0B013E318192499B [PubMed: 19037056]
- American College of Obstetricians and Gynecologists (2011). Substance abuse reporting and pregnancy: The role of the obstetrician–gynecologist. Committee Opinion No. 473. *Obstetrics & Gynecology*, 117, 200–201. [PubMed: 21173672]
- American College of Obstetricians and Gynecologists (2017a). Marijuana use during pregnancy and lactation. Committee Opinion Summary No. 722. *Obstetrics & Gynecology*, 130(4), 931–932. 10.1097/AOG.0000000000002349 [PubMed: 28937569]
- American College of Obstetricians and Gynecologists (2017b). Opioid use and opioid use disorder in pregnancy. Committee Opinion No. 711. *Obstetrics & Gynecology*, 130, e81–e94. [PubMed: 28742676]
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.).
- Beatty J, Svikis D, & Ondersma S (2012). Prevalence and perceived financial costs of marijuana versus tobacco use among urban low-income pregnant women. *Journal of Addiction Research & Therapy*, 3(4), 1000135. 10.4172/2155-6105.1000135
- Brown QL, Sarvet AL, Shmulewitz D, Martins SS, Wall MM, & Hasin DS (2017). Trends in marijuana use among pregnant and nonpregnant reproductive-aged women, 2002–2014. *JAMA*, 317(2), 207–209. 10.1001/jama.2016.17383 [PubMed: 27992619]
- Chabarría KC, Racusin DA, Antony KM, Kahr M, Suter MA, Mastrobattista JM, & Aagaard KM (2016). Marijuana use and its effects in pregnancy. *American Journal of Obstetrics & Gynecology*, 215(4), 506.e1–506.e7. 10.1016/J.AJOG.2016.05.044
- Chen CY, Storr CL, & Anthony JC (2009). Early-onset drug use and risk for drug dependence problems. *Addictive Behaviors*, 34(3), 319–322. 10.1016/J.ADDBEH.2008.10.021 [PubMed: 19022584]
- Chromy J, Davis T, & Packer L (2002). Mode effects on substance use measures: Comparison of 1999 CAI and PAPI data. In *Redesigning an ongoing national household survey: Methodological issues*. DHHS Publication. No. SMA 03–3768.
- Conner SN, Bedell V, Lipsey K, Macones GA, Cahill AG, & Tuuli MG (2016). Maternal marijuana use and adverse neonatal outcomes: A systematic review and meta-analysis. *Obstetrics & Gynecology*, 128(4), 713–723. 10.1097/AOG.0000000000001649 [PubMed: 27607879]
- Coy KC, Haight SC, Anstey E, Grant AM, Ruffo N, & Ko JY (2021). Postpartum marijuana use, perceptions of safety, and breastfeeding initiation and duration: An analysis of PRAMS data from seven states, 2017. *Journal of Human Lactation: Official Journal of International Lactation Consultant Association*, 37(4), 803–812. 890334421993466. 10.1177/0890334421993466 [PubMed: 33586506]
- Curry SJ, Krist AH, Owens DK, Barry MJ, Caughey AB, Davidson KW, Doubeni CA, Epling JW, Kemper AR, Kubik M, Landefeld CS, Mangione CM, Silverstein M, Simon MA, Tseng CW, & Wong JB, US Preventive Services Task Force. (2018). Screening and behavioral counseling interventions to reduce unhealthy alcohol use in adolescents and adults: US Preventive Services Task Force Recommendation Statement. *JAMA*, 320(18), 1899–1909. 10.1001/JAMA.2018.16789 [PubMed: 30422199]
- Eidelman AI, Schanler RJ, Johnston M, Landers S, Noble L, Szucs K, & Viehmann L (2012). Section on breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*, 129(3), e827–e841. 10.1542/peds.2011-3552 [PubMed: 22371471]

- Gnofam M, Allshouse AA, Stickrath EH, & Metz TD (2020). Impact of marijuana legalization on prevalence of maternal marijuana use and perinatal outcomes. *American Journal of Perinatology*, 37(1), 59–65. 10.1055/s-0039-1696719 [PubMed: 31491805]
- Gunn JKL, Rosales CB, Center KE, Nuñez A, Gibson SJ, Christ C, & Ehiri JE (2016). Prenatal exposure to cannabis and maternal and child health outcomes: A systematic review and meta-analysis. *BMJ Open*, 6(4), e009986. 10.1136/bmjopen-2015-009986
- Haight SC, King BA, Bombard JM, Coy KC, Ferré CD, Grant AM, & Ko JY (2021). Frequency of cannabis use during pregnancy and adverse infant outcomes, by cigarette smoking status—8 PRAMS states, 2017. *Drug & Alcohol Dependence*, 220, 108507. 10.1016/j.drugalcdep.2021.108507 [PubMed: 33476951]
- Hall W, & Degenhardt L (2007). Prevalence and correlates of cannabis use in developed and developing countries. *Current Opinion in Psychiatry*, 20(4), 393–397. 10.1097/YCO.0B013E32812144CC [PubMed: 17551355]
- Hudak ML, Tan RC, Frattarelli DAC, Galinkin JL, Green TP, Neville KA, Paul IM, Van Den Anker JN, Hegenbarth M, Knight M, Shaddy RE, Snodgrass WR, Alexander JJ, Chescheir NC, Cragan JD, Rieder MJ, Robb A, Sachs HC, Zajicek A, Couto J, & American Academy of Pediatrics. (2012). Neonatal drug withdrawal. *Pediatrics*, 129(2), e540–e560. 10.1542/peds.2011-3212 [PubMed: 22291123]
- Jarlenski M, Tarr JA, Holland CL, Farrell D, & Chang JC (2016). Pregnant women’s access to information about perinatal marijuana use: A qualitative study. *Women’s Health Issues: Official Publication of the Jacobs Institute of Women’s Health*, 26(4), 452–459. 10.1016/J.WHI.2016.03.010
- Ko JY, Coy KC, Haight SC, Haegerich TM, Williams L, Cox S, Njai R, & Grant AM (2020). Characteristics of marijuana use during pregnancy: Eight states, pregnancy risk assessment monitoring system, 2017. *MMWR. Morbidity and Mortality Weekly Report*, 69(32), 1058–1063. 10.15585/MMWR.MM6932A2 [PubMed: 32790656]
- Ko JY, Farr SL, Tong VT, Creanga AA, & Callaghan WM (2015). Prevalence and patterns of marijuana use among pregnant and nonpregnant women of reproductive age. *American Journal of Obstetrics & Gynecology*, 213(2), 201.e1–201.e10. 10.1016/j.ajog.2015.03.021
- Ko JY, Tong VT, Haight SC, Terplan M, Stark L, Snead C, & Schulkin J (2020). Obstetrician–gynecologists’ practices and attitudes on substance use screening during pregnancy. *Journal of Perinatology: Official Journal of the California Perinatal Association*, 40(3), 422–432. 10.1038/S41372-019-0542-3 [PubMed: 31666646]
- Krist AH, Davidson KW, Mangione CM, Barry MJ, Cabana M, Caughey AB, Donahue K, Doubeni CA, Epling JW, Kubik M, Ogedegbe G, Pbert L, Silverstein M, Simon MA, Tseng CW, & Wong JB, US Preventive Services Task Force. (2020). Primary care–based interventions to prevent illicit drug use in children, adolescents, and young adults: US preventive services task force recommendation statement. *JAMA*, 323(20), 2060–2066. 10.1001/JAMA.2020.6774 [PubMed: 32453374]
- Krist AH, Davidson KW, Mangione CM, Barry MJ, Cabana M, Caughey AB, Donahue K, Doubeni CA, Epling JW, Kubik M, Ogedegbe G, Pbert L, Silverstein M, Simon MA, Tseng CW, & Wong JB, US Preventive Services Task Force. (2021). Interventions for tobacco smoking cessation in adults, including pregnant persons: US Preventive Services Task Force Recommendation Statement. *JAMA*, 325(3), 265–279. 10.1001/JAMA.2020.25019 [PubMed: 33464343]
- Lopez-Quintero C, Cobos JP D L, Hasin DS, Okuda M, Wang S, Grant BF, & Blanco C (2011). Probability and predictors of transition from first use to dependence on nicotine, alcohol, cannabis, and cocaine: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). *Drug & Alcohol Dependence*, 115(1–2), 120–130. 10.1016/J.DRUGALCDEP.2010.11.004 [PubMed: 21145178]
- Mark K, Gryczynski J, Axenfeld E, Schwartz RP, & Terplan M (2017). Pregnant women’s current and intended cannabis use in relation to their views toward legalization and knowledge of potential harm. *Journal of Addiction Medicine*, 11(3), 211–216. 10.1097/ADM.0000000000000299 [PubMed: 28252456]

- Martin GI (2020). Marijuana: The effects on pregnancy, the fetus, and the newborn. *Journal of Perinatology: Official Journal of the California Perinatal Association*, 40(10), 1470–1476. 10.1038/S41372-020-0708-Z [PubMed: 32507859]
- Metz TD, & Borgelt LM (2018). Marijuana use in pregnancy and while breastfeeding. *Obstetrics & Gynecology*, 132(5), 1198–1210. 10.1097/AOG.0000000000002878 [PubMed: 30234728]
- Metz TD, & Stickrath EH (2015). Marijuana use in pregnancy and lactation: A review of the evidence. *American Journal of Obstetrics & Gynecology*, 213(6), 761–778. 10.1016/J.AJOG.2015.05.025 [PubMed: 25986032]
- Moore DG, Turner JD, Parrott AC, Goodwin JE, Fulton SE, Min MO, Fox HC, Braddick FMB, Axelsson EL, Lynch S, Ribeiro H, Frostick CJ, & Singer LT (2010). During pregnancy, recreational drug-using women stop taking ecstasy (3,4-methylenedioxy-*N*-methylamphetamine) and reduce alcohol consumption, but continue to smoke tobacco and cannabis: Initial findings from the development and infancy study. *Journal of Psychopharmacology (Oxford, England)*, 24(9), 1403–1410. 10.1177/0269881109348165 [PubMed: 19939863]
- National Academies of Sciences, Engineering and Medicine (2017). *The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research*. The National Academies Press. 10.17226/24625
- Oni HT, Drake JA, Dietze P, Higgs P, & Islam MM (2022). Barriers to women’s disclosure of and treatment for substance use during pregnancy: A qualitative study. *Women & Birth: Journal of the Australian College of Midwives*, 35(6), 576–581. 10.1016/j.wombi.2021.12.009 [PubMed: 34969637]
- Paris R, Herriott AL, Maru M, Hacking SE, & Sommer AR (2020). Secrecy versus disclosure: women with substance use disorders share experiences in help seeking during pregnancy. *Maternal & Child Health Journal*, 24(11), 1396–1403. 10.1007/s10995-020-03006-1 [PubMed: 33025236]
- Passey ME, Sanson-Fisher RW, D’Este CA, & Stirling JM (2014). Tobacco, alcohol and cannabis use during pregnancy: Clustering of risks. *Drug & Alcohol Dependence*, 134(1), 44–50. 10.1016/J.DRUGALCDEP.2013.09.008 [PubMed: 24095245]
- Ryan SA, Ammerman SD, O’Connor ME, COMMITTEE ON SUBSTANCE USE AND PREVENTION, & SECTION ON BREAST FEEDING. (2018). Marijuana use during pregnancy and breastfeeding: Implications for neonatal and childhood outcomes. *Pediatrics*, 142(3), e20181889. 10.1542/peds.2018-1889 [PubMed: 30150209]
- Satti MA, Reed EG, Wenker ES, Mitchell SL, Schulkin J, Power ML, & Mackeen AD (2022). Factors that shape pregnant women’s perceptions regarding the safety of cannabis use during pregnancy. *Journal of Cannabis Research*, 4(1), 16. 10.1186/s42238-022-00128-x [PubMed: 35387682]
- Substance Abuse and Mental Health Services Administration (2013). *Results from the 2012 National Survey on Drug Use and Health: Summary of national findings* (p. NSDUH Series H-46, HHS Publication No. (SMA) 13–47). Substance Abuse and Mental Health Services. <https://www.samhsa.gov/data/sites/default/files/NSDUHnationalfindingresults2012/NSDUHnationalfindingresults2012/NSDUHresults2012.htm#fig2.15>
- Substance Abuse and Mental Health Services Administration. (2014). *2013 National Survey on Drug Use and Health: Public Use File Codebook*.
- Substance Abuse and Mental Health Services Administration. (2015). *2014 National Survey on Drug Use and Health: Public Use File Codebook*.
- Substance Abuse and Mental Health Services Administration. (2016). *2015 National Survey on Drug Use and Health: Public Use File Codebook*.
- Substance Abuse and Mental Health Services Administration. (2017). *2016 National Survey on Drug Use and Health: Public Use File Codebook*.
- Substance Abuse and Mental Health Services Administration. (2018). *2017 National Survey on Drug Use and Health: Public Use File Codebook*.
- Substance Abuse and Mental Health Services Administration. (2019). *2018 National Survey on Drug Use and Health: Public Use File Codebook*.
- Substance Abuse and Mental Health Services Administration. (2020a). *2019 National Survey on Drug Use and Health: Public Use File Codebook*.

- Substance Abuse and Mental Health Services Administration. (2020b). Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. <https://www.samsha.gov/data/>
- van Gelder MMHJ, Reefhuis J, Caton AR, Werler MM, Druschel CM, & Roeleveld N, National Birth Defects Prevention Study. (2010). Characteristics of pregnant illicit drug users and associations between cannabis use and perinatal outcome in a population-based study. *Drug & Alcohol Dependence*, 109(1-3), 243-247. 10.1016/J.DRUGALCDEP.2010.01.007 [PubMed: 20171023]
- Volkow ND, Han B, Compton WM, & McCance-Katz EF (2019). Self-reported medical and nonmedical cannabis use among pregnant women in the United States. *JAMA*, 322(2), 167-169. 10.1001/JAMA.2019.7982 [PubMed: 31211824]
- Warshak CR, Regan J, Moore B, Magner K, Kritzer S, & Hook JV (2015). Association between marijuana use and adverse obstetrical and neonatal outcomes. *Journal of Perinatology: Official Journal of the California Perinatal Association*, 35(12), 991-995. 10.1038/jp.2015.120 [PubMed: 26401751]

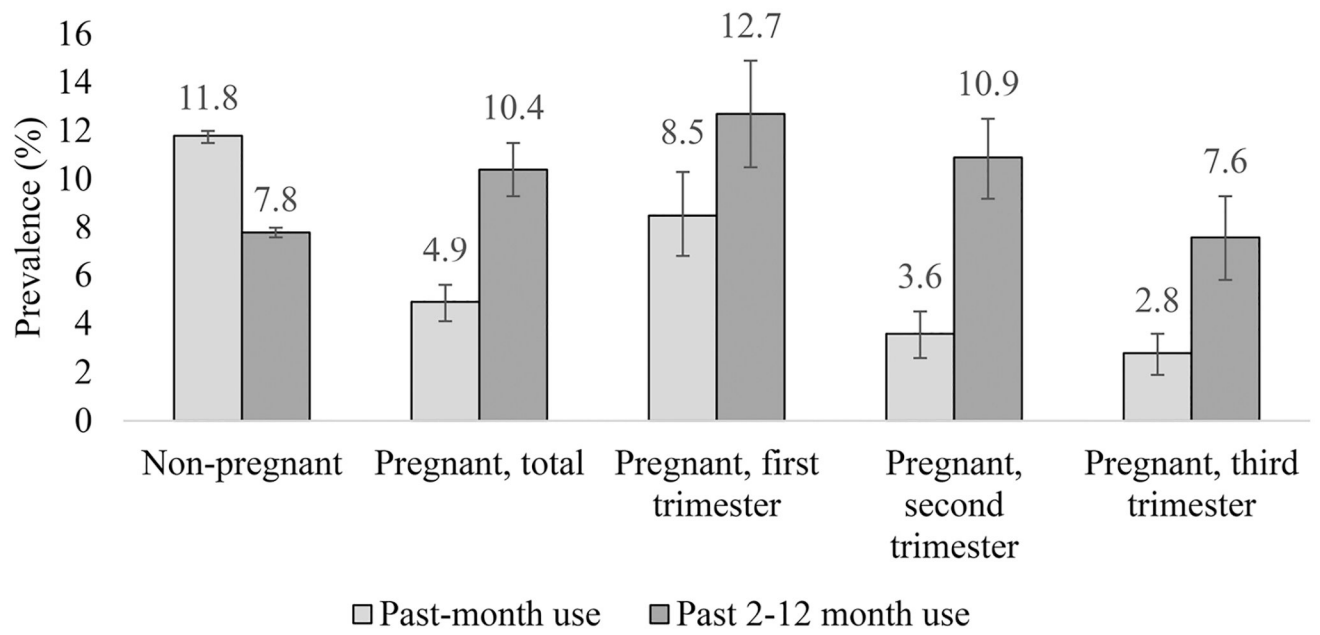


Figure 1. Prevalence of marijuana use among women of reproductive age, by pregnancy status and trimester, National Survey on Drug use and Health, 2013–2019. Data presented as unweighted *N* and weighted percent with 95% CI.

Table 1.

Characteristics of pregnant and nonpregnant women reporting past-month use, past 2–12 months use, and nonuse of marijuana, National Survey on Drug Use and Health, 2013–2019.

Characteristic	Nonpregnant (n = 105,890)			Pregnant (n = 4,938)		
	Past-month use % (95% CI) (n = 14,345)	Past 2–12 month use ^d % (95% CI) (n = 9,462)	Nonuse in past year % (95% CI) (n = 82,083)	Past-month use % (95% CI) (n = 314)	Past 2–12 month use ^e % (95% CI) (n = 564)	Nonuse in past year % (95% CI) (n = 4,060)
<i>Demographic</i>						
Age, years						
18–25	46.1 (45.0–47.3)	47.1 (45.6–48.7)	25.7 (25.3–26.1)	56.2 (47.6–64.8)	47.6 (42.2–53.0)	29.4 (27.9–31.0)
26–34	33.1 (32.0–34.1)	33.2 (31.7–34.8)	33.5 (33.0–33.9)	36.3 (27.7–45.0)	43.8 (38.5–49.2)	53.8 (51.5–56.0)
35–44	20.8 (19.7–21.9)	19.6 (18.3–21.0)	40.9 (40.3–41.4)	7.5 (2.6–12.4)	8.6 (5.0–12.1)	16.8 (14.9–18.6)
<i>Race and ethnicity</i>						
Non-Hispanic White	61.5 (60.1–62.9)	64.7 (63.1–66.3)	54.0 (53.4–54.6)	57.6 (49.2–66.0)	62.4 (57.4–67.3)	55.0 (52.9–57.2)
Non-Hispanic Black or African American	16.3 (15.4–17.3)	12.5 (11.4–13.6)	13.6 (13.2–14.1)	26.8 (20.0–33.6)	17.7 (13.2–22.1)	14.8 (13.0–16.5)
Hispanic	14.6 (13.7–15.5)	14.9 (13.9–16.0)	21.6 (21.1–22.2)	9.4 (4.8–13.9)	13.6 (9.7–17.4)	20.1 (18.2–22.0)
Another or multiple non-Hispanic race(s) ^b	7.6 (6.9–8.3)	7.8 (7.2–8.5)	10.7 (10.3–11.1)	6.2 (2.3–10.1)	6.4 (3.9–8.8)	10.1 (8.7–11.6)
<i>Education</i>						
Less than high school	9.7 (9.0–10.4)	7.4 (6.7–8.0)	11.2 (10.8–11.5)	19.6 (14.1–25.1)	9.6 (6.8–12.4)	12.3 (11.1–13.6)
High school	24.0 (23.0–25.0)	20.0 (18.9–21.2)	21.8 (21.4–22.2)	27.9 (20.9–35.0)	31.3 (26.5–36.2)	21.8 (20.1–23.5)
Some college	42.0 (40.9–43.2)	39.7 (38.5–40.9)	33.1 (32.6–33.6)	38.9 (31.9–45.8)	32.8 (28.2–37.4)	27.8 (25.7–29.9)
College graduate	24.3 (23.2–25.4)	32.9 (31.5–34.2)	33.9 (33.3–34.4)	13.6 (7.3–19.9)	26.3 (21.3–31.3)	38.1 (35.3–40.9)
<i>Employment</i>						
Full time	48.9 (47.9–49.9)	51.1 (49.8–52.5)	51.3 (50.7–51.8)	33.9 (26.3–41.6)	44.9 (39.0–50.8)	45.6 (43.6–47.5)
Part time	23.2 (22.3–24.2)	23.4 (22.2–24.6)	18.8 (18.5–19.2)	16.0 (11.1–20.9)	17.6 (14.0–21.3)	17.5 (16.1–18.9)
Other ^c	19.7 (18.7–20.6)	17.7 (16.8–18.6)	24.5 (24.1–25.0)	29.9 (23.0–36.7)	29.4 (24.2–34.5)	32.0 (30.2–33.8)
Unemployed	8.2 (7.5–8.8)	7.8 (7.2–8.4)	5.4 (5.2–5.6)	20.2 (14.0–26.4)	8.1 (5.4–10.7)	5.0 (4.0–5.9)
<i>Annual household income</i>						
< \$20,000	27.6 (26.5–28.6)	24.1 (22.7–25.5)	19.4 (18.9–19.9)	28.7 (23.3–34.1)	22.2 (17.2–27.3)	18.6 (17.3–19.9)
\$20,000–\$49,999	32.1 (30.9–33.4)	30.5 (29.0–32.0)	30.4 (30.0–30.9)	40.0 (33.2–46.7)	31.8 (26.8–36.9)	29.5 (27.5–31.5)
\$50,000–\$74,999	14.1 (13.3–14.9)	14.7 (13.7–15.7)	16.1 (15.7–16.5)	13.4 (7.8–19.0)	14.9 (10.9–18.8)	17.5 (15.8–19.1)
\$75,000	26.2 (25.1–27.4)	30.7 (29.0–32.4)	34.0 (33.5–34.6)	17.9 (12.2–23.7)	31.1 (25.6–36.6)	34.4 (32.2–36.6)

Characteristic	Nonpregnant (n = 105,890)			Pregnant (n = 4,938)		
	Past-month use % (95% CI) (n = 14,345)	Past 2–12 month use ^d % (95% CI) (n = 9,462)	Nonuse in past year % (95% CI) (n = 82,083)	Past-month use % (95% CI) (n = 314)	Past 2–12 month use ^d % (95% CI) (n = 564)	Nonuse in past year % (95% CI) (n = 4,060)
Health insurance ^d						
Private	55.2 (53.9–56.5)	63.4 (61.9–64.9)	62.7 (62.2–63.2)	33.2 (25.9–40.4)	47.5 (41.3–53.6)	58.3 (55.9–60.6)
Medicaid/Medicare/CHIP ^e	24.9 (23.9–26.0)	18.7 (17.7–19.7)	18.4 (18.0–18.9)	48.7 (41.6–55.7)	39.4 (33.9–44.9)	30.1 (28.2–32.0)
Other ^f	4.9 (4.4–5.4)	4.9 (4.4–5.5)	4.7 (4.5–5.0)	5.6 (0.6–10.6)	4.9 (2.6–7.1)	5.2 (4.2–6.2)
Uninsured	14.9 (14.1–15.8)	13.0 (12.0–14.0)	14.2 (13.8–14.5)	12.6 (7.5–17.6)	8.3 (4.6–11.9)	6.4 (5.5–7.3)
<i>Substance use history and behaviors</i>						
Tobacco smoking in past year ^g						
Smoked in past month	48.8 (47.5–50.1)	33.0 (31.5–34.5)	17.6 (17.2–7.9)	49.1 (40.9–57.2)	22.6 (17.8–27.4)	9.1 (7.9–10.3)
Smoked in past 2–12 months ^a	14.7 (13.8–15.6)	15.2 (14.0–16.4)	4.8 (4.6–5.0)	25.0 (17.8–32.2)	29.4 (23.5–35.2)	8.1 (6.9–9.2)
Did not smoke	36.5 (35.3–37.7)	51.8 (50.3–53.4)	77.7 (77.3–78.0)	26.0 (17.9–34.1)	48.1 (43.3–52.8)	82.8 (81.3–84.3)
Alcohol use in past year						
Used in past month	83.6 (82.7–84.5)	79.9 (78.9–80.9)	53.4 (52.9–54.0)	41.0 (33.4–48.6)	15.3 (10.7–19.8)	7.0 (6.0–8.0)
Used in past 2–12 months ^a	11.0 (10.2–11.9)	15.1 (14.2–16.1)	17.0 (16.6–17.4)	48.4 (40.4–56.5)	76.1 (71.1–81.0)	51.5 (49.2–53.8)
Did not use	5.4 (4.8–6.0)	5.0 (4.3–5.7)	29.5 (29.1–30.0)	10.6 (6.7–14.5)	8.7 (5.8–11.6)	41.5 (39.2–43.8)
Other illicit drug use in the past year ^h						
Used in past month	19.3 (18.3–20.3)	8.0 (7.2–8.8)	1.9 (1.7–2.0)	13.8 (8.3–19.4)	3.2 (1.1–5.2)	0.8 (0.4–1.1)
Used in past 2–12 months ^a	21.2 (20.3–22.0)	18.1 (17.2–19.1)	4.0 (3.7–4.2)	30.3 (23.0–37.6)	26.6 (20.7–32.5)	3.6 (2.9–4.3)
Did not use	59.5 (58.4–60.7)	73.9 (72.7–75.1)	94.2 (93.9–94.4)	55.9 (48.0–63.8)	70.3 (64.4–76.1)	95.7 (94.9–96.4)

Data presented as unweighted *N* and weighted percent with 95% CI. *CI*, confidence interval.

^aPast 2–12 months use defined as use in the past year but not in the past month.

^bAnother or multiple non-Hispanic race(s) defined as non-Hispanic Native American, non-Hispanic Alaskan Native, non-Hispanic Hawaiian, non-Hispanic Other Pacific Islander, non-Hispanic Asian, and respondents indicating more than one non-Hispanic race/ethnicity.

^cOther employment category includes students, persons keeping a house or caring for children full time, persons retired or having a disability, or other persons not in the labor force.

^dRespondents could indicate multiple types of health insurance and have been hierarchically categorized into mutually exclusive groups: Private, Medicaid/Medicare/CHIP, Other, and uninsured.

^eCHIP is the children's Health Insurance Program. Individuals aged 19 or younger are eligible for this plan.

^fOther health insurance is defined as having military-related health care or any other type of health insurance.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Data are missing for nonpregnant ($n = 2,077$) and pregnant ($n = 58$) respondents.

Other illicit drugs include hallucinogens, heroin, cocaine, inhalants, and any psychotherapeutic agents.

Sociodemographic and substance use factors associated with past-year marijuana use, by pregnancy status, National Survey on Drug use and Health, 2013–2019.

Table 2.

Characteristic	Nonpregnant (<i>n</i> = 103,813)		Pregnant (<i>n</i> = 4,880)	
	aPR (95% CI) ^a	aPR (95% CI) ^a	aPR (95% CI) ^a	aPR (95% CI) ^a
Study year ^b	1.09 (1.08–1.09)		1.06 (1.02–1.10)	
Age, years				
18–25	2.11 (2.01–2.22)		2.09 (1.47–2.98)	
26–34	1.43 (1.36–1.50)		1.39 (0.98–1.96)	
35–44	1.0		1.0	
Race and ethnicity				
Non-Hispanic White	1.0		1.0	
Non-Hispanic Black or African American	1.09 (1.04–1.14)		1.30 (1.06–1.59)	
Hispanic	0.82 (0.79–0.86)		0.85 (0.65–1.12)	
Another or multiple non-Hispanic race(s) ^c	0.90 (0.84–0.96)		0.89 (0.69–1.16)	
Education				
Less than high school	0.90 (0.85–0.96)		1.08 (0.77–1.53)	
High school	0.94 (0.90–0.99)		1.24 (0.89–1.72)	
Some college	1.01 (0.97–1.06)		1.19 (0.87–1.62)	
College or more	1.0		1.0	
Employment				
Full time	1.0		1.0	
Part time	1.09 (1.05–1.13)		1.11 (0.90–1.38)	
Other ^d	0.98 (0.94–1.03)		1.03 (0.80–1.32)	
Unemployed	1.13 (1.08–1.19)		1.37 (1.06–1.78)	
Annual household income				
<\$20,000	1.0		1.0	
\$20,000–\$49,999	0.93 (0.90–0.97)		1.06 (0.91–1.24)	
\$50,000–\$74,999	0.91 (0.87–0.96)		1.10 (0.85–1.44)	
\$75,000	0.89 (0.85–0.92)		1.26 (1.01–1.56)	
Health insurance ^e				

Characteristic	Nonpregnant (n = 103,813)		Pregnant (n = 4,880)	
	aPR (95% CI) ^d	<i>μ</i>	aPR (95% CI) ^d	<i>μ</i>
Private	1.0		1.0	
Medicaid/Medicare/CHIP ^f	1.19 (1.15–1.24)		1.21 (0.98–1.49)	
Other ^g	1.02 (0.96–1.09)		1.05 (0.67–1.65)	
Uninsured	1.07 (1.02–1.12)		1.33 (0.98–1.82)	
Tobacco smoking in past year				
Smoked in past month	2.10 (2.03–2.18)		2.30 (1.81–2.92)	
Smoked in past 2–12 months ^h	2.15 (2.05–2.26)		2.37 (1.91–2.95)	
Nonsmoker	1.0		1.0	
Alcohol use in past year				
Used in past month	4.64 (4.21–5.11)		5.14 (3.65–7.23)	
Used in past 2–12 months ^h	2.95 (2.64–3.30)		3.73 (2.73–5.10)	
Did not use	1.0		1.0	
Other illicit drug use in the past year ⁱ				
Used in past month	2.51 (2.41–2.60)		2.74 (2.16–3.47)	
Used in past 2–12 months ^h	2.29 (2.22–2.37)		2.48 (2.08–3.47)	
Did not use	1.0		1.0	

Data presented as unweighted *N* and adjusted prevalence ratio with 95% CI. *aPR*, adjusted prevalence ratio; *CI*, confidence interval.

^aGeneral linear models with Poisson distribution adjusted for all characteristics listed in table.

^bRate of past-year marijuana use among pregnant women in 2013: 15.1%, 95% CI: 11.7–18.4. Rate of past-year marijuana use among nonpregnant women in 2013: 16.1%, 95% CI: 15.1–17.1. *aPR* represents the adjusted rate increase per year from this baseline.

^cAnother or multiple non-Hispanic race(s) defined as non-Hispanic Native American, non-Hispanic Alaskan Native, non-Hispanic Native Hawaiian, non-Hispanic Other Pacific Islander, non-Hispanic Asian, and respondents indicating more than one non-Hispanic race/ethnicity.

^dOther employment category includes students, persons keeping a house or caring for children full time, persons retired or having a disability, or other persons not in the labor force.

^eRespondents could indicate multiple types of health insurance; thus, these response categories are not mutually exclusive.

^fCHIP is the children’s Health Insurance Program. Individuals aged 19 or younger are eligible for this plan.

^gOther health Insurance is defined as having military-related health care or any other type of health insurance.

^hPast 2–12 months use defined as use in the past year but not in the past month.

Other illicit drugs include hallucinogens, heroin, cocaine, inhalants, and any psychotherapeutic agents.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3.

Characteristics of marijuana use among past-year users, by pregnancy status, National Survey on Drug use and Health, 2013–2019.

Characteristic	Nonpregnant (<i>n</i> = 23,807)	Pregnant (<i>n</i> = 878)
	% (95% CI)	% (95% CI)
Age of initiation of marijuana use, years ^a		
14 or younger	23.4 (22.5–24.2)	26.5 (22.4–30.5)
15–17	39.0 (38.0–40.0)	43.7 (38.7–48.8)
18 or older	37.7 (36.7–38.6)	29.8 (25.6–34.0)
Frequency of marijuana use in past 12 months, days ^a		
1–11	35.2 (34.3–36.0)	28.9 (24.8–33.0)
12–49	17.6 (16.9–18.2)	18.6 (15.4–21.9)
50–99	8.9 (8.4–9.3)	11.3 (8.4–14.1)
100–299	21.4 (20.7–22.2)	28.9 (25.0–32.8)
300	16.9 (16.2–17.6)	12.3 (9.6–15.1)
Meet DSM-IV criteria for marijuana abuse or dependence ^b		
Yes	9.0 (8.6–9.4)	7.7 (5.8–9.6)
No	91.0 (90.6–91.4)	92.3 (90.4–94.2)
Difficulty in acquiring marijuana ^c		
Impossible or very difficult	2.1 (1.8–2.3)	2.1 (0.9–3.2)
Fairly difficult	5.0 (4.5–5.4)	6.1 (3.6–8.7)
Fairly or very easy	93.0 (92.5–93.5)	91.8 (89.0–94.6)

Data presented as unweighted *N* and weighted percent with 95% CI. *CI*, confidence interval; *DSM-IV*: Diagnostic and Statistical Manual of Mental Disorders, 4th ed.

^aChi-square $p < 0.05$ for differential distribution of variable by pregnancy status.

^bDSM-IV criteria for substance abuse is met if one or more of the following is exhibited during a 12-month period: failure to fulfill major role obligations at work, school, or home; frequent use of substances in which it is physically hazardous; frequent or recurrent legal problems; and continued use despite persistent or recurrent social or interpersonal problems.

^cData are missing for nonpregnant ($n = 2,731$) and pregnant ($n = 153$) respondents. DSM-IV criteria for dependence is met if three or more of the following are exhibited during a 12-month period: tolerance; withdrawal symptoms; use of substance in larger amounts or over a longer period; persistent desire to cut down or control substance use; involvement in chronic behavior to obtain the substance; reduction or abandonment of social, occupational, or recreational activities; or use of substance, regardless of persistent or recurrent physical or psychological problems caused or exacerbated by the substance.