

Letters

RESEARCH LETTER

Self-reported Medical and Nonmedical Cannabis Use Among Pregnant Women in the United States

Cannabis use increased among pregnant women in the United States from 2002 to 2014.¹ However, changes in cannabis use and frequency by trimester over time and national prevalence of medical cannabis use during pregnancy are unknown. Data from the National Survey on Drug Use and Health (NSDUH) were examined to address these knowledge gaps.

Methods | Data were from women aged 12 to 44 years who participated in the 2002-2017 NSDUH, a representative survey of the US civilian, noninstitutionalized population.²



Editorial



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Collection of NSDUH data was approved by the institutional review board at RTI International.² Data were collected by interviewers during personal visits. Oral

informed consent was received from respondents. The annual mean weighted response rate of the 2002-2017 NSDUH was 63.6%. Although methods to assess nonresponse bias vary, NSDUH trends have been comparable with trends from other population surveys.

The NSDUH collected sociodemographic characteristics, current pregnancy status, past-month cannabis use, past-month number of days of use, and daily/near daily use (≥ 20 days in the past month). Respondents who answered “yes” to “Are you currently pregnant?” were asked “How many months pregnant are you?”

Starting in 2013, respondents reporting past-year and past-month cannabis use were asked if *any* cannabis use was recommended by health care professionals. If answering “no,” respondents were classified as having past-month

“nonmedical-only cannabis use.” If answering “yes,” they were asked if *all* cannabis use was recommended, and if answering “yes” to that question, they were classified as having past-month “medical-only cannabis use.”

Using logistic and linear regressions, we examined changes in adjusted (controlling for age, race/ethnicity, and family income) past-month cannabis use and use frequency and prevalence of past-month medical-only and nonmedical-only cannabis use by pregnancy status. Statistical significance was set at $P < .05$ by 2-sided t test. Analyses used SUDAAN software, release 11.0.1 (RTI International), to account for the NSDUH’s complex design and sampling weights.

Results | Based on 467 100 respondents overall between 2002 and 2017, prevalence of past-month cannabis use, daily/near daily cannabis use, and number of days of cannabis use all increased among pregnant (and nonpregnant) women aged 12 to 44 years from 2002 to 2017 and was higher for the first trimester than for the second and third trimesters. Between 2002-2003 and 2016-2017, adjusted prevalence of past-month cannabis use (Figure, A) increased from 3.4% to 7.0% among pregnant women overall (difference, 3.6%; 95% CI, 1.92%-5.29%) and from 5.7% to 12.1% during the first trimester (difference, 6.4%; 95% CI, 2.56%-10.29%). Adjusted prevalence of past-month daily/near daily cannabis use (Figure, B) increased from 0.9% to 3.4% among pregnant women overall (difference, 2.5%; 95% CI, 1.40%-3.59%), from 1.8% to 5.3% during the first trimester (difference, 3.5%; 95% CI, 1.08%-5.98%), from 0.6% to 2.5% during the second trimester (difference, 1.9%; 95% CI, 0.42%-3.44%), and from 0.5% to 2.5% during the third trimester (difference, 2.0%; 95% CI, 0.25%-3.66%). Adjusted past-month mean number of days of cannabis use (Figure, C) increased from 0.4 to 1.1 days among pregnant women overall (difference, 0.7; 95% CI, 0.38-0.99), from 0.8 to 2.0 days during

Table. Prevalence of Past-Month Medical and Nonmedical Cannabis Use in US Pregnant and Nonpregnant Women Aged 12 to 44 Years, 2013-2017^a

Past-Month Cannabis Use	Nonpregnant Women, Weighted % (95% CI) (n = 133 900)	Pregnant Women, Weighted % (95% CI) (n = 4400)	Difference (95% CI)	P Value
Overall	9.79 (9.56-10.04)	4.71 (4.02-5.52)	5.08 (4.31 to 5.86)	<.001
For medical purposes ^b	≤ 1.07 (0.99-1.15)	≤ 0.68 (0.39-1.18)	0.39 (0.00 to 0.77)	.05
For medical purposes only ^c	0.60 (0.54-0.67)	0.52 (0.26-1.03)	0.08 (-0.28 to 0.44)	.66
For nonmedical purposes only ^d	8.73 (8.51-8.95)	4.03 (3.43-4.73)	4.70 (4.01 to 5.38)	<.001

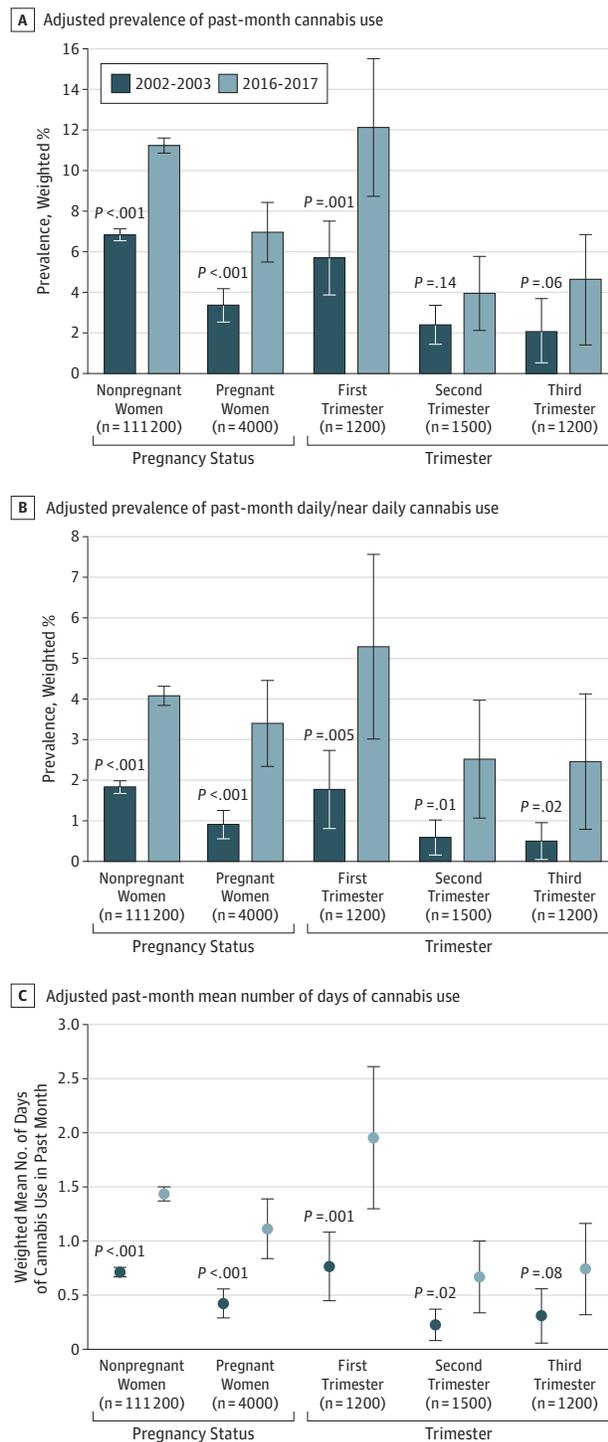
^a Data are from the 2013-2017 National Survey on Drug Use and Health, which has assessed medical cannabis use since 2013.

^b Among pregnant women aged 12 to 44 years, 0.68% reported past-month cannabis use and reported *any* past-year cannabis use for medical purposes, but it is uncertain whether cannabis use was for medical purposes in the past month. Thus, the prevalence of past-month medical cannabis use among pregnant women aged 12 to 44 years was no more than 0.68%. By the same logic, the prevalence of past-month medical cannabis use among nonpregnant women was no more than 1.07%.

^c Past-month cannabis use for medical purposes only indicate data for respondents reporting use of cannabis in the past month and that *all* cannabis use in the past 12 months was recommended by health care professionals.

^d Past-month cannabis use for nonmedical purposes only indicate data for respondents reporting use of cannabis in the past month and that *none* of their cannabis use in the past 12 months was recommended by health care professionals.

Figure. Adjusted Prevalence of Cannabis Use in Women Aged 12 to 44 Years Based on National Survey on Drug Use and Health (NSDUH) Data



Each estimate has been adjusted for age, race/ethnicity, and family income. Each P value is for the corresponding difference in adjusted prevalence between 2002-2003 and 2016-2017. Error bars indicate 95% CIs. Race/ethnicity is based on NSDUH respondent self-classification of racial and ethnic origin and identification based on the classifications developed by the US Census Bureau. Numbers by trimester do not add to total number of pregnant women because of rounding.

the first trimester (difference, 1.2; 95% CI, 0.46-1.92), from 0.2 to 0.7 days during the second trimester (difference, 0.5; 95% CI, 0.08-0.81), and from 0.3 to 0.7 days during the third trimester (difference, 0.4; 95% CI, -0.06 to 0.92).

Among pregnant women between 2013 and 2017, past-month cannabis use was 0.5% for medical-only purposes (Table). Medical-only cannabis use did not differ by pregnancy status, but nonmedical-only cannabis use was higher among nonpregnant women (8.7%) than pregnant women (4.0%) (difference, 4.7%; 95% CI, 4.01%-5.38%).

Discussion | Prevalence and frequency of past-month cannabis use among pregnant women increased between 2002 and 2017 and were higher for the first trimester than later trimesters. Past-month clinician-recommended cannabis use was low among pregnant women, and nonmedical use was lower than among nonpregnant women. Although many states have approved cannabis for nausea/vomiting (including in pregnancy),³ the results suggest that clinicians might not recommend it during pregnancy, perhaps reflecting the American College of Obstetricians and Gynecologists recommendation that pregnant women discontinue cannabis consumption.⁴ Study limitations include likely underestimated cannabis use during pregnancy (eg, while unaware of being pregnant).⁵ Also, the NSDUH is subject to recall bias.

Cannabis effects on fetal growth (eg, low birth weight and length) may be more pronounced in women who consume marijuana frequently, especially in the first and second trimesters.⁴ This study highlights the importance of screening and interventions for cannabis use among all pregnant women.

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Concept and design: Han, Compton, McCance-Katz.

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1. Brown QL, Sarvet AL, Shmulewitz D, Martins SS, Wall MM, Hasin DS. Trends in marijuana use among pregnant and nonpregnant reproductive-aged women, 2002-2014. *JAMA*. 2017;317(2):207-209. doi:10.1001/jama.2016.17383

2. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. *2017 National Survey on Drug Use and Health: Methodological Resource Book*. <https://www.samhsa.gov/data/report/nsduh-2017-methodological-resource-book-mrb>. Accessed February 20, 2019.

3. O'Connor M. Medicinal cannabis in pregnancy—panacea or noxious weed? *J Law Med*. 2018;25(3):634-646.

4. Committee on Obstetric Practice. Committee opinion No. 722: marijuana use during pregnancy and lactation. *Obstet Gynecol*. 2017;130(4):e205-e209. doi:10.1097/AOG.0000000000002354

5. Volkow ND, Han B, Compton WM, Blanco C. Marijuana use during stages of pregnancy in the United States. *Ann Intern Med*. 2017;166(10):763-764. doi:10.7326/L17-0067