RESEARCH LETTER

Trends in Marijuana Use Among Pregnant and Nonpregnant Reproductive-Aged Women, 2002-2014

Between 2001 and 2013, marijuana use among US adults more than doubled, many states legalized marijuana use, and attitudes toward marijuana became more permissive. In aggregated 2007-2012 data, 3.9% of pregnant women and 7.6% of nonpregnant reproductive-aged women reported past-month marijuana use. Although the evidence is mixed, human and animal studies suggest that prenatal marijuana exposure may be associated with poor offspring outcomes (eg, low birth weight, impaired neurodevelopment). The American College of Obstetricians and Gynecologists recommends that pregnant women and women contemplating pregnancy be screened for and discouraged from using marijuana and other substances. Whether marijuana use has changed over time among pregnant and nonpregnant reproductive-aged women is unknown.

Methods | The Columbia University Medical Center institutional review board waived review of this study. Informed oral consent was obtained from each participant. Data from women aged 18 through 44 years from the annual National Survey on Drug Use and Health (NSDUH) from 2002 through 2014 were analyzed. The surveys used in-person audio computer-assisted self-interviews (ACASI) about substance use and other behaviors in nationally representative samples of the noninstitutionalized US population; average response rates since 2002 were 75%. Among participants reporting lifetime use of marijuana or hashish, recency of use was assessed with the question: “How long has it been since you last used marijuana or hashish?” Responses included “within the past 30 days,” “more than 30 days ago but within the past 12 months,” and “more than 12 months ago.” Among pregnant and nonpregnant women, log-Poisson regression (SUDAAN [RTI International], version 11.0.1) was used to estimate and test trends in the adjusted prevalences of past-month and past-year marijuana use over time, controlling for complex survey design, age, race/ethnicity, family income, and education. Differences in trends over time were examined by pregnancy status and age (18-25 years and 26-44 years). Results were considered statistically significant at a P value of less than .05 (2-sided).

Results | Of the 200 510 women analyzed, 29.5% were aged 18 through 25 years and 70.5% were aged 26 through 44 years; 61.0% were white, 13.7% black, 17.2% Hispanic, and 8.1% other race/ethnicity; 59.2% had some college education; 55.9% had annual family incomes less than $50 000; and 5.3% (n = 10 587) were pregnant. Among all pregnant women, the adjusted prevalence of past-month marijuana use increased from 2.37% (95% CI, 1.85%-3.04%) in 2002 to 3.85% (95% CI, 2.87%-5.18%) in 2014.

Table. Trends in Prevalence of Marijuana Use in Pregnant and Nonpregnant Women, 2002-2014

<table>
<thead>
<tr>
<th>Marijuana Use Among Women</th>
<th>Adjusted Prevalence, No. (%) [95% CI]</th>
<th>Prevalence Ratio (95% CI)</th>
<th>P Value for Difference in Prevalence Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past month†</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pregnant</td>
<td>40 (2.37) [1.85-3.04]</td>
<td>1.62 (1.09-2.43)</td>
<td>.64</td>
</tr>
<tr>
<td>Nonpregnant</td>
<td>1531 (6.29) [6.02-6.57]</td>
<td>1.47 (1.38-1.58)</td>
<td></td>
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<tr>
<td>Past year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnant</td>
<td>134 (8.64) [7.32-10.19]</td>
<td>1.35 (1.05-1.72)</td>
<td>.73</td>
</tr>
<tr>
<td>Nonpregnant</td>
<td>2809 (12.37) [12.05-12.70]</td>
<td>1.29 (1.23-1.35)</td>
<td></td>
</tr>
</tbody>
</table>

* Data were from the US National Survey on Drug Use and Health (NSDUH).
† Adjusted prevalence estimates are from the linear predicted prevalence model described in footnote a of the Figure.
‡ Sample sizes in 2002: pregnant women, n = 797; nonpregnant women, n = 14 487.
§ Sample sizes in 2014: pregnant women, n = 735; nonpregnant women, n = 15 583.
¶ Prevalence ratios were the ratio of the adjusted prevalence estimates from 2014 divided by the adjusted prevalence estimates from 2002; ratios and 95% CIs were from log-Poisson regressions. CIs for prevalence ratios that did not include 1.00 within the lower and upper levels indicated statistically significant increasing trends in marijuana use.
* The test for difference in prevalence ratios was the P value of the pregnancy × year interaction in the log-Poisson regression. This test indicated whether the ratio of the prevalence ratios for pregnant vs nonpregnant women differed significantly from 1.00. Nonsignificant P values (P ≥ .05) indicated insufficient evidence to conclude that the prevalence ratios differ.
* Past-month marijuana use was defined as responding “within the past 30 days” to the question, “How long has it been since you last used marijuana or hashish?” Past-year marijuana use was defined as responses of “within the past 30 days” or “more than 30 days ago but within the past 12 months” to the aforementioned question. Preprocessing of missing variables by predictive mean neighborhood imputation and recoding was done prior to public release of the NSDUH data sets. Because the analyses used the imputed variables of NSDUH, there were no missing data.
among pregnant women (3.85%) is not high, the increases over time and potential adverse consequences of prenatal marijuana exposure\(^6\) suggest further monitoring and research are warranted. To ensure optimal maternal and child health, practitioners should screen and counsel pregnant women and women contemplating pregnancy about prenatal marijuana use.

These results offer an important step toward understanding trends in marijuana use among women of reproductive age. Although the prevalence of past-month use among pregnant women (3.85%) is not high, the increases over time and potential adverse consequences of prenatal marijuana exposure\(^6\) suggest further monitoring and research are warranted. To ensure optimal maternal and child health, practitioners should screen and counsel pregnant women and women contemplating pregnancy about prenatal marijuana use.

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**Author Contributions:** Dr Brown had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

**Concept and design:** All authors.

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Critical revision of the manuscript for important intellectual content: All authors.
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