Prenatal substance use diagnosis and CPS reporting in California: A multi-level approach

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Prenatal substance use is not rare and hard to measure

NSDUH 2021: SELF-REPORTED LAST MONTH USE

ONDERSMANET AL., 2019, URINALYSIS

THIS STUDY, ICD CODES

13.9%  26.3%  1.8%
The effects of state reporting policies are not well understood.
Objective

To use descriptive statistics and multilevel modeling through the theoretical lenses of intersectionality and street-level bureaucracy to examine variation in institutional and provider behavior regarding prenatal substance use diagnosis and CPS reporting.
Births in California hospitals from January 1 to December 31, 2018

- Matched births = 449,046 (98.4% of births)
- ICD codes related to prenatal substance use (PSU) = 7,971 (1.8%)
- Substance exposed births reported to CPS within 14 days = 3,588 (45%)
Non-Hispanic Black, U.S. born Hispanic, and non-Hispanic White women have highest prevalence of outcomes.

- Non-Hispanic White
- None of the available
- U.S.-born Hispanic
- Foreign-born Hispanic
- Non-Hispanic Black
- Asian or Pacific Islander

Legend:
- CPS report
- PSU ICD code
- 2018 Births
Non-Hispanic Black mothers are overrepresented in substance use diagnosing but not CPS reporting.
Non-Hispanic Black Women were more likely to be diagnosed, and less likely to be reported than U.S. born Hispanic and Non-Hispanic White women.
## Stratified multi-level models clustered by birth hospital

<table>
<thead>
<tr>
<th></th>
<th>Non-Hispanic Black</th>
<th>U.S. born Hispanic</th>
<th>Non-Hispanic White</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of observations</strong></td>
<td>1,251</td>
<td>2,601</td>
<td>2,846</td>
</tr>
<tr>
<td><strong>Number of outcomes (CPS reports)</strong></td>
<td>461</td>
<td>1,217</td>
<td>1,347</td>
</tr>
<tr>
<td><strong>Maternal age</strong></td>
<td></td>
<td></td>
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<tr>
<td>≤ 24 yrs vs. 25-34 yrs</td>
<td>0.88 (0.73  1.07)</td>
<td>0.88* (0.79  0.99)</td>
<td>0.91 (0.82  1.02)</td>
</tr>
<tr>
<td>35 to 55yrs vs. 25-34 yrs</td>
<td>1.19* (1.00  1.41)</td>
<td>1.05 (0.94  1.18)</td>
<td>0.99 (0.91  1.09)</td>
</tr>
<tr>
<td><strong>Children born</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2+ prior children vs. 0-1 prior children</td>
<td>1.34*** (1.16  1.56)</td>
<td>1.23*** (1.12  1.34)</td>
<td>1.14*** (1.06  1.23)</td>
</tr>
<tr>
<td><strong>Maternal lower educational attainment (≤ high school)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Low birth weight (&lt; 2500 g)</td>
<td>1.23* (1.04  1.46)</td>
<td>1.24*** (1.13  1.37)</td>
<td>1.29*** (1.20  1.39)</td>
</tr>
<tr>
<td><strong>Missing paternity</strong></td>
<td>1.26** (1.08  1.48)</td>
<td>1.31*** (1.20  1.41)</td>
<td>1.40*** (1.27  1.54)</td>
</tr>
<tr>
<td><strong>Late or missing prenatal care</strong></td>
<td>1.40*** (1.22  1.61)</td>
<td>1.61*** (1.45  1.79)</td>
<td>1.60*** (1.46  1.76)</td>
</tr>
<tr>
<td><strong>Public birth payment method</strong></td>
<td>1.51** (1.11  2.05)</td>
<td>1.51*** (1.26  1.80)</td>
<td>1.69*** (1.43  2.00)</td>
</tr>
<tr>
<td>Over 50% public births</td>
<td>1.40* (1.06  1.85)</td>
<td>1.20* (1.01  1.44)</td>
<td>1.12 (0.98  1.29)</td>
</tr>
<tr>
<td>Over 50% white births</td>
<td>1.38 (1.00  1.92)</td>
<td>0.80* (0.64  1.00)</td>
<td>0.85** (0.75  0.96)</td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
<td>0.11*** (0.08  0.16)</td>
<td>0.16*** (0.13  0.20)</td>
<td>0.18*** (0.15  0.22)</td>
</tr>
<tr>
<td><strong>var(_cons[mathosp2])</strong></td>
<td>0.05 (0.02  0.16)</td>
<td>0.01 (0.00  0.08)</td>
<td>0.02 (0.01  0.05)</td>
</tr>
</tbody>
</table>

*** p<.001, ** p<.01, * p<.05
Late prenatal care associated with CPS reporting across racial groups

Reference group: 1st trimester prenatal care

Incidence Risk Ratio, on Log Scale

Late or missing prenatal care

Non-Hispanic Black
U.S. born Hispanic
Non-Hispanic White
Higher birth order associated with CPS reporting across racial groups

Reference group:

- 0 or 1 prior live birth

Incidence Risk Ratio, on Log Scale

- 2+ prior children vs. 0-1 prior children

- Non-Hispanic Black
- U.S. born Hispanic
- Non-Hispanic White
High-public hospitals associated with CPS report for Black women

Reference group: Hospitals with fewer than 50% publicly insured births in 2018
Majority White hospitals associated with CPS report for Black women

Reference group: Hospitals with fewer than 50% of 2018 births to non-Hispanic White women
Public Health Impact and Limitations

- Black mothers more likely to receive a diagnosis but less likely to be reported to CPS

- Marginal effects of institutional-level variables differed across racial groups, suggesting effect of hospital setting

- Model building decisions affect results!
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Thank You/Questions
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And a Request!!