POLICY BRIEF
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Non-Medical Opioid Use among Rural and Urban Pregnant Women, 2007-2014

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Key Findings

- Nearly 7% of rural pregnant women reported non-medical opioid use in the past 12 months, compared with 5% of urban pregnant women. This difference was not statistically significant at $p<0.05$.
- Use of alcohol, tobacco, and marijuana, and having a diagnosis of anxiety or depression were each associated with non-medical opioid use for pregnant women in both rural and urban communities.
- Rural pregnant women who were high school graduates or had less than a high school education had increased odds of non-medical opioid use.
- Urban pregnant women who were non-Hispanic White, unmarried, or uninsured had increased odds of non-medical opioid use.

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Purpose

The opioid epidemic has reached crisis levels, and its effects are especially apparent in rural communities. One consequence of the opioid epidemic is opioid-affected births. Non-medical opioid use during pregnancy has potential health consequences for pregnant women and their infants, yet little information is available about its prevalence and associated factors in rural communities. This brief presents data on rural-urban differences in non-medical opioid use among pregnant women to inform policy, programmatic, and clinical efforts to address this crisis.

Background

The opioid epidemic has had devastating health, social, and economic consequences for families across the U.S., with disproportionate impact in rural areas.[1] "Non-medical opioid use" is the use of opioid medications without a prescription, for the feeling it causes, or in a way other than medically indicated. This study did not examine heroin use, which is rare during pregnancy. When non-medical opioid use occurs during pregnancy, it is associated with poor maternal outcomes and with adverse effects among infants, including opioid withdrawal at birth, commonly referred to as neonatal abstinence syndrome (NAS), and preterm birth (<37 weeks' gestation).[2,3] The incidence of NAS and the diagnosis of maternal opioid use disorder in the U.S. increased more rapidly in rural counties relative to urban counties from 2004 to 2013.[1,4] The effects of non-medical opioid use have a high potential for effective management when detected prior to and during pregnancy.[4] Unfortunately, in rural communities there are limited health care resources including physicians trained to detect and treat non-medical opioid use during pregnancy, and medication assisted treatments (e.g., methadone, buprenorphine/naloxone), which require prescribing clinicians to obtain a waiver.[5,6] These resource constraints create barriers to accessing appropriate care among opioid-dependent pregnant women living in rural America.

Few published studies provide evidence on rural-urban differences in non-medical opioid use during pregnancy, which may hinder prevention and treatment efforts. While national surveys and prior studies report broad trends in maternal opioid misuse, the evidence base for action in rural communities is incomplete. This analysis addresses that gap, using national survey data to describe the rates and predictors of non-medical opioid use among pregnant women in rural and urban communities. We measured rural-urban differences in non-medical prescription opioid use in the past year among pregnant women in the U.S. By providing detailed information on predictors of non-medical opioid use among pregnant women, examined separately for rural and urban areas, this analysis

provides focused data to inform targeted efforts to combat the opioid epidemic in communities across the country.

Methods

We used data from the National Survey on Drug Use and Health (NSDUH) in a retrospective analysis. We pooled eight years of data (2007-2014) to create a sample of female respondents who reported being currently pregnant at the time of the survey. The sample included 6,900 (weighted N=18,959,306) non-institutionalized women, ages 12-44. We further classified the pregnant women participating in the NSDUH survey by their residence, defined at a county level as metropolitan (large metropolitan or small metropolitan, together considered "urban") or non-metropolitan ("rural").

The main outcome variable was based on the pregnant women's reported use of a prescription pain medication for a non-medical reason or "for the feeling it caused." Those who reported these types of usage "within the past 12 months" were considered to have used non-medical opioids in the past year.

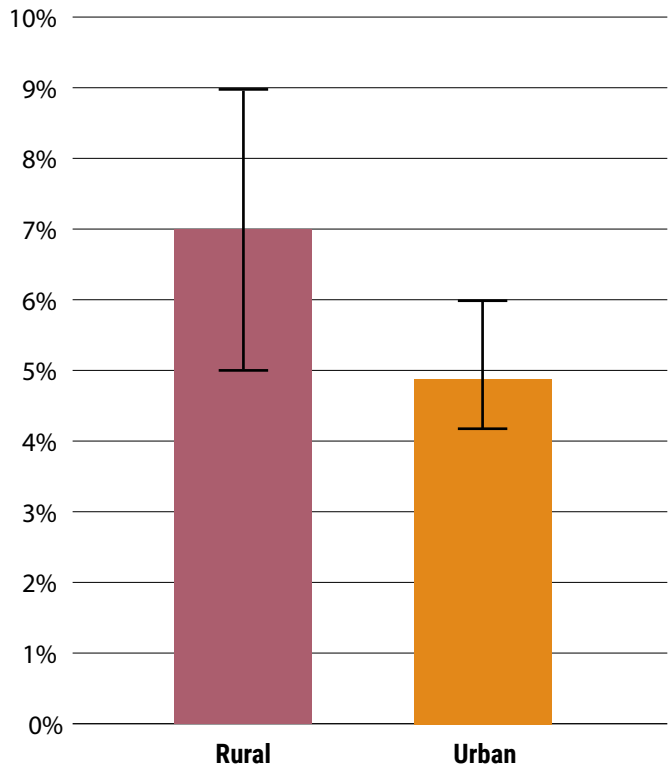
An indicator for anxiety or depression was included if the respondent reported having either condition diagnosed in the past 12 months. We measured substance use, including alcohol or tobacco, in the past 12 months and marijuana use in the past 30 days. Other relevant covariates included age (12-25, ≥26), trimester of pregnancy, race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, others), marital status (married vs. unmarried), income (less than $20,000, $20,000-$49,999, $50,000-$74,999, and $75,000 or more), education (age 12-17 or less than high school, high school graduate, and some post-secondary or more), health insurance (private, public—including Medicaid/Medicare/CHIP/CHAMPUS/TRICARE, and none), and self-reported health status (excellent, very good, good, and fair or poor).

Multivariable logistic models incorporating survey design and weights were used to determine correlates of non-medical opioid use in the past year after accounting for potential confounding variables. The analyses were conducted separately for urban and rural pregnant women.

Results

Among the pregnant women participating in the NSDUH survey, approximately 15% resided in rural areas. Compared with pregnant women in urban areas, pregnant women in rural areas were younger, more likely to be non-Hispanic White, less likely to be married, lower-income, less likely to have a college degree, and more likely to be uninsured or have public insurance. Pregnant women in rural areas also had higher rates of anxiety and depression, psychological distress, tobacco use, and self-reported fair/poor health. The incidence of non-medical opioid use among rural pregnant women was 6.7% compared to 5.0% among urban pregnant women. Figure 1 also shows average levels as well as error bars indicating the 95% confidence intervals around these estimates. Rates of non-medical opioid use for rural and urban pregnant women were not statistically different at $p<0.05$.

Figure 1: Incidence of Non-Medical Opioid Use in the Past Year among Rural and Urban Pregnant Women



Multivariable models revealed several predictors of non-medical opioid use among pregnant rural women (Figure 2, next page). Rural pregnant women with anxiety or depression, those who reported alcohol use in the past year, those who reported tobacco use in the past year, and those who used marijuana in the past month faced an increased risk of non-medical opioid use. Rural pregnant women who were high school graduates or had less than a high school education had more than twice the odds of non-medical opioid use, compared with women who had at least some college education.

The predictors of non-medical opioid among urban pregnant women are displayed in Figure 3. Risks were higher among urban pregnant women who used alcohol or tobacco in the past year, as well as those who use marijuana in the past month. The odds of non-medical opioid use were also higher among urban pregnant women with anxiety or depression and among women reporting fair/poor health, compared with urban women with no anxiety or depression and in excellent/very good/good health. Urban pregnant women who were non-Hispanic White, unmarried and uninsured also had increased odds of non-medical opioid use.

Figure 2: Predictors of Non-Medical Opioid Use in the Past Year; Rural Pregnant Women

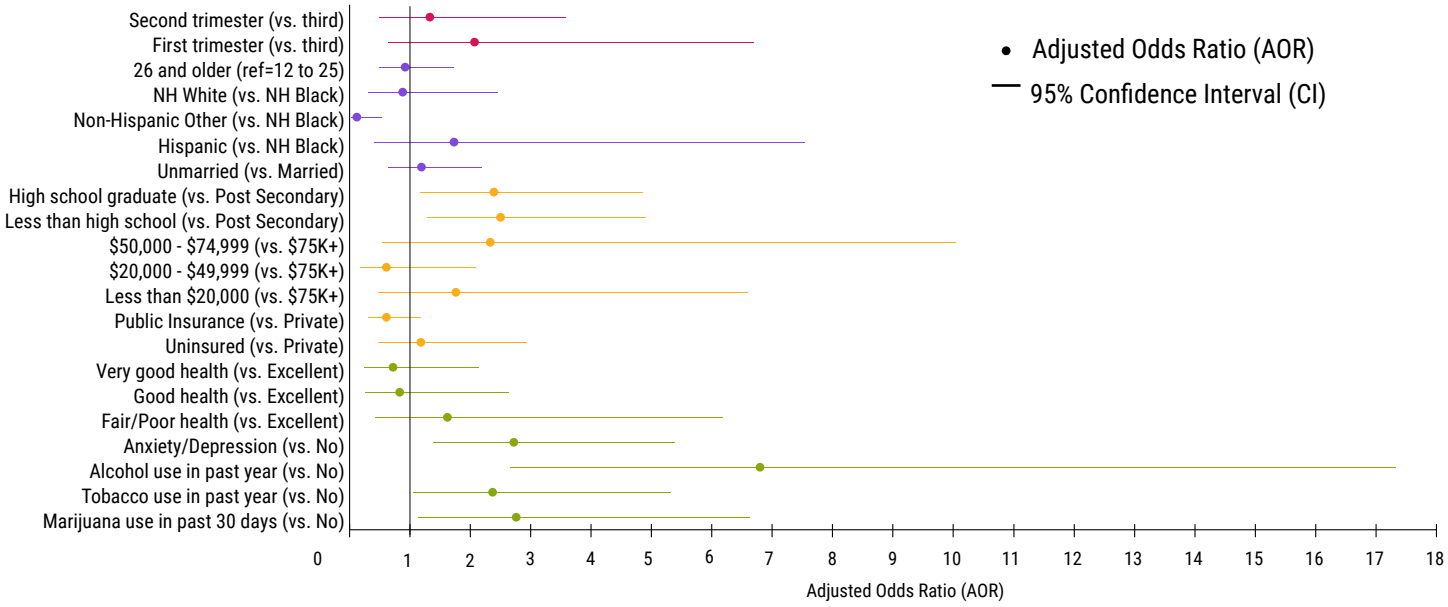
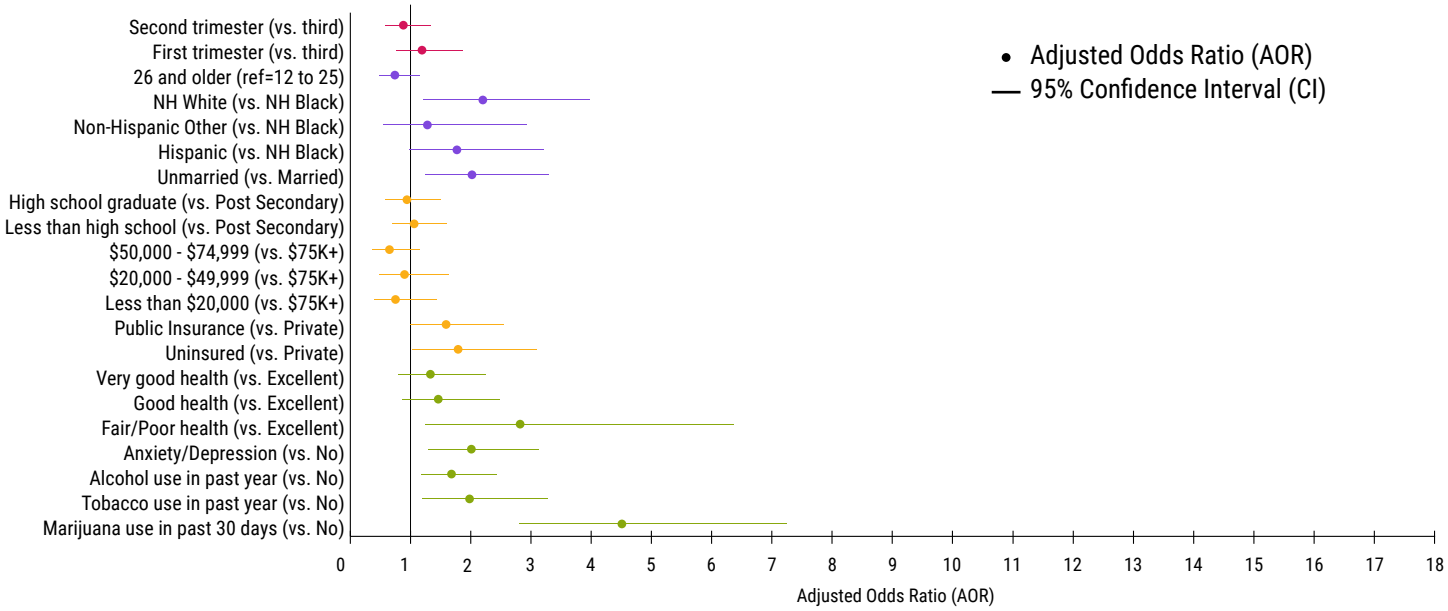


Figure 3: Predictors of Non-Medical Opioid Use in the Past Year; Urban Pregnant Women



Discussion and Implications

Opioid use affects families across the United States. At least 5% of pregnant women in both rural and urban communities had used opioids in the past year for non-medical reasons, with potential harm for both mother and infant at the time of childbirth and beyond. This analysis suggests potentially higher rates of non-medical opioid use for pregnant women in rural U.S. communities when compared to pregnant women in urban communities. Although rural and urban areas alike have an identified need to address non-medical opioid use during pregnancy, there are specific issues which may need to be addressed differently in rural vs. urban communities.

Nearly 7% of rural pregnant women reported non-medical opioid use in the past year, which includes more than 19,000 rural women annually. These women and their families have increased health care needs that relate both to non-medical opioid use and to the associated risk factors and complications that arise in pregnancy, childbirth, and beyond.

Use of alcohol, marijuana, and tobacco, as well as anxiety and depression diagnoses were each risk factors for non-medical opioid use for pregnant women in both rural and urban communities. This should call attention to the heightened risk of non-medical opioid use among populations already experiencing compounded challenges and requires clinical and policy interventions that recognize the complexity and multifaceted nature of the opioid crisis, as it affects pregnant women and families.[7] Treatment for non-medical opioid use during pregnancy that worsens to opioid use disorder is resource-intensive,[8] and access to these resources, including specialized programs addressing opioid use and pregnancy, may be particularly limited in rural communities.[9]

This analysis adds important information to the current knowledge about the opioid epidemic, specifically related to pregnancy and the rural context. Future research should build on this, addressing potential limitations to the NSDUH data. For example, although self-reporting is considered for pregnancy status, it is possible that respondents may have misreported or been unaware of their pregnancy status. Non-medical opioid use and other substance use may be under-reported among pregnant women,[10,11]Also, the NSDUH survey focuses on substance use, not pregnancy, and therefore does not include detailed information on prenatal care or other aspects of pregnancy.

Implications for Policy or Practice

The potential consequences of non-medical opioid use are best mitigated and managed when use is identified prior to, or early in, pregnancy. Guidelines for screening for substance use indicate the importance of incorporating screening as routine practice in primary care for all women of reproductive age, and in all pregnancies.[8] This analysis reveals the particular importance of screening in rural communities, where past-year non-medical opioid use may be more prevalent among pregnant women. Additionally, pregnant patients may benefit from both clinical and policy interventions that use a comprehensive approach to addressing opioid use during pregnancy—recognizing associated pregnancy risks such as maternal anxiety and depression, and concomitant alcohol or tobacco use.

Identifying pregnant women affected by non-medical opioid use can help guide clinical and policy efforts for prevention and treatment. Non-punitive policies and supporting maternal disclosure of substance use in pregnancy may improve access and adherence to effective treatments, such as medication-assisted therapy (MAT), which have been shown to improve maternal and fetal outcomes.[8,12] In addition, funding of comprehensive programs which combine obstetric care, substance use treatment, and pediatric follow up may effectively support family health after a pregnancy affected by opioid use disorder. While many such comprehensive and specialized programs are based in urban teaching hospitals, some rural communities have developed successful initiatives to address opioid-affected births. For example, Eastern Tennessee's Mothers & Infants Sober Together (MIST) program connects pregnant patients with medication-assisted treatment options while also offering home visits, individual therapy, substance use and mental health assessments, and regular support groups.[13,14] In New Hampshire, the largest hospital in the state is now helping to coordinate care at seven smaller maternity centers so that when a patient comes in for a prenatal appointment they may also receive psychiatric care, connect with peer recovery groups, meet with a recovery coach, and even access childcare and a food bank with diapers while there.[15]

These findings reveal different risk levels and risk factors based on geography, with both rural and urban pregnant women having measurable rates of non-medical opioid use. Additionally, higher measured rates among rural pregnant women, while not statistically significantly different than their urban counterparts in this analysis, reveal an important potential area for future analysis

and attention. This analysis reveals certain risk factors for non-medical opioid use that were consistent across geography and present for both rural and urban pregnant women. These include use of alcohol, marijuana, and tobacco, as well as anxiety and depression diagnoses. Other risk markers were specific to rural or urban women in this analysis. In rural communities, the particular risk related to education, with rural pregnant women who were high school graduates or had less than a high school education having increased odds of non-medical opioid use. This relationship was not observed among urban residents, where risk for non-medical opioid use did not differ by education, suggesting a particular need to focus on the risks faced by rural women who have had no post-secondary education. Efforts to tailor both prevention and treatment resources to the specific needs of rural residents may help combat the opioid epidemic for current and future generations.

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