



Full length article

Non-medical opioid use and sources of opioids among pregnant and non-pregnant reproductive-aged women



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ABSTRACT

Background: The morbidity and mortality burden of the US opioid epidemic falls heavily on reproductive-age women. Information on the patterns of and sources for non-medical use of prescription opioids among reproductive age women, including pregnant women, will inform public health and prevention efforts to mitigate the effects of the opioid epidemic. This study characterized non-medical use of prescription opioids among reproductive-age U.S. women, with a focus on pregnancy status.

Methods: We used nationally-representative data from the National Survey of Drug Use and Health (2005–2014) to examine non-medical use (NMU) of prescription opioids in the past 30 days among females ages 18–44 (N = 154,179), distinguishing pregnant women (N = 8069). We used multivariable logistic regression to describe reported sources of opioids, including opioids obtained from a doctor, friend or relative, dealer, or other source.

Results: Nearly 1% of pregnant women and 2.3% of non-pregnant reproductive-age women reported opioid NMU in the past 30 days. Forty-six percent of pregnant women identified a doctor as their source compared with 27.6% of non-pregnant women reporting NMU. Pregnant women reported a friend or relative as their source of opioids less frequently than non-pregnant women (53.8% versus 75.0%), and some pregnant and non-pregnant women acquired opioids from a dealer (14.6% and 10.6%).

Conclusion: Opioid NMU among reproductive-age women is a complex public health challenge affecting a vulnerable population. Pregnant women were more likely than non-pregnant women to list a doctor as their source of opioids for NMU, suggesting the need for targeted policies to address physician prescribing during pregnancy.

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1. Introduction

The morbidity and mortality burden of the US opioid epidemic falls heavily on reproductive-age women. Between 1999 and 2010, drug overdose deaths related to opioid pain relievers increased five-fold among US women (Mack and Center For Disease Control, 2013). Although on average more men die from drug overdoses than

women, including among those treated for opioid use disorders (Evans et al., 2015), the percentage increase in deaths since 1999 is greater among women, and the sex difference in overdose deaths is rapidly disappearing (Mack and Center For Disease Control, 2013). Reproductive-age women are more likely than younger or older women to require emergency care related to opioid misuse and abuse, in part owing to non-medical use of prescription opioid pain relievers (e.g., oxycodone, hydrocodone, fentanyl, morphine) (US Centers for Disease Control and Prevention, 2016). Non-medical use (NMU) is defined as the “intentional use of a medication without a prescription, in a way other than as prescribed, or for the experience or feeling that it causes (Committee on Health Care for Underserved Women and The American College of Obstetricians and Gynecologists, 2012).”

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Knowing the source of opioids for NMU is crucial to informing prevention efforts. The majority of persons with recent NMU report obtaining opioids from friends or family, who in turn report obtaining the opioids from medical professionals (Substance Abuse and Mental Health Services Administration, 2014). Indeed, prescribing practices – and policy efforts to address overprescribing – are a focus of broad strategies to combat the opioid epidemic (Dowell et al., 2016). Opioid prescribing has particular relevance as a potential source for NMU among reproductive-age women. A recent study showed that between 2008 and 2012, nearly 40% of reproductive-age female Medicaid beneficiaries and almost 30% of privately-insured reproductive-age women filled at least one opioid prescription annually (Ailes et al., 2012).

Gender-specific research on opioid NMU is needed, owing to the different use patterns and effects among men and women (Evans et al., 2015; Kerridge et al., 2015). One important aspect of understanding women's opioid NMU during reproductive years is the potential for pregnancy, given that almost half (45%) of all US pregnancies are unintended (Finer and Zolna, 2016). Further, the percentage of pregnancies that are unintended is substantially higher among women with opioid use disorders (Heil et al., 2011). Over the last decade, NMU of prescription opioids during pregnancy nearly doubled, mirroring national trends in opioid NMU (Pan and Yi, 2013; Patrick et al., 2015a). This increase in prenatal opioid use poses a significant public health concern, with potential risk for both women and infants. Opioid use during pregnancy is associated with increased risk of newborn withdrawal, known as neonatal abstinence syndrome, and preterm birth, which is the largest contributor to infant mortality (Patrick et al., 2015b). Infants diagnosed with neonatal abstinence syndrome have longer, more complicated birth hospitalizations with clinical signs that range from feeding difficulty to seizures (De'souza, 2015; Creanga et al., 2012; Patrick et al., 2012; Tolia et al., 2015). Women themselves face significant medical and non-medical risks from opioid use during pregnancy, including increased risk of opioid use disorder, which is associated with increased odds of maternal cardiac arrest during delivery and with maternal death (Maeda et al., 2014). Substance use during pregnancy is also associated with broader risks, including intimate partner violence, and parental substance use is associated with involvement with foster care or child protective services (Young et al., 2007).

While pregnant women are an important policy-relevant group because of the risks described above, policy attention must encompass opioid NMU among the broader class of reproductive-age women. In spite of the growing impact of the opioid crisis among women, little of the emergent national attention has focused on addressing opioid use in this group generally, or prior to or during pregnancy specifically. More information on the patterns of and sources for opioid NMU among reproductive age women, including those who are pregnant, will inform public health and prevention efforts to mitigate the effects of the opioid epidemic on women, children and families. The goal of this study was to characterize non-medical prescription opioid use, including sources of opioids, among reproductive-age women in the US, distinguishing women based on pregnancy status.

2. Materials and methods

2.1. Data and study population

We used pooled cross-sectional data from 2005 to 2014 from the National Survey of Drug Use and Health (NSDUH). The NSDUH provides population estimates of substance use and health-related behaviors in the U.S. general population. It utilizes multistage area probability sampling methods to select a representative sample of

the U.S. civilian, non-institutionalized population aged 12 years or older for participation in the study. All respondents are ensured privacy when answering survey questions in their home, and sensitive questions are asked confidentially via computer with headphones (Substance Abuse and Mental Health Services Administration, 2013). Weighted annual interview response rates ranged between 71.2% and 76.0% during the study period (Substance Abuse and Mental Health Services Administration, 2015). The current study focused on reproductive age women ages 18–44 (N=154,179; weighted N=558,385,835). We separately analyzed data for the 8069 (weighted N=23,064,218) women who reported that they were pregnant at the time of the survey. The sample of pregnant women is a subset of all reproductive age women, but we analyze them separately because opioid NMU may have different effects and implications during pregnancy.

2.2. Variable measurement

We identified past 30-day opioid NMU as responding yes to the survey question “Have you ever, even once, used any type of prescription pain reliever that was not prescribed for you or that you took only for the experience or feeling it caused?” and indicating that the last use of a prescription pain reliever was in the past 30 days. Additional measures of substance use were also defined within the past 30 days, including alcohol, cigarettes, marijuana, tranquilizer or sedative, and other (cocaine, crack, hallucinogen, inhalant, or stimulant). Alcohol use in the past 30 days was categorized as: heavy use (drinking ≥ 5 drinks on ≥ 5 days in the past 30 days); binge but not heavy (drinking ≥ 5 drinks on at least 1 day in the past 30 days); past 30 day use but not binge or heavy; and no use in the past 30 days (Ko et al., 2015). Cigarette use in the past 30 days was categorized into ≥ 26 cigarettes per day (≥ 1.5 packs), 6–25 cigarettes per day (0.5–1 packs), ≤ 5 cigarettes per day (< 0.5 pack), and no smoking within the past 30 days.

Survey respondents with past 30-day opioid NMU were asked 10 questions about the sources of these opioids. Respondents could answer affirmatively to each of the 10 questions, and as such, responses are not mutually-exclusive. We categorized affirmative responses to each question into four non-mutually-exclusive indicators of source of opioids for NMU: doctor (from one or more doctors); friend or relative (from friend or relative for free; bought from friend or relative; took from a friend or relative without asking); dealer (bought from a stranger); and other (wrote fake prescription; stole from a doctor's office, clinic, hospital, or pharmacy; bought on the internet; got another way).

In order to measure factors that have a known association with opioid NMU, our multivariable analyses controlled for: (1) sociodemographic factors, such as age, race/ethnicity, education, marital status, health insurance, and family characteristics (King et al., 2014; Stine et al., 2009), (2) health and clinical characteristics, including serious psychological distress (Tetrault et al., 2008; Krans and Patrick, 2016), (3) criminal justice system involvement (Saloner et al., 2016), and (4) other substance use (Ko et al., 2015), as described below. Sociodemographics included age categories (ages 12–25, 26–35, and ≥ 36) and race/ethnicity. Respondents reporting Hispanic ethnicity were categorized as Hispanic and respondents not reporting Hispanic ethnicity were categorized as non-Hispanic Black, non-Hispanic White, and non-Hispanic other. Marital status included married, never married, and widowed, divorced, or separated. Education categories included less than high school, high school graduate, and some post-secondary education or higher. Health insurance categories were private insurance, public insurance (including Medicaid, CHIP, or CHAMPUS), and uninsured. Self-reported health status was reported as excellent, very good, good, and fair or poor. Total family income was categorized as less than \$20,000, \$20,000–\$49,999, \$50,000–\$74,999, and \geq \$75,000.

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