



Characteristics of pregnant women who reported alcohol use at admission to substance use treatment



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ABSTRACT

Objectives: The current study analyzed the sociodemographic, treatment-related, and other substance use characteristics among pregnant women who reported alcohol use and were admitted to substance use treatment for the first time.

Methods: The Treatment Episode Data Set-Admission (TEDS-A) between 1992 and 2012 was used for conducting a cross-sectional study.

Results: Among pregnant women admitted to substance use treatment for the first time ($N = 166,863$), 43.1% reported alcohol use of whom half used alcohol as the primary drug of choice. The proportion of pregnant women reporting any alcohol use declined over the study period, while the proportions of subgroups within pregnant women reporting alcohol use remained stable within the population. Those reporting alcohol use only notably had the highest proportion of women aged 40 or older and non-Hispanic White who were more educated, employed, and married, compared to those reporting alcohol use as primary but also other substance use and those reporting other substance as primary drug of choice. Those reporting only alcohol also were more likely to be referred by the justice system to outpatient treatment. Marijuana was the most popular co-used substance among pregnant women who use alcohol as primary drug of choice in the dataset.

Conclusions: Differences in sociodemographic, treatment-related, and other substance use characteristics between the three subgroups may help inform public health interventions aimed at mitigating the effects of prenatal alcohol use on maternal and child health.

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1. Introduction

Prenatal substance use (illicit substances, alcohol, and tobacco) is one of the largest modifiable risk factors of gestational complications (Aliyu et al., 2009; Bailey, McCook, Hodge, & McGrady, 2012; CDC, 2013; Mark, Desai, & Terplan, 2015). Specifically, prenatal exposure to alcohol is associated with a broad range of adverse developmental effects including birth defects, intellectual neurodevelopmental disabilities, and fetal alcohol spectrum disorders (FASD; AAP, 2015; CDC, 2014; Cornman-Homonoff et al., 2012; Meyer-Leu, Lemola, Daepfen, Deriaz, & Gerber, 2011; Silva, Quevedo Lde, Silva, Oliveira, & Pinheiro, 2011). FASD is one of the leading causes of physical, intellectual, and behavioral disorders as well as birth defects in the U.S. (Abel & Sokol, 1987). Despite the prevalence of FASD and a broad effort to educate pregnant women about the risks of alcohol use during pregnancy,

over 8% of pregnant women in the U.S. reported current alcohol use with over 4% reporting binge drinking, and 0.9% reporting heavy drinking (SAMHSA, 2016). The likelihood of having a child with FASD increases 12 times with drinking during the first trimester, 61 times during the first and second trimesters, and 65 times during all trimesters (May et al., 2013). Thus, there is no known safe amount, time, or type of alcohol use during pregnancy, and CDC strongly recommends pregnant women not to drink any alcohol at any time during pregnancy (CDC, 2016).

Mothers who continue drinking into pregnancy have a higher likelihood of intimate partner violence exposure (O'Connor et al., 2011; Skagerstrom, Chang, & Nilsen, 2011); other substance use including tobacco (Cannon, Dominique, O'Leary, Sniezek, & Floyd, 2012; Flynn & Chermack, 2008; O'Connor et al., 2011); having no or limited prenatal care (Cannon et al., 2012); having a partner who drinks (May et al., 2008); unemployment; low educational attainment; having higher gravidity and parity; and being single or unmarried status (Cannon et al., 2012; May et al., 2008; O'Connor et al., 2011). Polysubstance use including tobacco use among pregnant women at risk for prenatal drinking is

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common (Forray, Merry, Lin, Ruger, & Yonkers, 2015). This polysubstance use increases the risk for adverse pregnancy and birth outcomes including miscarriage, low birth weight, preterm birth, stillbirth, and neurocognitive disorders (Aliyu et al., 2009; Bailey et al., 2012; CDC, 2013; Mark et al., 2015; Quesada et al., 2012).

A better understanding of the demographic and substance use profiles of pregnant women who report alcohol use is needed. Thus, using the Treatment Episode Data Set, we describe the demographic, substance use and treatment profiles of women reporting alcohol use admitted into substance use treatment for the first time. We also compare these profiles between those women reporting alcohol as their primary drug of choice with and without co-use of other substances as well as those reporting alcohol as a secondary or tertiary drug of choice.

2. Methods

The Treatment Episode Data Set-Admission (TEDS-A) was used for conducting a cross-sectional study. TEDS-A (SAMHSA, 2017) is an administrative data system that captures all substance use disorder treatment admissions to facilities receiving federal funding in the United States. TEDS-A is publicly available and contains data from 1992 to 2012.

TEDS-A contains client-level information on sociodemographic characteristics including, but not limited to, age, race, education, employment, and region; substance use information including type of substance, number of substances used, mode of use, and primary drug of choice; and treatment-related characteristics including admission setting and referral source. We limited our analysis to admissions among pregnant women. As the unit of analysis in TEDS-A is the admission episode, we further limited analysis to first admissions, in order to ensure absence of repeated observations.

The primary focus in this study was on prenatal alcohol use, defined as alcohol use reported at treatment admission. TEDS-A classifies substance use as primary (the substance compelling the treatment admission), secondary or tertiary. We contrasted admissions with alcohol as primary drug of choice with those for which alcohol was either a secondary or tertiary substance upon admissions (Any Alcohol Use: AAU). Those admissions as AAU were considered to have another substance use disorder (SUD) as they had a substance other than alcohol compelling the treatment admission. We further divided admissions with alcohol as primary drug of choice into two groups: those who use alcohol only (Alcohol as Primary Use: APU) and those who co-use other substances (Alcohol and Other Use: AOU).

Sociodemographic variables included in the analyses were age, race/ethnicity, education, employment, marital status, homelessness, and psychiatric illness. Age was categorized into ≤ 20 years old, 21–29 years old, 30–39 years old, and ≥ 40 years old. Race/ethnicity was categorized as non-Hispanic White, non-Hispanic Black or African American, Hispanic, or Other. Education was categorized as < 12 years, 12 years, and > 12 years. Employment (employed/not employed), marital status (married/not married), homelessness (yes/no), and psychiatric illness (yes/no) were dichotomized. Treatment-related variables included admission service setting and primary referral source. Admission service setting was categorized as detox, rehab/residential, and ambulatory. Detox included 24-hr hospital inpatient and 24-hr free-standing residential treatment, rehab/residential included non-detox hospital inpatient, short-term (30 days or fewer), or long-term (> 30 days) treatment, and ambulatory included intensive and non-intensive outpatient treatment. Patients served in a detox setting were likely transferred to other service settings afterwards. Primary referral source was dichotomized as non-criminal justice referral (i.e., healthcare provider, school, employer, and other community providers), and criminal justice referral (i.e., criminal justice, DUI, and DWI). Being on a medication-assisted treatment was dichotomized. Other substance use variables included marijuana, cocaine, methamphetamine, opioid, and other drugs, where other drugs comprised phencyclidine, hallucinogens, amphetamines, stimulants,

benzodiazepines, non-benzodiazepine tranquilizers, barbiturates, non-barbiturate sedatives or hypnotics, inhalants, and over-the-counter medications.

2.1. Statistical analysis

Sociodemographic, treatment-related, and other substance use variables were described for overall pregnant women reporting alcohol and were compared between AAU, AOU, and APU, using chi-squared tests. Trends across time of overall prenatal alcohol use and the prevalence of subgroups among pregnant women reporting alcohol use and being admitted to substance use treatment for the first time were also assessed, using the Cochran-Armitage Trend test. All analyses were performed using Stata version 14 (StataCorp LP, College Station, TX) and R version 3.2.1 (R Foundation for Statistical Computing, Vienna Austria).

3. Results

Among pregnant women admitted to substance use treatment for the first time ($N = 166,863$), 43.1% (71,960/166,863) reported alcohol use. Among those who reported alcohol use, 50.0% (36,003/71,960) reported alcohol use as primary drug of choice, half of which (50%; 18,057/36,003) reported other substance use (AOU), and the other half (17,946/36,003) reported alcohol use only (APU). From 1992 to 2012, Overall the proportion of pregnant admissions reporting any alcohol use declined from 58.3% to 31.8% ($p < 0.001$; Fig. 1); whereas the proportions of admissions for each subgroup (i.e. AAU, AOU, and APU) within the population of pregnant women reporting alcohol use remained relatively stable over years, with a higher proportion of pregnant women reporting other substance use as primary (AAU) relative to those reporting alcohol use as primary (AOU and APU; AAU: $p = 0.06$; AOU: $p = 0.12$; APU: $p = 0.53$; Fig. 2).

Sociodemographic characteristics of pregnant admissions are detailed in Table 1. Overall, close to 50% of pregnant women reporting alcohol use were in their 20's, over 50% were non-Hispanic White, over 80% had 12 years or less educational attainment, over 80% were not employed nor married, over 90% were stably housed, and 20% reported co-occurring psychiatric illness. Marijuana was the most popular co-used substance (46.1%) in the dataset, followed by cocaine (29.3%), methamphetamines (15.4%), and opioids (7.0%).

In three-group comparisons of AAU, AOD, and APU, all sociodemographic variables were significantly different (i.e., $p < 0.001$). Most notably, those using only alcohol (APU) compared to their counterparts (AOU and APU) were more likely to be older, non-Hispanic White, highly educated, employed, and married. Among those reporting polysubstance use, those with AAU had the highest proportion of homelessness, and psychiatric illness was most common among those with AOU. Polysubstance users with alcohol as the primary drug of choice were more likely to use marijuana whereas those

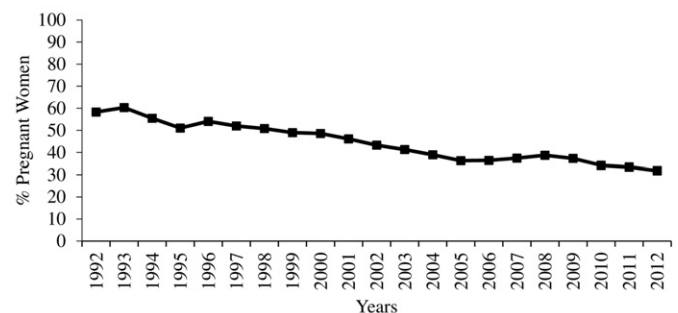


Fig. 1. Proportions of pregnant women who reported alcohol use each year at substance abuse treatment admission ($N = 166,863$).

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