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Risky Substance Use Behaviors Among Adults Residing in Non-Metropolitan and Metropolitan Counties in the United States, 2017-2018

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Overview of Key Findings

Tobacco Use. Non-metropolitan adults had significantly higher prevalence rates of past year tobacco use (34.7% vs. 27.9%), daily cigarette use in the past 30 days (16.5% vs. 10.3%), and smoking at least 1 pack of cigarettes per day in the past 30 days (46.9% vs. 39.1%) than metropolitan adults.

Alcohol Use. Non-metropolitan adults had a lower prevalence rate of past year alcohol use (64.0% vs. 71.0%), past 30-day alcohol use (48.7% vs. 56.6%), and past 30-day binge drinking (24.5% vs. 26.7%) than metropolitan adults.

Illicit Drug Use. Overall illicit drug use was significantly less prevalent among non-metropolitan than metropolitan adults, both in the past year (16.0% vs. 20.1%) and the past 30 days (9.7% and 12.1%). The past year prevalence of use or misuse of several drugs was lower among non-metropolitan than metropolitan adults, including marijuana (12.4% vs. 16.3%), cocaine (1.6% vs. 2.4%), tranquilizers (1.8% vs. 2.3%), hallucinogens (1.2% vs. 2.1%), stimulants (1.4% vs. 2.1%), and inhalants (0.3% vs. 0.6%). A notable exception was past year methamphetamine use, which was significantly more prevalent among non-metropolitan than metropolitan adults (1.0% vs. 0.7%).

Introduction

Literature on alcohol and tobacco use shows some consistent differences in metropolitan and non-metropolitan residents. Studies using nationwide and regional surveys have repeatedly found that non-metropolitan residents are more likely to report abstaining from alcohol than urban residents.[1-3] However, some studies show that among people who report alcohol use, non-metropolitan residents are more likely to report binge or heavy drinking than are metropolitan residents.[3] Binge drinking is defined as a single episode of consumption that exceeds recommended limits, while heavy drinking is defined as multiple instances of binge drinking in a given time period—both of which indicate potentially problematic drinking. Studies comparing rates of tobacco use among metropolitan and non-metropolitan residents have consistently found that tobacco use is more common in rural areas.[4-7]

A 2019 data brief from the Centers for Disease Control and Prevention (CDC) shows that drug overdose deaths were higher in urban counties than in rural counties in 2017.[8] This data brief also showed differences between types of drugs involved in rural and urban drug overdose deaths. In rural counties, drug overdose deaths due to synthetic opioids were more common; in urban areas, drug overdose deaths due to heroin were more common.[8]

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Literature on other illicit substances including marijuana, methamphetamines, and opioids shows some differences between non-metropolitan and metropolitan residents. A 2015 study found that more metropolitan residents (10.1%) than non-metropolitan residents (7.2%) reported past year marijuana use.[9]

A 2008 study using 2002-2004 National Survey on Drug Use and Health (NSDUH) data found that non-metropolitan adults ages 18 to 25 reported methamphetamine use nearly twice as often as their metropolitan peers.[10] A 2013 study based on 2008-2009 NSDUH data found that the rates of past year non-medical opioid use were not significantly different between metropolitan and non-metropolitan adults, yet there were significant differences in the prevalence of different types of opioids (e.g., methadone and various prescription formulations) between the two groups.[11] Other studies based on nationwide surveys and surveys of new patients in treatment centers also found that residency and race/ethnicity are not associated with prevalence of non-medical opioid use, yet there may be associations with residency or race/ethnicity and the likelihood of using specific types of opioids (e.g., heroin, methadone, different prescription formulations).[12]

Study Purpose

The purpose of this study was to compare the prevalence of key risky substance use behaviors (tobacco, alcohol, and illicit drug use) among adults residing in non-metropolitan (rural) and metropolitan (urban) counties nationally.

Methods

Data. We combined public data files for 2017 and 2018 from the NSDUH, a series of nationally representative in-person surveys administered by the Substance Abuse and Mental Health Services Administration (SAMHSA). NSDUH is the primary source of information on substance use behaviors among the civilian, non-institutionalized population of the United States ages 12 years and older. The focus of this brief is risky substance use behaviors among adults, defined as persons 18 years of age or older. A companion brief examines risky substance use behaviors among adolescents ages 12 to 17 years. Metropolitan (N=22,463; weighted N=59,201,280) and non-metropolitan (N=6,935; weighted N=12,438,301) status was defined according to U.S. Office of Management and Budget definitions. NSDUH classifies county of residence as large metropolitan, small metropolitan, or non-metropolitan. For this brief, large and small metropolitan areas were combined to form a single category for residents of metropolitan counties.

Risky Substance Use Behaviors. We considered three categories of risky substance use behavior, including tobacco use, alcohol use, and illicit drug use. In the NSDUH, "any tobacco" includes cigarettes, cigars, pipes, and smokeless tobacco. NSDUH does not currently include questions specifically on the use of e-cigarettes or nicotine vapes. Illicit drug use includes marijuana, cocaine, heroin, hallucinogens, inhalants, methamphetamine, pain medications, tranquilizers, stimulants, and sedatives. Specific examples and conditions of illicit drug use are included in Table 1. We examined the presence of the following substance use behaviors during the past year: any tobacco use; any illicit drug use; heroin, cocaine, methamphetamine, marijuana, or inhalant use; and misuse of prescription pain relievers, sedatives, stimulants, tranquilizers, and hallucinogens. We examined the same substance use behaviors in the past 30 days in addition to the following variables that are available in NSDUH for the previous 30 days only: daily cigarette use, smoking at least 1 pack of cigarettes per day (among smokers), binge alcohol use (5 or more drinks on the same occasion for males, or 4 or more for females, on at least 1 day in the past 30 days), and heavy alcohol use (5 or more drinks on the same occasion for males, or 4 or more for females, on each of 5 or more days in the past 30 days).

Table 1. Selected Illicit Drugs Included in Analysis and Examples/Notes

Illicit Drug Category	Examples/Notes
Methamphetamine	Differentiated from cocaine and prescription stimulants (see stimulants).
Cocaine	Powder and crack cocaine.
Hallucinogens	LSD, PCP, peyote, mescaline, psilocybin mushrooms, "Ecstasy" (MDMA or "Molly"), ketamine, DMT/AMT/"Foxy," and Salvia divinorum.
Inhalants	Nitrous oxide, amyl nitrite, cleaning fluids, gasoline, spray paint, computer keyboard cleaner, other aerosol sprays, felt-tip pens, and glue.
Stimulants	Amphetamine products, methylphenidate products, weight-loss stimulants, Provigil®, or any other prescription stimulant (including those prescribed for attention deficit disorder/attention deficit hyperactivity disorder). Not included when used as prescribed.
Pain medications	Hydrocodone, oxycodone, tramadol, codeine, morphine, prescription fentanyl, buprenorphine, oxymorphone, and hydromorphone, Demerol®, methadone, or any other prescription pain reliever. Not included when used as prescribed.
Sedatives	Zolpidem products, eszopiclone products, zaleplon products, benzodiazepine sedatives (e.g., as flurazepam and temazepam products or triazolam products), barbiturates, or other prescription sedative. Not included when used as prescribed.
Tranquilizers	Benzodiazepine tranquilizers (e.g., as alprazolam, lorazepam, clonazepam, or diazepam products), muscle relaxants, or other prescription tranquilizer. Not included when used as prescribed.

Analysis. We conducted descriptive analyses to compare and contrast prevalence rates for risky substance use behaviors among adults in non-metropolitan and metropolitan areas. All analyses accounted for the NSDUH's complex sampling scheme and weights.

Findings

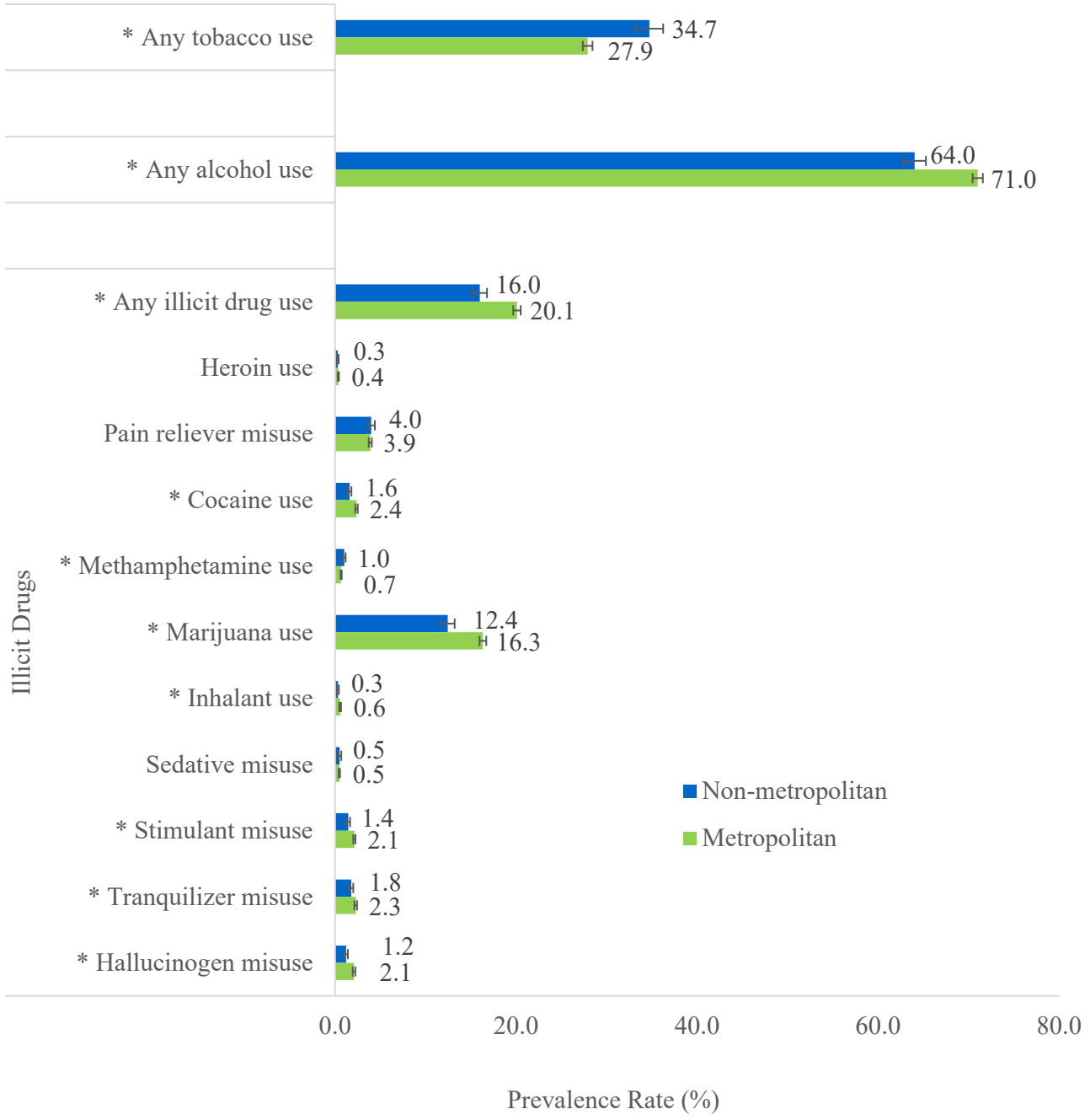
Tobacco Use. *Non-metropolitan adults had significantly higher prevalence rates of past year (34.7% vs. 27.9%) and 30-day (30.7% vs. 22.5%) tobacco use than metropolitan adults.* Non-metropolitan adults had higher prevalence rates of daily cigarette use in the past 30 days (16.5% vs. 10.3%) than metropolitan adults. Among daily smokers, non-metropolitan adults had a higher prevalence of smoking at least 1 pack of cigarettes per day in the past 30 days (46.9% vs. 39.1%) than metropolitan adults.

Alcohol Use. *Alcohol was the most commonly used substance among both non-metropolitan and metropolitan adults.* Non-metropolitan adults had a lower prevalence rate of past year (64.0% vs. 71.0%) and past 30-day (48.7% vs. 56.6%) alcohol use than metropolitan adults. Approximately one quarter of adults reported binge alcohol use in the past 30 days, with a significant, though relatively small, difference between non-metropolitan (24.5%) and metropolitan (26.7%) adults. Heavy alcohol use in the past 30 days was similar among non-metropolitan (6.9%) and metropolitan (6.6%) adults.

Illicit Drug Use. *Overall illicit drug use was significantly less prevalent among non-metropolitan than metropolitan adults, both in the past year (16.0% vs. 20.1%) and the past 30 days (9.7% and 12.1%).* The disparity was largely attributable to differences in marijuana use as indicated by past year (12.4% among non-metropolitan vs. 16.3% among metropolitan adults) and past 30-day marijuana use rates (8.3% non-metropolitan vs. 10.4% metropolitan). The past year prevalence of use or misuse of several drugs was lower among non-metropolitan than metropolitan adults, including cocaine (1.6% vs. 2.4%), tranquilizers (1.8% vs. 2.3%), hallucinogens (1.2% vs. 2.1%), stimulants (1.4% vs. 2.1%), and inhalants (0.3% vs. 0.6%). A notable exception was methamphetamine use, which was significantly more prevalent among non-metropolitan than metropolitan adults (1.0% vs. 0.7%). No difference was observed between non-metropolitan and metropolitan adults in the prevalence of heroin use (0.3% vs. 0.4%) or pain reliever misuse (3.9% vs. 4.0%).

Figure 1 displays prevalence rates with 95% confidence limits for risky substance use behaviors in the past year among non-metropolitan and metropolitan adults.

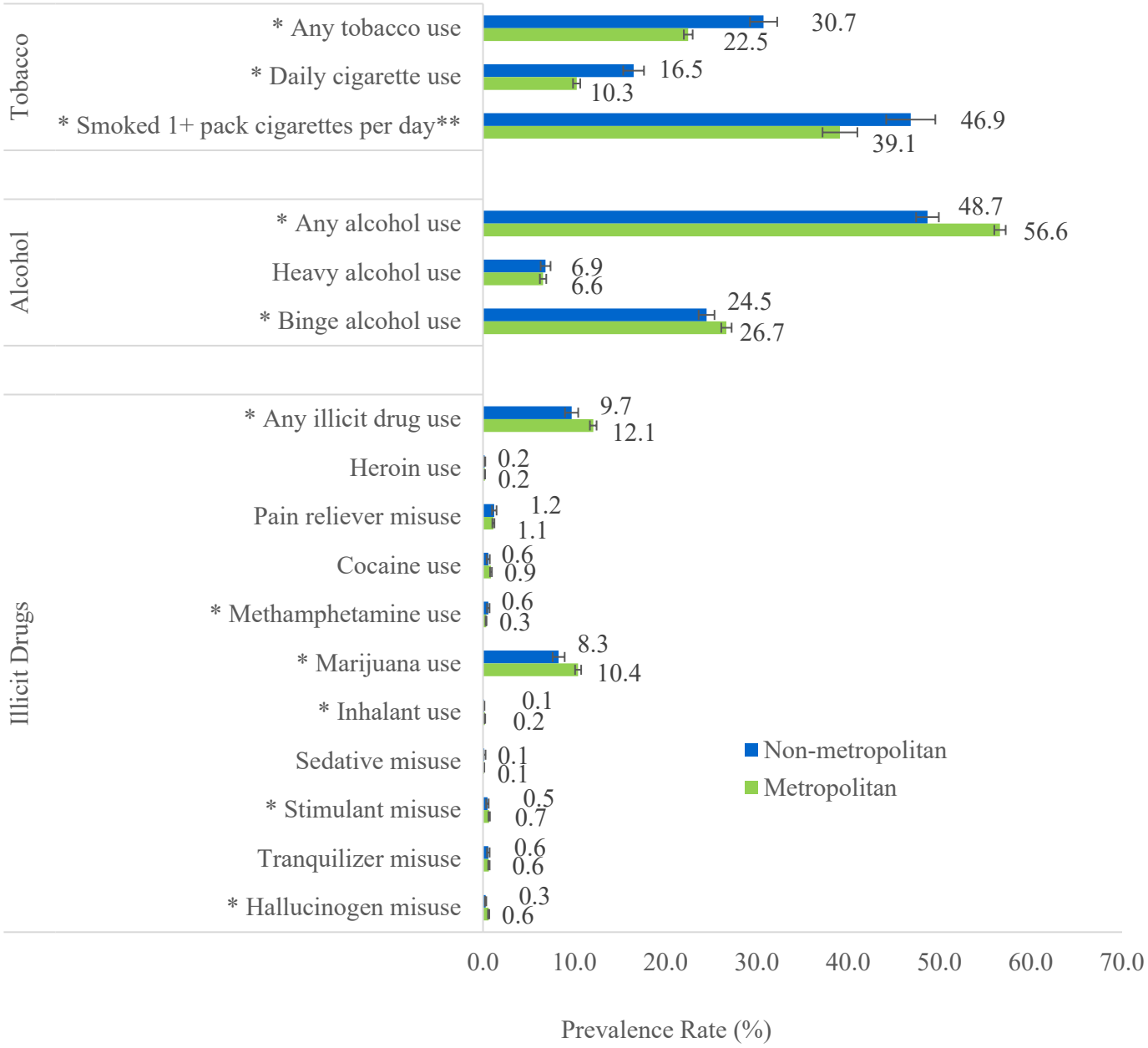
Figure 1. Prevalence Rates and 95% Confidence Limits for Risky Substance Use Behaviors in the Past Year among Adults, by County Type



* Indicates a statistically significant difference in prevalence rate for non-metropolitan and metropolitan residents.

Figure 2 displays prevalence rates with 95% confidence limits for risky substance use behaviors in the past 30 days among non-metropolitan and metropolitan adults.

Figure 2. Prevalence Rates and 95% Confidence Limits for Risky Substance Use Behaviors in the Past 30 Days among Adults, by County Type



* Indicates a statistically significant difference in prevalence rate for non-metropolitan and metropolitan residents.
** Among respondents who reported daily cigarette use

Conclusion/Discussion

The findings of our analysis are consistent with previous research conducted using NSDUH data to detect differences in alcohol, tobacco, and illicit substance use between non-metropolitan and metropolitan adults. In this analysis, we found that past 30-day and past year alcohol use was more prevalent among metropolitan adults, while tobacco use was more common among non-metropolitan adults. Illicit drug use was less prevalent among non-metropolitan than metropolitan adults with the notable exception of methamphetamine use, which was more common among non-metropolitan adults.

Rates of past 30-day and past year alcohol use were high, with 64.0% of non-metropolitan adults and 71.0% of metropolitan adults reporting past year alcohol use. The difference in reported past 30-day binge drinking was statistically significant but small between the two groups. More concerning is that approximately 1 in 4 adults across both groups reported past 30-day binge drinking.

The rates of tobacco use were also high among non-metropolitan adults, with 30.7% of non-metropolitan adults reporting any tobacco use in the last 30 days and 34.7% of non-metropolitan adults reporting any tobacco use in the last year. When asked about use in the last 30 days, 16.5% of non-metropolitan adults and 10.3% of metropolitan adults reported daily cigarette use; of these respondents, 46.9% of non-metropolitan adults and 39.1% of metropolitan adults reported smoking 1 or more packs of cigarettes per day. This suggests that, of adults who use tobacco products, many of them are frequent and/or heavy smokers. With the known health risks of tobacco consumption, this research suggests that the harms of tobacco use may have a larger effect on rural communities and residents than on urban areas.

Our findings on illicit drug use suggest that substances including marijuana, cocaine, inhalants, stimulants, and hallucinogens are more common among metropolitan adults than non-metropolitan adults. The past 30 day and past year prevalence of most of these substances is below 5% for adults regardless of residency, with the exception of marijuana. Non-metropolitan adults reported past year and past 30-day methamphetamine use significantly more often than their metropolitan peers. However, there was no significant difference in pain reliever or heroin use in the past year or the past 30 days between the two groups.

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