

Comparison of Substance-Use Prevalence among Rhode Island and The Miriam Hospital Emergency Department Patients to State and National General Population Prevalence Estimates

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ABSTRACT

OBJECTIVES: Compare the prevalence of recent alcohol, tobacco, and drug use among patients from two Rhode Island emergency departments (EDs) to Rhode Island state and United States national general population estimates between 2010 and 2012.

METHODS: Secondary analysis of ED patient data and the National Survey of Drug Use and Health.

RESULTS: Alcohol was the most commonly reported substance, and prevalence of its use was higher among ED patients than those in the national, but not the Rhode Island, general population. Drug use was higher among ED patients than in the state and national general population. For ED patients, tobacco and opioid use was highest among 26–34 year-olds, alcohol and marijuana highest among 18–25 years-olds, and cocaine highest among 35–49 years-olds.

CONCLUSION: Rhode Island Hospital and The Miriam Hospital ED patients report a greater prevalence of substance use than the national population and in many cases the state general population.

INTRODUCTION

Substance use and misuse has been associated with increased risk for economic, legal, physical, and psychosocial negative consequences.^{1,2} The emergency department (ED) is often the health resource utilized by individuals who use and misuse substances.³ In 2011, an estimated 2.5 million visits to EDs in the United States (US) involved drug misuse or abuse, which is equivalent to 790 visits per 100,000 people in the US.⁴ Between 2009 and 2011, US ED visits involving illicit drugs increased 29%.⁴

Research suggests that screening ED patients for substance use, providing access to interventions, and if needed, referring patients to treatment while in the ED may reduce substance misuse and health-related negative consequences.⁵ Determining the extent of substance misuse as well as the type of substances misused among the ED patients in Rhode Island, and understanding how their prevalence compares to national and state estimates, may better direct efforts addressing the need for interventions to reduce harmful substance misuse among ED patients.

The specific aims of this study were to: (1) compare the prevalence of alcohol, tobacco and recent (past one to three months) drug use/misuse among Rhode Island and The Miriam Hospital ED patients to Rhode Island state and US national general population estimates; (2) examine trends in substance misuse over time and age groups among these ED patients, as compared to national general population estimates.

METHODS

Study design

This investigation involved a secondary analysis of data from the National Survey on Drug Use and Health (NSDUH), which is an annual nationwide survey that provides national and state-level estimates on the use of tobacco products, alcohol, and illicit drugs (including non-medical use of prescription drugs).⁸ We used NSDUH national and Rhode Island State level data from the years 2010 to 2012. To compare the prevalence of substance misuse in the US and the State of Rhode Island to that of the Rhode Island Hospital and The Miriam Hospital ED patients, we compiled data from two federally funded studies: Increasing Viral Testing in the ED (InVITED) and Brief Intervention for Drug Misuse in the ED (BIDMED). InVITED and BIDMED were randomized, controlled trials conducted from July 2010 to December 2012. The hospital Institutional Review Board approved the InVITED and BIDMED studies.

Database Descriptions

NSDUH

NSDUH participants are randomly selected to obtain a representative cross-sectional sample of individuals 12 years-old or older residing in the US.⁸ Respondents are interviewed in their home (or another place denoted as their residence), and following a face-to-face screening interview with a NSDUH representative, answer questions on substance use and mental health using a computer-based survey. Using an audio computer-assisted self-interviewer (ACASI), the NSDUH asks participants about their frequency of tobacco, alcohol and illicit drug use (marijuana/hashish, cocaine/crack, heroin, hallucinogens, and inhalant use) and non-medical use of prescription drugs (analgesic opioids, stimulants, tranquilizers, and sedatives) during the past 30 days. The NSDUH provides data on alcohol, tobacco, and marijuana

use individually, but combines illicit and prescription drug use into one drug use category. Data on specific drugs used only are available on a national and not a state level, and prevalence data are stratified for state level data in two age groups: 18–25 year-olds and ≥ 26 year-olds. National data are available in five age groups (12–17, 18–25, 26–24, 35–49 and 50+ year-olds).

BIDMED/InVITED

Also using an ACASI system, participants in the BIDMED and InVITED studies at the Rhode Island Hospital and The Miriam Hospital EDs answered questions about their past 90 days substance use and misuse using the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST, Version 3).⁹ Data on demographic characteristics also were obtained. For purposes of direct comparisons to the NSDUH state and national prevalence estimates, the baseline data (before randomization) from the BIDMED and InVITED studies were combined as a one dataset, and data on drug misuse except for marijuana use were collapsed into a single category. These two studies included ED patients who were 18–64-year-old Spanish or English speakers who did not have a critical illness or injury, were not mentally or physically unable to participate in the study, intoxicated or in the ED for acute psychiatric illness care.

Data analysis

Prevalence of recent substance misuse was estimated by year and by substance misuse category (alcohol, tobacco, marijuana, and other drugs) for the NSDUH state and national and BIDMED/InVITED databases along with 95% confidence intervals (CIs). Prevalence estimates were stratified by age groups (18–25 year-olds and ≥ 26 year-olds). Prevalence of specific substances used recently (tobacco, alcohol, marijuana, cocaine, opioid analgesics, and illicit opioid use)

were estimated and stratified by year and age group from the national NSDUH data and from the BIDMED and InVITED studies. Statistical comparisons of prevalence were made using 95% CIs. Non-overlapping 95% CIs indicate two prevalence estimates that are different at an $\alpha=0.05$ level.

RESULTS

Substance use/misuse prevalence by age group and population

Table 1 shows the comparison of substance use/misuse prevalence by age group between the NSDUH and the BIDMED/InVITED studies. Alcohol was the most commonly used substance across all three populations, with the ED and Rhode Island state populations reporting more alcohol use than the national population. Among those 26 years-old or older, the Rhode Island state population reported significantly more alcohol use than the national and ED populations. Tobacco, marijuana and illicit drug use was generally greater among the ED than the other two populations for both age groups.

Specific substance use/misuse prevalence trends by year and age groups

Figure 1 depicts trends in specific substance use/misuse between 2010 and 2012 by age groups from the NSDUH national and ED data. For tobacco and all drugs, the ED population reported more use of these substances than those in the US population across all years and age groups. There was a trend towards greater alcohol use among the ED population as well. Among the ED population, tobacco and opioid analgesic use tended to be highest among 26–34 year-olds, alcohol and marijuana were highest among 18–25 year-olds, and cocaine was highest among 35–49 year-olds, as compared to other age groups. In general, prevalence of substance use was stable across the three years of data.

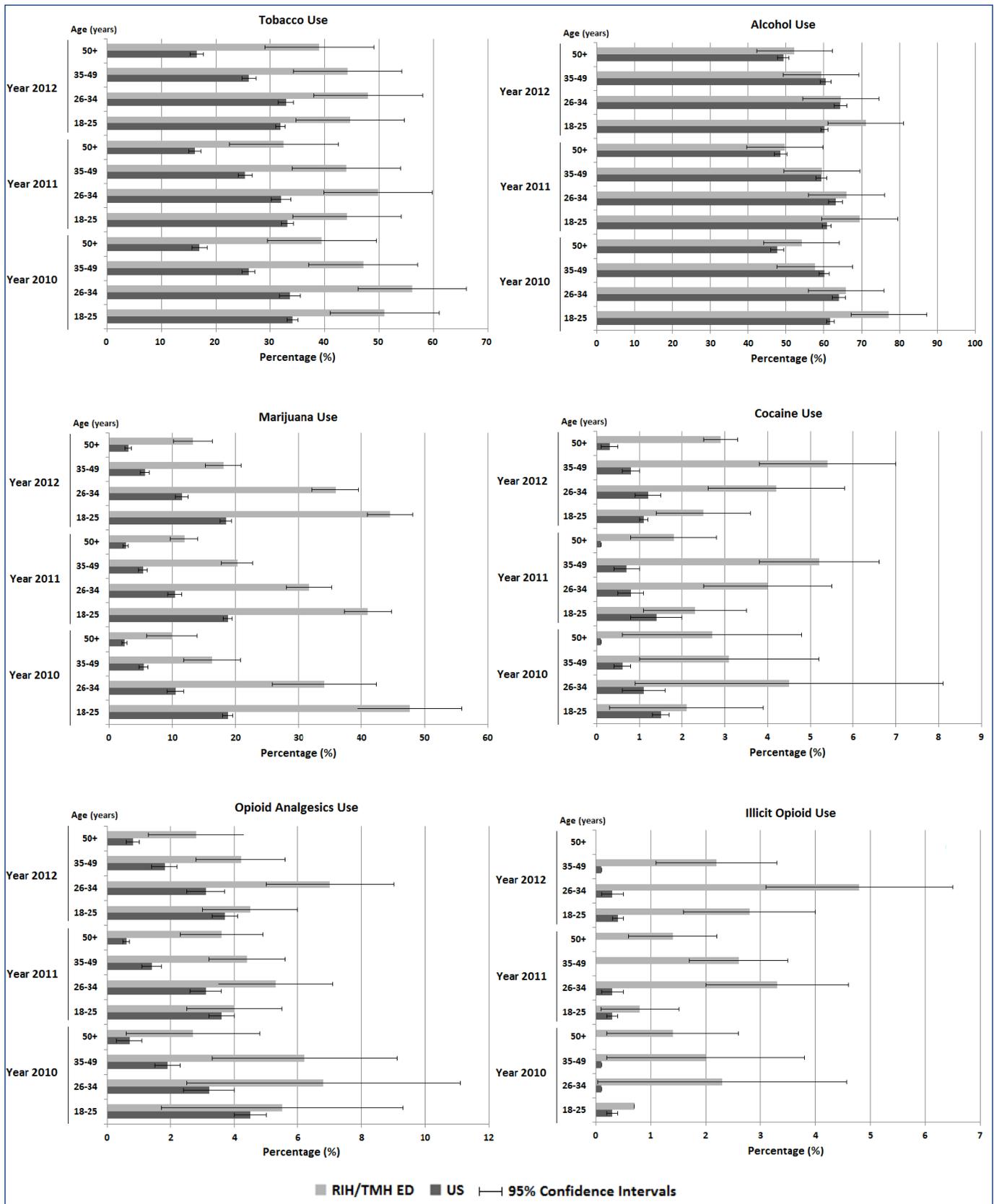
Table 1. Recency of substance use from NSDUH national and Rhode Island State data and RIH/TMH ED data for the years 2010, 2011, and 2012

SUBSTANCES	UNITED STATES*		STATE OF RHODE ISLAND*		RIH/TMH ED**	
	n=206,222		n=2,768		n=6,432	
	18–25 years-old	26+ years-old	18–25 years-old	26+ years-old	18–25 years-old	26–64 years-old
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Tobacco	39.3 (38.8-39.8)	26.8 (26.3-27.3)	41.6 (38.5-44.8)	27.8 (25.0-30.8)	45.0 (42.6-47.5)	43.3 (42.0-44.7)
Alcohol	60.6 (60.0-61.3)	55.1 (54.5-55.7)	72.1 (69.1-74.9)	66.3 (62.8-69.7)	71.0 (68.7-73.2)	58.5 (57.2-60.0)
Marijuana	18.7 (18.3-19.2)	4.9 (4.7-5.2)	30.7 (27.9-33.7)	9.2 (7.5-11.3)	43.3 (40.8-45.8)	21.2 (20.1-22.4)
Illicit drugs including marijuana	21.4 (20.8-21.9)	6.6 (6.4-6.9)	33.4 (30.4-36.5)	11.9 (9.9-14.2)	45.9 (43.4-48.4)	26.8 (25.6-28.1)
Illicit drugs excluding marijuana	7.3 (7.0-7.6)†	2.6 (2.4-2.7)†	9.9 (8.2-11.9)†	4.0 (2.9-5.4)†	14.2 (12.5-16.0)‡	12.3 (11.3-13.2)‡

*= sample interviewed ages > 12 years-old; **=sample included ages 18-64 years-old; † = marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics (pain relievers, tranquilizers, stimulants, and sedatives) used non-medically; ‡ =marijuana, cocaine (including coke, crack), methamphetamine (crank, crystal methamphetamine, ecstasy or 3,4-methylenedioxyamphetamine (MDMA), tweek), Inhalants, hallucinogens, illicit opioids (heroin or opium), gamma-Hydroxybutyric acid, Amphetamines, benzodiazepines, barbiturates, methadone, prescription opioids

Key: NSDUH= National Survey on Drug Use and Health; RIH=Rhode Island Hospital; TMH=The Miriam Hospital; ED=Emergency Department

Figure 1. Trends in specific substance use between 2010 and 2012 by age groups from the NSDUH national and RIH/TMH ED data



Key: NSDUH= National Survey on Drug Use and Health; RIH=Rhode Island Hospital; TMH=The Miriam Hospital; ED=Emergency Department

DISCUSSION

This investigation highlights many concerning findings about substance misuse among Rhode Island residents and in particular those who receive medical care at the two Rhode Island EDs. As noted, substance misuse among these populations is higher than the general population across the rest of the US, which indicates the need for action to reduce the burden of misuse in our community. Of particular concern is the consistent trend from 2010 to 2012 of high substance misuse among younger ED patients (18–25 year-olds).

Screening brief intervention and referral for treatment (SBIRT) is an approach to identify individuals who might benefit from interventions for their substance misuse.¹¹ This approach has been used in primary care as well as ED settings for tobacco, alcohol and other substance misuse.¹² Our data suggests that the ED is a health care setting where many individuals who misuse substances could be identified as the first step to receiving appropriate treatment. We also found that age is an important factor in identifying where ED SBIRT resources might be directed. Our analyses showed that younger ED patients (18–25 years-old) are using substances such as alcohol and illicit drugs at greater frequency than older ED patients or those of the same age in the national and state population samples. Research suggests that early initiation of drug use is associated with an increased risk of a more negative drug use trajectory including an increased risk of injection drug use¹³, as well as alcohol and drug dependence.^{14,15} Our finding suggests that secondary preventive interventions targeted for younger adults (18–25 years) who present for care at our EDs are needed.

There were several limitations to this investigation. We were unable to separate past month and past three-month prevalence because recency of use was estimated differently for the NSDUH than the BIDMED/InvITED studies. Past three-month prevalence, which encompasses past-month prevalence, was in many cases higher for the ED populations. Also, since data for both the NSDUH and BIDMED/InvITED was based on self-report, there may be inaccuracies because reporting might have been influenced by memory error and social desirability, leading to underreporting of use.

CONCLUSION

Compared to a national and state survey data on recent drug use, Rhode Island Hospital and The Miriam Hospital ED patients report a greater prevalence of use of tobacco, alcohol, prescribed and illicit substances than the national population and in many cases the Rhode Island general population. Misuse was generally stable and higher among ED patients than the national general population across the three years of data. As demonstrated in this study, these EDs are settings with high prevalence of patients who could be screened for substance misuse and offered intervention services.

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