

Prevalence of Alcohol, Tobacco and Drug Misuse Among Rhode Island Hospital Emergency Department Patients

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Alcohol, tobacco and drug misuse are growing public health concerns. In 2007, an estimated 19.9 million (8.1%) of those 12-years-old or older living in the United States were users of illicit drugs, 126.8 million (51.1%) were drinkers of alcohol, and 70.9 million (28.6%) were users of tobacco products.¹ In Rhode Island in 2007, 12.5% of those 12-years-old or older used illicit drugs, 63% had consumed alcohol, and 29.9% used tobacco products.²

The **emergency department (ED)** provides medical care to many patients with problems related to substance misuse. However, little is known about the extent and severity of substance misuse among ED patients.³ Knowing this information would greatly assist in the design of interventions to reduce substance misuse among ED patients. Recent research has shown the success of conducting interventions among ED patients to reduce or eliminate their use of alcohol or tobacco.⁴⁻⁷ Further research is needed to determine if ED-based interventions can be successful for the reduction or elimination of other types of drug misuse.

In this study, we estimated the lifetime and previous three-month prevalence of alcohol, tobacco, and drug use among a random sample of Rhode Island Hospital ED patients. We also estimated the level of need for intervention (either brief or intensive) for alcohol, tobacco, and drug use among these ED patients. Our ultimate goal is to use these estimates to plan effective interventions for substance misuse for this population.

METHODS

Study design, setting, and participants

We conducted this study during a seven-week period from February through March 2009 at the Rhode Island Hospital ED. We approached a random sample of 18- to 64-year-old, English- or Spanish-speaking ED patients on a convenience sample of dates and assessed them for inclusion in the study.

Patients were not eligible if they were an inmate or on home confinement; pregnant; critically-ill; critically-injured; intoxicated; or, impaired by a physical or mental disability that would prevent informed consent or participation in the study. Patients eligible for study inclusion were surveyed about their substance use. The Rhode Island Hospital Institutional Review Board approved the study.

Study instrument

We adapted the **Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)** Version 3 (V3) for use as the instrument for this study.⁸ This 8-item tool is designed to measure drug misuse severity and need for interventions to reduce or stop substance misuse. The ASSIST V3 also measures self-reported lifetime and previous three-month drug use and queries respondents about their history of ever using injection-drugs for non-medical purposes. The ASSIST V3 asks respondents about the categories of drugs rather than the specific types they have used. The survey gives examples of drugs within each category. Respondents also are asked about their social and life problems associated with their drug use, and about the extent of concern that others have expressed about their drug use. Responses were converted into substance involvement scores. Scores were calculated for each category of substance misused. These scores indicate a respondent's need for no, a brief, or more intensive intervention to reduce or stop substance misuse for each category of substance misused.

The ASSIST V3 was originally intended to be administered through an in-person interview. We modified the format of the questions, responses, and instructions of the ASSIST V3 so that it could be self-administered using a handheld tablet personal computer by patients in the ED. The ASSIST V3 categories of drugs and drug examples also reflect a European rather than US focus. Accordingly, we updated the categories of drugs, expanded them, and provided examples

of drugs for each category that reflected the common names of drugs likely to be known in Rhode Island.

Study procedure

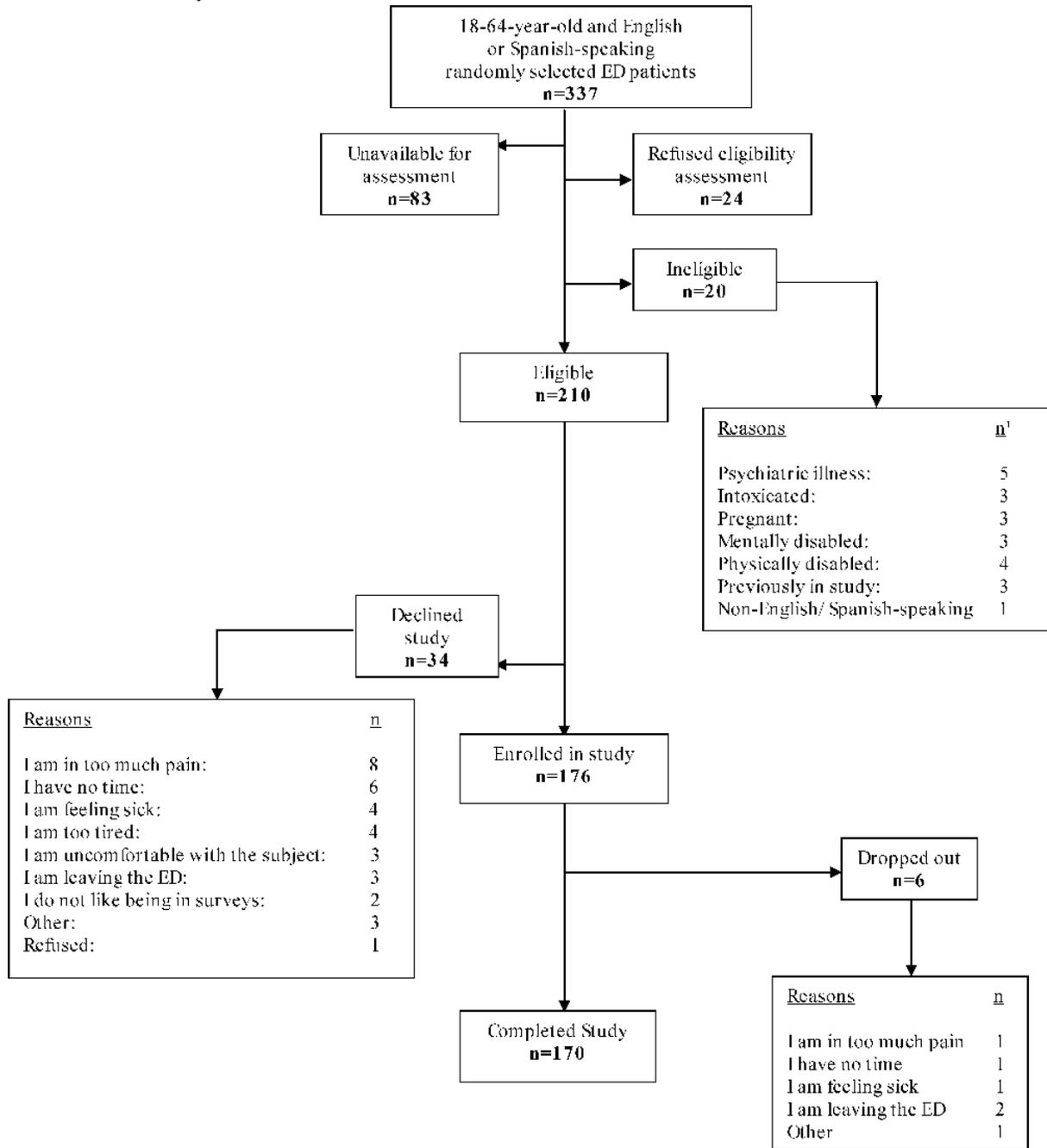
We conducted this study four days a week (Tuesdays, Thursdays, Saturdays, and Sundays) during four-hour time blocks from 11 am to 3 pm, 3 pm to 7 pm, and 7 pm to 11 pm. The number of days of the week and four-hour time blocks during which we conducted the study were approximately equal. We performed the study between 11 am to 11 pm because all patient care sections of the ED are open during this period when the majority of patients present for medical care.

Prior to each four-hour shift, we randomly selected a series of eight digits using a computerized random number generator. During each shift, the **research assistants (RAs)** collecting data used these digits to identify which patients would be approached and then assessed for possible inclusion in the study. The RAs matched the digits randomly selected for that shift with the terminal digit of the medical record number of ED patients receiving medical care in the ambulatory and urgent care sections of the ED. Thus the RAs could randomly select 80% of the ED patients for assessment of their eligibility for the study.

The RAs reviewed the ED medical records of the randomly selected patients in the ambulatory and urgent care units for possible inclusion in the study. The RAs approached patients whose medical record indicated that they might be eligible for the study. Those patients who agreed to speak with the RAs underwent an in-person assessment to verify their eligibility. They also were queried about their demographic characteristics. All patients eligible for the study who agreed to participate provided verbal consent for the study. No incentives were provided to patients to participate.

The RAs followed a strict, standardized protocol in conducting the study. They were observed by the study authors during their first shifts; deviations from

Figure 1: Eligibility assessment and enrollment flow diagram



¹Reasons do not total to n=20 because multiple reasons for ineligibility were possible

protocol were corrected. RAs were blinded to the responses participants provided to the survey questions.

Data collection and analysis

Participant responses were collected onto a DatStat® (DatStat, Seattle, WA) database and then analyzed using STATA

9.2. (STATA Corporation, College Station, TX). Results of the medical record screening, eligibility assessments, demographic profiles, and responses to the ASSIST V3 were summarized. The demographic characteristics of those who enrolled vs. those who declined were compared using Wilcoxon test for continuous

variables and Pearson's X² test for categorical values. Differences at the α=0.05 level were considered significant. The prevalence of lifetime and previous three-month substance use were calculated by substance category. ASSIST V3 scores were calculated and the level of need for an intervention was assessed using the substance

Table 1: Demographic characteristics of enrollees and those who declined study enrollment

	Enrolled in study	Declined study	p-value ¹
	n=176	n=34	
	%	%	p<
Demographic characteristics			
Median age in years (inter-quartile range)	34.5 (25-46.5)	33 (26-42)	0.67
Gender			0.16
Female	54.6	67.7	
Male	45.5	32.4	
Ethnicity/Race			0.61
White, Non-Hispanic	49.4	41.2	
White, Hispanic	18.8	26.5	
Black, African American	18.2	14.7	
Black, Hispanic	7.4	8.8	
Asian/Middle Eastern	1.1	2.9	
Native Hawaiian, Other Pacific Islander	0.6	0.0	
American Indian/Alaskan Native	2.8	0.0	
Other	1.7	5.9	
Partner status			0.05
Married	25.6	29.4	
Divorced	9.7	23.5	
Widowed	0.6	0.0	
Separated	3.4	5.9	
Never Married	38.6	38.2	
Unmarried Couple	22.2	2.9	
Insurance status			0.15
Private	40.3	32.4	
Governmental	35.8	26.5	
Private and governmental	1.1	0.0	
None	22.7	41.2	
Years of formal education			0.00
None	0.0	2.9	
Grades 1-8	2.3	17.7	
Grades 9-11	23.3	17.7	
Grade 12 or General equivalency degree	40.9	38.2	
College 1-3 years	21.4	8.8	
College 4 years/Graduate studies	11.9	14.7	

¹p-values reflect comparison of those who enrolled vs. who declined enrollment

involvement score ranges according to the recommendations by the producers of the ASSIST V3.⁹

RESULTS

Study population

Of the 337 patients screened during the seven-week period, 210 were eligible for the study. (Figure 1) Figure 1 also provides the reasons for ineligibility for the study. Table 1 displays a comparison of the demographic characteristics of the 176 patients who enrolled and the 34 patients who declined participation in the study. The two groups were similar in terms of gender and ethnicity/race and insurance status. However, there was a higher percentage of patients who declined the study who were divorced and a higher percentage of patients who enrolled in the study who were a part of an unmarried couple. Also, those who enrolled were more likely to have more years of formal education.

Of the 34 patients who declined the study, the most frequent reasons were that the patient was in too much pain, had no time, or was feeling sick or too tired. (Figure 1) Few declined participation because of the topic (i.e., substance misuse). Six of the patients who enrolled in the survey dropped out during the survey process, leaving 170 patients who completed the survey. (Figure 1)

Prevalence of self-reported substance use

The prevalence of self-reported substance use among the 170 patients who completed the study is presented in Table 2. The substances with the highest reported prevalence of lifetime and prior three-month use were tobacco, alcohol, marijuana, and pain killers. Eight patients (5%) reported using injection drugs for nonmedical use at least once in their lives.

ASSIST V3 substance involvement scores and level of need for intervention

The mean ASSIST V3 scores and the level of need for intervention among the patient population are presented in Table 2. The substances with the highest mean ASSIST V3 substance involvement scores were tobacco, alcohol, marijuana, and pain killers. Likewise, these substances had the highest proportion of participants who needed either a brief intervention or intensive treatment for their misuse of these substances.

Among all participants, 52.4% required a brief intervention and 10% required intensive treatment for any of the substances included in the ASSIST V3 survey. Among all participants, 37.1% needed a brief intervention and 5.3% needed an intensive intervention for drugs (not including alcohol or tobacco) and 12.9% needed a brief intervention and 1.8% an intensive intervention for one or more drugs and alcohol (not including tobacco).

DISCUSSION

The study results indicate that the four most common substances our sample of 18-64-year-old ED patients reported having used in their lifetime or within the previous three months were tobacco, alcohol, marijuana, and pain killers. Most of those needing a brief intervention or intensive treatment were users of these substances. Slightly more than half of ED patients needed a brief intervention for some type of substance misuse; fewer needed intensive treatment. These results inform us of the types of resources that are needed in the ED for patients with substance misuse problems.

This study had a number of limitations that might affect the interpretation of the results. First, the study focused upon English- or Spanish-speaking patients at Rhode Island Hospital. As such, the findings might not be reflective of those who do not speak English- or Spanish at this ED, or EDs outside of Providence.

Second, the brief period of data collection and convenience sampling of dates when the data were collected limit the external and internal validity of the study findings. Further, the small sample size did not allow us to conduct more sophisticated analyses.

Table 2: Substance use prevalence, mean ASSIST scores, and need for interventions

n=170	Lifetime use	Past three-months use	Mean ASSIST score	Need for intervention based upon ASSIST score ¹		
				No Intervention	Brief Intervention	Intensive Treatment
Substance	%	%	μ (σ) ²	%	%	%
Tobacco	68.8	42.4	7.8 (10.2)	57.7	35.9	6.5
Alcohol	87.7	65.9	6.8 (8.3)	76.5	20.6	2.9
Marijuana	60	28.2	3.8 (7.7)	75.9	21.8	2.4
Cocaine	22.9	7.7	1.8 (7.0)	92.4	4.7	2.9
Amphetamines	17.7	5.9	0.7 (3.6)	95.9	3.5	0.6
Inhalants	6.5	1.2	0.4 (3.1)	98.2	1.2	0.6
Benzodiazepines	22.4	11.2	1.5 (5.2)	88.2	10.6	1.2
Barbiturates	4.7	1.2	0.3 (3.0)	98.8	0.6	0.6
Hallucinogens	18.8	1.8	0.3 (3.1)	98.2	1.2	0.6
Opioids	11.8	3.5	0.9 (5.1)	95.3	2.9	1.8
Pain killers	41.8	25.3	2.6 (6.1)	79.4	18.8	1.8
GHB ³	3.3	0.6	0.2 (3.0)	99.1	0.0	0.6

¹Except for alcohol, the ASSIST scores that indicate a need for no intervention, a brief intervention, or intensive intervention are 0-10, 11-26, and 27+, respectively. For alcohol, the scores for no intervention, a brief intervention, and intensive treatment are 0-3, 4-26, and 27+, respectively.

²Gamma hydroxybutyrate

Third, because this study analyzed self-report data, there might be inaccuracies. Some patients may have been uncomfortable about divulging their substance use, even though the survey was anonymous with no patient identifiers. However, prior studies have shown that anonymous self-report is a valid, reliable, and accurate method of assessing substance misuse.¹⁰

Fourth, although the results of the ASSIST V3 questions allowed us to identify the type of substance misuse intervention that these ED patients needed, we did not ask these patients if they would be willing to undergo a brief or more intensive intervention for their substance misuse. Therefore, although we know more about the need for intervention for substance misuse within the ED, we do not know the level of acceptance for those interventions among these patients.

CONCLUSIONS

Using an adapted version of the ASSIST V3, we found that the substances with the highest prevalence of lifetime and previous three month misuse among Rhode Island Hospital ED patients were tobacco, alcohol, marijuana, and pain killers. Our data also show that our the most often needed interventions, whether brief or intensive, were for these four substances. These substances need to be addressed specifically when creating and enacting interventions for substance misuse among Rhode Island Hospital ED patients.

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Disclosure of Financial Interests

The authors and spouses/significant others have no financial interests to disclose.

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