



Original Contribution

Sex and age differences in ED patients with mental and behavioral disorders due to psychoactive substance use[☆]

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ABSTRACT

Objectives: The objectives of this study are to describe an emergency department (ED) adult population with the chief complaint of mental and behavioral disorders due to psychoactive substance use and to investigate sex- and age-related differences.

Methods: We analyzed data (2009–2011) from the Regional Observatory of Emergency Medicine ORU-MiP (700000 patients per year) for all patients with a primary diagnosis of mental and behavioral disorders due to psychoactive substance use. Day data were weighted by the number of days in the year and expressed for 100000 inhabitants of the area. Pearson χ^2 test and Fisher tests were used. The Brown-Mood test was used to compare medians.

Results: Of the 1411597 ED visits analyzed, 20838 consults (1.3%) were for primary diagnosis of mental and behavioral disorders due to psychoactive substance use. The median age (interquartile range) was 41 (28–51) years; 69.5% were men. More women consulted the ED for sedative or hypnotic use (4.9% vs 1.5%, $P < 10^{-4}$) than men, and more men consulted for alcohol consumption (93.5% vs 90%, $P < 10^{-4}$) and cannabinoids (1.4% vs 1.0%, $P < 10^{-3}$) than women. Young consumer visits dramatically increased during weekends (average of 88 visits a day per 100000 inhabitants vs 34 on Mondays to Thursdays). Another difference was found between young adults and middle-aged adults, with a peak in visits at 2 AM and 9 PM respectively.

Conclusions: Mental and behavioral disorders due to psychoactive substance use account for 1.3% of ED visits. Older people should be screened for chronic alcohol consumption. Our findings underscore the opportunity provided by the ED for screening and brief intervention in drug- and alcohol-related problems.

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1. Introduction

Alcohol and illicit drug abuse is a major health care problem that frequently lead to emergency department (ED) visits. Numerous studies have shown that alcohol and psychoactive substances (illicit or medicinal) are often found in ED injured patients [1–3]. Different relationships between occasional and lifetime drug use and ED visits have been established. Regular drug use could be associated with ED treatments [4], and “life time” illicit drug use has been described in association with injuries [5]. Other studies have found that positive blood analyses for illicit drug and alcohol are more frequent in young men [2,3]. In the United States, a public health

surveillance system on drug-related ED visits (Drug Abuse Warning Network [DAWN]) found that the 18 to 34 years age range showed a higher rate of drug-related visits [6]. No such data have been found in European countries. Before intervention approaches can be developed for psychoactive substance use (including alcohol), further information is needed about the prevalence and characteristics of ED patients with substance-related behavioral disorders. The aim of this study was to assess the prevalence of substance-related mental and behavioral disorders in a large sample of EDs and to investigate sex- and age-related differences in visit rates.

2. Methods

2.1. Background: the ORU-MiP database

Since 2001, a record has been kept of all visits to EDs in the Midi Pyrénées area (2.9 million inhabitants in the southwest of France) in the ORU-MiP database (Observatoire Régional des Urgences de Midi-Pyrénées). This area encompasses 36 adult EDs, 2 of which are located

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Table 1

International Classification of Diseases, 10th Revision code of mental and behavioral disorders due to psychoactive substance use

ICD10 code	Mental and behavioral disorders due to the following:
F10	Use of alcohol
F11	Use of opioids
F12	Use of cannabinoids
F13	Use of sedatives or hypnotics
F14	Use of cocaine
F15	Use of other stimulants, including caffeine
F16	Use of hallucinogens
F17	Use of tobacco
F18	Use of volatile solvents
F19	Multiple drug use and use of other psychoactive substances

in university hospitals, 24 in public hospitals, and 10 in private hospitals. The database collects medical and administrative information on every individual visit in the EDs of public and private institutions in the region. Its objective is to improve knowledge of emergency activities to contribute to the improvement of professional practices (Web site: <https://www.orumip.fr/>; [7–9]).

A national review board (Commission Nationale de l'Informatique et des Libertés) approved the collection of these data, and patients' informed written consent is unnecessary. The information recorded in the ORU-MiP database includes the patient's demographic characteristics, chief complaint, other illnesses, length of stay, *International Classification of Diseases, 10th Revision (ICD10)* diagnosis, and severity scores based on the emergency severity index [10]. It collects data on approximately 700 000 ED visits annually.

2.2. Study design

This study was conducted using data from the ORU-MiP database covering a 3-year period from January 2009 to December 2011. Patients were identified via an electronic query from the ORU-MiP patient database. Study subjects included all ED patients aged 15 and older who presented with an *ICD10* code (chief complaint) of F10 to F19 (mental and behavioral disorders due to psychoactive substance use) as detailed in Table 1. Patients with mental and behavioral disorders due to psychoactive substance use presenting with other chief complaints were not included. Patients' characteristics and other factors related to the ED visit were analyzed. Illicit drug consumption was defined as any use of opioids (F11), cannabinoids (F12), cocaine (F14), hallucinogens (F16), multiple drug use, and use of other psychoactive substances (F19).

Table 2

Baseline characteristics of patients included

	All patients		Men		Women		P
	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	
Chief complaint:							
Use of alcohol	19241 (92.4)	92.0–92.7	13514 (93.5)	93.0–93.8	5724 (90.0)	89.2–90.7	<.0001
Use of sedatives or hypnotics	533 (2.6)	2.4–2.8	219 (1.5)	1.3–1.7	314 (4.9)	4.4–5.5	<.0001
Use of opioids	329 (1.6)	1.4–1.8	214 (1.5)	1.3–1.7	114 (1.8)	1.5–2.2	ns
Use of cannabinoids	264 (1.3)	1.1–1.4	203 (1.4)	1.2–1.6	61 (1.0)	0.7–1.2	.0083
Multiple drug use/other psychoactive substances	254 (1.2)	1.1–1.4	164 (1.1)	1.3–1.3	90 (1.4)	1.1–1.7	ns
Use of cocaine	156 (0.7)	0.6–0.9	117 (0.8)	0.7–1.0	39 (0.6)	0.4–0.8	ns
Use of hallucinogens	29 (0.1)	0.1–0.2	19 (0.1)	0.1–0.2	10 (0.2)	0.1–0.3	ns
Use of other stimulants, including caffeine	20 (0.1)	0.1–0.2	15 (0.1)	0.1–0.2	5 (0.1)	0.0–0.2	ns
Use of tobacco	6 (0.0)	0.0–0.1	3 (0.0)	0.0–0.1	3 (0.0)	0.0–0.1	ns
Use of volatile solvents	6 (0.0)	0.0–0.1	4 (0.0)	0.0–0.1	2 (0.0)	0.0–0.1	ns
All	20838 (100.0)		14472 (69.5)	68.8–70.1	6362 (30.5)	29.9–31.2	<.0001
Emergency severity index 1 or 2 at triage (%)	227 (1.3)	1.1–1.4	157 (1.3)	1.1–1.5	70 (1.3)	1.0–1.6	ns
Median age (y [IQR])	41	28–51	41	28–50	41	26–52	ns
Median length of stay (IQR)	3 h, 23 min	1 h, 24 min to 9 h 46 min	3 h, 20 min	1 h, 21 min to 9 h, 41 min	3 h, 30 min	1 h, 30 min to 9 h, 59 min	ns

Abbreviation: ns, not significant.

2.3. Primary and secondary objective

The primary objective was to describe the ED adult populations with the chief complaint of mental and behavioral disorders due to psychoactive substance use. Secondary objectives were to determine any sex differences and any differences between young consumers (15–29 years old), middle-aged adults (30–44 and 45–59 years old), and the elderly (≥ 60 years old).

2.4. Statistical analysis

Data were extracted from the ORU-MiP patient database, and statistical analysis was conducted using SAS 9.3 (SAS Institute, Cary, NC). Numerical data were expressed as frequency and percentage. Measured data were expressed as means with SDs and medians with interquartile ranges (IQRs). When appropriate, data were expressed per 100 000 inhabitants of the area. Population estimates were based on counts provided by the French National Institute for Statistics and Economic Studies. Pearson χ^2 test and Fisher tests were used to assess statistical significance. The Brown-Mood test was used to compare medians. The level of significance was set at $P < .05$.

3. Results

3.1. Population studied

Of all the patients presenting to the EDs, 1617 562 ED visits during the study period were from patients aged 15 years and older (428 975 pediatric visits). As 205 965 data entries were incomplete, we analyzed data for 1 411 597 visits (87.3%). In total, 20 838 visits were directly related to mental and behavioral disorders due to psychoactive substance use (1.3% of all ED visits). Patient characteristics are presented in Table 2.

3.2. Sex differences

Men accounted for 69.5% ($n = 14 472$) of the patients included, giving a sex ratio of 2.3, whereas ED patients not included had a sex ratio of 1.1 (52.6% men, $P < 10^{-4}$). The distribution of categories of psychoactive substances differed significantly with sex for alcohol, cannabinoids, and sedatives or hypnotics use. Women were more likely to consult for sedatives or hypnotics use (4.9% [95% confidence interval (CI), 4.4–5.5] compared with 1.5% [95% CI, 1.3–1.7] of men, $P < 10^{-4}$). Men consulted more often after consumption of alcohol (93.5% [95% CI, 93.0–93.8]

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