

# ***SUBSTANCE AND ALCOHOL USE AND DEPENDENCE IN A SAMPLE OF PATIENTS FROM AN EMERGENCY DEPARTMENT IN MEXICO CITY***

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## **SUMMARY**

After years of low baseline prevalence, substance use rose in Mexico during the last decade, according to nationally representative data from household surveys. This changing pattern is also evident among middle and high school students' surveys. Illicit drugs are now joining alcohol use as part of the substances currently found among the general public and the clients of health care services in the country. In this context, alcohol and substance use and its consequences are now important parts of the current Mexican epidemiological profile. In the year 2000, among the population aged 15-64 years, alcohol was associated with the second leading cause of death (liver cirrhosis) in Mexico, the fourth leading cause (accidents, specially traffic-related), and the fifth leading cause (homicides). In turn, substance use was associated with the fifth leading cause of death (homicides) and with AIDS (the seventh leading cause). Some of the most important consequences of alcohol and substance use are the accidents and violence that they produce, either directly (i.e., drunken drivers) or indirectly through the channels of the illegal market of drug consumption. These consequences pose an important burden for the health system, specially for the emergency care delivered in emergency departments (ED). Despite this, data to substantiate the impact of both substance use and alcohol is very limited in the country. Although during the last 15 years there have been several studies in Mexico to address the role of alcohol use in trauma and medical emergencies, similar studies for substance use are much scarcer. Therefore, new research to document the extension of substance and alcohol use and dependence, as well as its association with violence related ED episodes is needed. Due to the increase in substance use, it is specially important to present data on substance use on itself, and to reveal the pattern of alcohol use in combination with substance use in the context of the ED consultation. In Mexico, among injured patients, alcohol use has been linked to violence-related episodes when compared to the general population. The relationship between substance use, other than alcohol, and violence-related injuries in the emergency room has

been more inconsistent. A study of injured patients (n=744) seeking care in the emergency department of a public general hospital in Mexico City is reported here. Prevalence of alcohol and substance use (habitual use and use within six hours prior to the injury) is reported. Additionally, the prevalence of substance use disorders (dependence) and the result of a rapid screening test for substance abuse among these patients are reported for the first time in the country. Alcohol and substance use among violence-related injuries and the role of combined use of both alcohol and illicit substances on injury are addressed as well. The data reported here is part of the World Health Organization (WHO) Collaborative Study on Alcohol and Injuries, a multi-country epidemiological study carried out in 12 clinical settings in Argentina, Brazil, Belarus, Canada, China, Czech Republic, India, Mexico, Mozambique, New Zealand, South Africa, and Sweden. A sample of adult patients, 18 years and older, admitted to the emergency department and reporting an injury, was drawn from ED admission forms which reflected consecutive patient arrival in the ED over a six and a half-week period. All eligible patients attended at the ED during a 24 hour-period between January 15, 2002, and February 28, 2002, were approached to be breathalyzed and interviewed (with informed consent) as soon as possible after admission to the ED. Patients who were too severely injured to be interviewed in the ED were followed into the hospital and interviewed after their condition had stabilized. Data were collected using a questionnaire lasting about 25 minutes, administered by trained interviewers. Among other items, the interview obtained data on the condition which brought the patient to the ED, use of prescription or non-prescription medications within the six hours prior to the event, use of illicit or non-prescription drugs or use of alcohol within the six hours prior to the event, use of illicit drugs or non-prescription drugs during the last 12 months, alcohol consumption during the last 12 months and demographic characteristics. Patients who used alcohol or any other substance during the last 12 months were assessed for dependence in the last 12 months. A quantity-frequency (Q-F) typology for drinking during the last year was used as developed in prior studies in the emergency department; this is based on

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the frequency of usual drinking, and whether the patient reported consuming either 12 or more drinks or 5-11 drinks on one occasion. According to our results, most of the injured patients were males (60.0%) and under 30 years old (48.8%). The mean age was 35 years. Patients were fairly evenly divided between married (39.4%) and single (37.6%). Almost one third of the sample had only an elementary school education or less, and most had few economical resources. Only 7.5% of the patients attending this ED used at least one drug in the last 12 months, 1.0% used these substances within six hours prior to the injury, 4.4% scored positively on a drug problem screener, and 1.7% met criteria for substance dependence in the last 12 months. Regarding alcohol, 17.4% reported alcohol use within six hours prior to the injury and 15.5% were positive on the breathalyzer test. The prevalence of alcohol problems was 24.8% and 7.0% were positive for alcohol dependence in the last 12 months. Patients attending the ED with a violence-related injury were more likely to report substance use and substance use disorders, and to report alcohol use and alcohol use disorders than those with non-violent-related injuries. A close relationship was found between reporting substance use and/or substance use disorders and reporting alcohol use and/or alcohol use disorders, since patients who reported substance involvement were more likely to also report alcohol involvement. Finally, data on substance use and associated disorders in the ED, obtained for the first time in Mexico, suggest that drug dependence in ED patients may be higher than expected. This is an important topic that should be covered in future research. Screening patients and referring them to specialized treatment is an important step to be taken at ED scenarios in Mexico.

**Key words:** Substance, alcohol, dependence, patients, emergency department.

## RESUMEN

Según datos nacionales representativos de encuestas en hogares, después de años de baja prevalencia, el uso de sustancias se incrementó en México durante la década pasada. Este cambio en el uso de sustancias también se ha observado en encuestas de estudiantes de nivel medio y medio superior. Las drogas ilícitas son ahora, junto con el uso de alcohol, parte de las sustancias que se consumen en el país, entre la población general y entre usuarios de los servicios de salud, incluidos los Servicios de Urgencias (SU). En este contexto, las consecuencias por el uso de alcohol y drogas forman parte del actual perfil epidemiológico del mexicano. En el año 2000, entre la población de 15 a 64 años, el consumo de alcohol se relacionó con la segunda causa principal de muerte (cirrosis hepática) en México, la cuarta causa principal (accidentes, especialmente de tráfico), y la quinta causa principal (homicidios). El uso de sustancias se asoció con la quinta causa de muerte (homicidios) y con el SIDA (la séptima causa principal de muerte). Algunas de las consecuencias más importantes del consumo de alcohol o sustancias son los accidentes y la violencia que producen, ya sea directamente (por ejemplo, conductores ebrios) o indirectamente, a través del mercado ilegal del consumo de drogas. Estas consecuencias representan un desafío para el sistema de salud, especialmente para los servicios de urgencia. A pesar de esto, los datos que respaldan el impacto del consumo de sustancias y de alcohol son muy limitados en el país.

Aunque durante los últimos 15 años se han realizado diversos estudios en México acerca del papel del consumo de alcohol en casos de urgencias médicas y traumáticas, estudios similares sobre el uso de sustancias han sido más escasos. Por lo tanto, es necesario realizar nuevas investigaciones que documenten el aumento del uso y la dependencia a sustancias y alcohol, así como su asociación con episodios violentos en los SU. En México, entre los pacientes lesionados, el consumo de alcohol se ha asociado más a los episodios violentos en comparación a la población general. La relación entre el uso de sustancias, con excepción del alcohol, y las lesiones derivadas de la violencia en el SU han sido más inconsistentes. Debido al incremento en el consumo de sustancias, es especialmente importante presentar datos al respecto y mostrar el patrón de consumo de alcohol en combinación con el uso de sustancias en el contexto del SU. Aquí se reporta un estudio sobre pacientes lesionados (n=744) que solicitaron atención en el servicio de urgencias de un hospital general en la Ciudad de México. Se reporta la prevalencia del consumo de alcohol y sustancias (consumo habitual y seis horas antes de la lesión). Además, la prevalencia de los trastornos por el uso de sustancias (dependencia), y el resultado de una prueba de tamizaje rápida sobre el abuso de sustancias en estos pacientes se reportan por primera vez en México. Se presentan también datos sobre el consumo de alcohol y sustancias entre las lesiones relacionadas con la violencia, así como el papel que cumple el consumo combinado de alcohol y sustancias ilícitas en una lesión. Los datos que aquí se muestran son parte de un estudio colaborativo de la Organización Mundial de la Salud (OMS) sobre alcohol y lesiones. El estudio epidemiológico de la OMS fue llevado a cabo en 12 escenarios clínicos: Argentina, Brasil, Bielorrusia, Canadá, República Checa, la India, México, Mozambique, Nueva Zelanda, Sudáfrica y Suecia. La muestra en México consistió en adultos mayores de 18 años, que ingresaron en forma consecutiva al servicio de urgencias y reportaron una lesión, en un periodo de seis y media semanas. Todos los pacientes elegibles en el SU fueron captados durante las 24 horas, en el periodo del 15 de enero al 28 de febrero de 2002, y se les invitó a participar en el estudio. Se les tomó la muestra de aliento y se les entrevistó (previo consentimiento informado) inmediatamente después de ingresar al SU. A los pacientes que estaban gravemente lesionados para ser entrevistados, se les dio seguimiento y se les entrevistó cuando se estabilizó su condición. Los datos se recolectaron a través de un cuestionario con una duración de 25 minutos, administrado por entrevistadores entrenados. En la entrevista se obtenían datos, entre otras preguntas, sobre el motivo de ingreso del paciente al SU, el uso de medicamentos con o sin prescripción médica en las seis horas previas al evento, uso de drogas ilícitas o no prescritas, o consumo de alcohol en las seis horas antes del evento, uso de drogas ilícitas o drogas no prescritas durante los últimos 12 meses, consumo de alcohol y drogas en los últimos 12 meses y características demográficas. En los pacientes que consumieron alcohol o alguna sustancia durante los últimos 12 meses, se exploró la dependencia en los últimos 12 meses. La tipología de frecuencia-cantidad para el consumo de alcohol en el último año fue usada y desarrollada de acuerdo con estudios previos en servicios de urgencias y se basó en la frecuencia habitual de la ingesta, y en el reporte del pacientes sobre el consumo de 12 o más copas, o 5-11 copas por ocasión. De acuerdo con nuestros resultados, la mayoría de los pacientes lesionados fueron hombres (60.0%) y menores de 30 años (48.8%). La media de edad fue de 35 años. Los pacientes se dividieron uniformemente entre casa-

dos (39.4%) y solteros (37.6%). Casi un tercio de la muestra tenía educación primaria o menos, y muchos tenían pocos recursos económicos. Sólo 7.5% de los pacientes atendidos en este SU usó al menos una droga en los últimos 12 meses, 1.0% usó alguna sustancia seis horas antes de la lesión, 4.4% tuvo un puntaje positivo en la escala de tamizaje sobre problemas de drogas y 1.7% cumplió con los criterios de dependencia a las sustancias en los últimos 12 meses. Respecto al alcohol, 17.4% reportó consumo de alcohol en las seis horas previas a la lesión y 15.5% dio positivo en la medición de aliento alcohólico. La prevalencia de los problemas del alcohol fue de 24.8%, y 7.0% dio positivo para la dependencia al alcohol en los últimos 12 meses. Los pacientes atendidos en el SU por una lesión asociada a un acto de violencia tuvieron mayor probabilidad de reportar tanto uso de sustancias como trastornos por el uso de sustancias, así como reportar consumo de alcohol y trastornos por el uso de alcohol, en comparación con quienes presentaban una lesión que no fuera resultado de la violencia. Se encontraron estrechas relaciones entre los que reportaron uso de sustancias y/o trastornos por el uso de sustancias y los que reportaron consumo de alcohol y/o trastornos por el consumo de alcohol. Así, los pacientes que reportaron estar más involucrados con el consumo de sustancias también reportaron mayor consumo de alcohol. El uso de sustancias se ha vuelto más común entre los pacientes lesionados atendidos en el SU, según se aprecia por lo menos en esta muestra de pacientes de urgencias de la Ciudad de México. Finalmente, los datos sobre el uso de sustancias y sus trastornos asociados, los cuales se reportan por primera vez en México, sugieren que la dependencia a las drogas en pacientes del SU puede ser más alta de lo que se esperaba. Este es un punto importante que se debe explorar en futuras investigaciones. El tamizaje y el referir a los pacientes a tratamientos especializados son los pasos más importantes que se deben tomar en escenarios como los servicios de urgencia.

**Palabras clave:** Sustancias, alcohol, dependencia, pacientes, servicio de urgencias.

## INTRODUCTION

After years of low baseline prevalence, substance use rose in Mexico during the last decade, according to nationally representative data from household surveys (6). This changing pattern is also evident among middle and high school students' surveys (24). As a result, marijuana use is more common, and synthetic drugs are present in large metropolitan cities. Both are drugs that were rarely mentioned before among Mexicans and which are now becoming more common (specially cocaine and heroin), while inhalants use has been dropping steadily. The impact of this rise in substance use has been noticed among patients of treatment centers for substance use, in the health care services in general and in the burden of substance users for the legal system (14, 17, 21, 23). Illicit drugs are now joining alcohol use as part of the substances currently found among the general public and the clients of health care

services in the country (16).

In this context, alcohol and substance use and its consequences are now important parts of the current Mexican epidemiological profile. In the year 2000, among the population aged 15-64 years, alcohol was associated with the second leading cause of death (liver cirrhosis) in Mexico, the fourth leading cause (accidents, specially traffic-related), and the fifth leading cause (homicides). Likewise, substance use was associated with the fifth leading cause of death (homicides) and with AIDS (the seventh leading cause).

Some of the most important consequences of alcohol and substance use are the accidents and violence that they produce, either directly (i.e., drunken drivers) or indirectly through the channels of the illegal market of drug consumption. These consequences pose an important burden for the health system, specially for the emergency care delivered in emergency departments (ED) (15). Despite this, data to substantiate the impact of both substance use and alcohol is very limited in the country. Although during the last 15 years there have been several studies in Mexico to address the role of alcohol use in traumatic and medical emergencies (3, 18, 19), similar studies for substance use are much scarcer. Mexico has a surveillance system for substance abuse in several sentinel sites of the country "Sistema de Vigilancia Epidemiológica de las Adicciones, SISVEA) (21, 23), and in Mexico City itself a broader surveillance system has also been in continuous operation since 1986 (Sistema de Reporte de Información en Drogas, SRID) (17, 21). Unfortunately, both the SISVEA and the SRID, which follows a similar surveillance system used in the United States, the Drug Abuse Warning Network (DAWN), include only those cases where the drug-related episode is identified as the primary reason for the ED visit. When compared to toxicology reports from the same facility, these reporting systems have been found to under-report drug-related visits (5, 13). Given the limitations of current surveillance systems, representative surveys of injured patients in the ED are useful sources of data that allow a more balanced view of the prevalence of alcohol and substance use in this scenario. The last such survey in Mexico City was performed in 1986 (18), but substance use was only asked among those patients who reported alcohol use within six hours prior to their emergency. Therefore, new research in this area, that provides updated data on the prevalence of substance and alcohol use, is needed. Due to the increase in substance use, it is specially important to present data on substance use on itself, and to reveal the pattern of alcohol use in combination with substance use in the context of the ED consultation.

In Mexico, among injured patients, alcohol use has

been linked to violence related episodes when compared to the general population (3, 4). The relationship between substance use, other than alcohol, and violence-related injuries in the emergency room has been more inconsistent. Soderstrom (22) found that intentional injuries were more likely to test positive on urine screening for drugs and for drugs in combination with alcohol than unintentional injuries, and that life-time and last 12-month drug dependence were both more common among intentional than unintentional injuries. In Mexico, substance use disorders have been linked to injuries in Pachuca (3) and with suicide attempt in Mexico City (2), but not with male violence-related injuries in Mexico City (4). Recent research among Mexican-Americans in the US, has found that patients with a violence-related injury were more likely to report drug use within the six hours prior to the event and drug use during the last year, compared to those with other types of injury (13).

A study of injured patients seeking care in the emergency department of a public general hospital in Mexico City is reported here. Prevalence of alcohol and substance use (habitual use and use within six hours prior to the injury) is also reported. Additionally, the prevalence of substance use disorders (dependence) and the result of a rapid screening test for substance abuse among these patients are reported for the first time in the country. Alcohol and substance use among violence-related injuries and the role of combined use for both alcohol and illicit substances on injuries are addressed as well. The data reported here is part of the World Health Organization (WHO) Collaborative Study on Alcohol and Injuries, a multi-country epidemiological study carried out in 12 clinical settings in Argentina, Brazil, Belarus, Canada, China, Czech Republic, India, Mexico, Mozambique, New Zealand, South Africa, and Sweden. This study was designed to quantify the incidence of alcohol-related injuries in emergency departments in multicultural settings, to test the validity of the International Classification of Diseases (ICD-10) Y90 and Y91 codes to assess alcohol intoxication, and to lay scientific groundwork for future international research in the area.

## METHODS

### Sample selection

A sample of adult patients, 18 years and older, admitted to the emergency department and reporting an injury was drawn from ED admission forms which reflected consecutive patient arrival in the ED over a six and a half-week period. All eligible patients attended at the ED during a 24 hour period between January 15, 2002,

and February 28, 2002, were approached and asked to participate. Patients were approached to be breathalyzed and interviewed (with informed consent) as soon as possible after admission to the ED. Patients who were too severely injured to be interviewed in the ED were followed into the hospital and interviewed after their condition had stabilized.

During the data collection period, a total of 744 patients were approached, of whom 39 (5.2%) did not participate. The main reasons for non-participation were refusal (2.2%) and patients being transferred before they could be interviewed (1.7%).

### Instruments

Data were collected using a questionnaire lasting about 25 minutes, administered by trained interviewers. Among other items, the interview obtained data on the condition which brought the patient to the ED, use of prescription or non-prescription medications within six hours prior to the event, use of illicit or non-prescription drugs or use of alcohol within six hours prior to the event, use of illicit drugs or non-prescription drugs during the last 12 months, alcohol consumption during the last 12 months, and demographic characteristics.

Patients were asked about having used drugs during the six hours prior to the event and in the last 12 months in the following categories: 1. amphetamine; 2. crack or cocaine in any form; 3. sedatives, tranquilizers, or barbiturates; 4. heroin; 5. hallucinogens; 6. marijuana; 7. inhalants; 8. any other drugs, not including prescriptions and medications.

Patients who used alcohol or any other substance during the last 12 months were assessed for dependence in the last 12 months. Alcohol dependence and substance dependence were measured using an adaptation of the substance section of the CIDI core (25) for DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th Revision) criteria for current (last 12 months) alcohol dependence and substance dependence (1). These same patients were asked the four items from the Rapid Alcohol Problems Screen (RAPS4) (10, 11). Patients reporting one or more positive items on the RAPS were considered positive. We modified the RAPS to create a drug version: the RDPS. The modified four items for drug problems were: Feeling guilt or remorse after drug use (**R**emorse), saying or doing things that could not be remembered while using drugs (**A**mnnesia), failing to do what was normally expected because of drugs (**P**erformed), taking a drug first thing in the morning (**S**tarter).

A quantity-frequency (Q-F) typology for drinking during the last year was used as developed in prior studies in the emergency department (8) and is based

on the frequency of usual drinking, and whether the patient reported consuming either 12 or more drinks or 5-11 drinks on one occasion. Frequency of drinking was defined as: low (<once a month), moderate (> once a month but <three times a week), high (> three times per week). Quantity was defined as low (never having five drinks at one time), moderate (> five but <12 drinks at one time), high (> 12 drinks at one time). Five drinking categories were developed from this typology: 1. abstainer (no drinking during the last year); 2. infrequent (low frequency/any quantity); 3. light (moderate or high frequency/low quantity); 4. moderate (moderate or high frequency/moderate quantity or moderate frequency/high quantity); 5. heavy (high frequency/high quantity).

### Data analysis

Frequencies and percents are reported for demographic characteristics (table 1) drug use characteristics (table 2), and alcohol consumption characteristics (table 3).

Significant differences in drug and alcohol use variables are analyzed between those with and those without violence-related ED visits, using chi-square tests, or Fisher's exact test when cell sizes were less than five (table 4). Finally, significant differences in alcohol use within six hours prior to the event, use in the last 12 months, and alcohol dependence are analyzed among those reporting drug use within six hours prior to the event, drug use in the last 12 months and drug dependence, again using chi-squared tests and Fisher's exact test (table 5).

## RESULTS

As seen in table 1, most of the injured patients were males (60.0%) and under 30 years old (48.8%). The mean age was 35 years. Patients were fairly evenly divided between married (39.4%) and single (37.6%). Almost one third of the sample had only an elementary school education or less, and most had few economical resources. About 10% of these patients reported using an ED service at least once during the previous 12 months (not counting the current visit), and most (82.4%) reported an unintentional injury as the main reason for attending the ED this time.

### Substance and alcohol use

Only 1% of the sample reported drug use within six hours prior to injury, with inhalants and marijuana being the most commonly reported drugs, and no one reported using of more than one drug during this time (table 2). Drug use in the last 12 months was more common, with 7.5% reporting substance use during this period, primarily marijuana (5.0%), followed by

TABLE 1  
Demographic characteristics of a sample of injured patients in an Emergency Department (ED). Mexico City, 2002

	f	%
<b>Gender</b>		
Male	423	60.0
Female	282	40.0
<b>Age group</b>		
Mean 35.4 years		
18-29	344	48.8
30-39	141	20.0
40-49	75	10.6
50-59	69	9.8
60-69	32	4.5
70-99	44	6.2
<b>Education</b>		
Primary (<=6th grade)	224	31.9
Secondary (high school)	201	28.6
Some college	165	23.5
Complete college	113	16.1
<b>Marital status</b>		
Single	264	37.6
Married	277	39.4
Married like relationship	73	10.4
Sep/divorced	41	5.8
Widowed	48	6.8
<b>Income</b>		
Does not work	268	39.2
Equal or less to one wage	72	10.5
2-3 wages	145	21.2
3-5 wages	164	24.0
6-9 wages	23	3.4
10 or more wages	12	1.8
<b>Number of ER visits in the last 12 months</b>		
No prior visit	630	89.6
One visit	61	8.7
Two visits	7	1.0
Three or more visits	5	0.7
<b>Why Harmed</b>		
Unintentionally	580	82.4
Intentional self-inflicted	13	1.8
Intentionally by someone else	110	15.6
Other	1	0.1

cocaine (2.8%) and inhalants (0.9%). Use of a single drug was the most prevalent pattern (5.4%), but 2.1% reported using two or more substances during the last year. A total of 31 patients screened positive in the DRPS, for a 4.4% prevalence in the last 12 months, and 1.7% of the sample met the criteria for a drug dependence disorder in the last 12 months.

Alcohol was much more commonly reported than any other substance use (table 3). About 17.4% reported alcohol use within six hours prior to the injury, and 15.5% were positive according to the breathalyzer test. Patients who reported using alcohol prior to the injury tended to report higher levels of consumption during the previous six-hour period than the usual number of drinks consumed at a time during the last year among all current drinkers, with a mean of 9.13 drinks (each standard drink has 16 ml of ethanol), and a median of 5.10 drinks, compared to a mean of 6.52 and a median of 4.12 drinks for all current drinkers. Nearly a third of the patients were abstainers during the last 12

**TABLE 2**  
Drug consumption among a sample of injured patients in an Emergency Department (ED). Mexico City, 2002

	f	%
<b>Substance use 6 hrs prior to injury</b>		
No	695	99.0
Yes	7	1.0
<b>Type of substance</b>		
Amphetamine	-	-
Cocaine	1	0.1
Tranquilizers	1	0.1
Heroin	-	-
Marijuana	2	0.3
Hallucinogens	-	-
Inhalants	3	0.4
Any other(s)	-	-
None	695	99.0
<b>Number of substances in the 6 hrs prior</b>		
No drugs	695	99.0
Only one	7	1.0
Two or more	-	-
<b>Current substance use in the last 12 months</b>		
No	650	92.5
Yes	53	7.5
<b>Type of substance</b>		
Amphetamine	1	0.1
Cocaine	20	2.8
Tranquilizers	7	1.0
Heroin	1	0.1
Marijuana	35	5.0
Hallucinogens	2	0.3
Inhalants	6	0.9
Any other(s)	1	0.1
No drugs last 12 months	650	92.5
<b>Number of substances in the last 12 months</b>		
None	650	92.5
Only one	38	5.4
Two or more	15	2.1
<b>RDPS Drug in the last 12 months*</b>		
No/ Non-current user	672	95.6
Yes	31	4.4
<b>Substance dependence in the last 12 months**</b>		
No/ Non-current use	693	98.3
Yes	12	1.7

\* RDPS screening test is a measure of problem drugs in the last 12 months (see text for definition).

\*\* Substance dependence according to DSM-IV diagnostic criteria (see text for definition).

months (32.3%), while another third were infrequent drinkers (34.1%). Only 2.2% were considered heavy drinkers (i.e., high frequency/high quantity). Finally, almost a quarter of the sample (24.8%) scored positively on the RAPS, while 7.0% met criteria for alcohol dependence in the last 12 months, based on a DSM-IV diagnosis.

### Substance use and violence-related injuries

Table 4 shows the prevalence of drug use (top) and alcohol use (bottom) among those with violence-related injuries compared to those with non-violence-related injuries. For all substance use variables, those with violence-related injuries were significantly more likely to score positive than those with injuries unrelated to violence, except for drug dependence disorder. For

**TABLE 3**  
Alcohol consumption among a sample of injured patients in an Emergency Department (ED). Mexico City, 2002

	f	%
<b>Drinking in 6 hrs prior to injury</b>		
Yes	122	17.4
Not during 6 hours	460	65.4
Abstainer	121	17.2
<b>Blood alcohol concentration (BAC)</b>		
Negative	382	84.5
.01-.049 mg/ml	13	2.9
.05-.099 mg/ml	23	5.1
>= .10 mg/ml	34	7.5
<b>Quantity of alcohol used by 6 hrs users (in drinks)</b>		
Mean	9.13	
Median	5.10	
<b>Current drinker in the last 12 months</b>		
No	225	32.0
Yes	478	68.0
<b>Usual frequency in the last 12 months</b>		
Every day or nearly every day	8	1.1
3 or 4 times a week	11	1.6
Once or twice a week	57	8.1
1- 4 times a month	164	23.3
1-11 times a year	238	33.7
Not in the last 12 months	104	14.8
Never	121	17.2
<b>Usual quantity of alcohol among current drinker (in drinks)</b>		
Mean	6.52	
Median	4.12	
<b>Alcohol consumption pattern*</b>		
Abstainer	225	32.3
Infrequent	238	34.1
Light	54	7.7
Moderate	165	23.7
Heavy	15	2.2
<b>RAPS Alcohol in the last 12 months**</b>		
No/ Non-current drinker	529	75.2
Yes	174	24.8
<b>Alcohol dependence in the last 12 months***</b>		
No/ Non-current user	656	93.0
Yes	49	7.0

\*Refers to the drinking pattern during the last 12 months. The drinking pattern categories were defined based on self-report information of the usual frequency of drinking and the usual quantity of alcohol drank (see text for definition).

\*\*The RAPS (Rapid Alcohol Problems Screen) is a measure of problem drinking in the last 12 months (see text for definition).

\*\*\*Alcohol dependence according to DSM-IV diagnostic criteria (see text for definition).

example, patients with violence-related injuries were four times more likely to report using drugs in the six hours prior to the event than those with other injuries (2.8% vs. 0.7%), 3.9 times more likely to score positive on the RDPS, and 2.8 times more likely to meet the diagnostic criteria for a drug dependence diagnosis (although this latter comparison was not statistically significant). They were also 3.8 times more likely to report alcohol use prior to the event, 1.4 times more likely to score positively on the RAPS and 1.8 times more likely to meet the diagnostic criteria for an alcohol dependence diagnosis.

Patients who reported drug use were, in general, more likely to use alcohol as well (table 5). Patients reporting drug use within six hours prior to being injured had a higher prevalence of alcohol use during the same six

**TABLE 4**  
**Drugs and alcohol involvement in violence-related injuries of patients in an Emergency Department (ED). Mexico City, 2002**

	Violence (%)		
	No	Yes	Total
<b>Drugs 6 hrs prior to injury</b>			
No	99.3	97.2	99.0
Yes	0.7	2.8	1.0
Fisher's Exact Test =0.078			
<b>RDPS-drugs in the last 12 months</b>			
No	97.0	88.2	95.6
Yes	3.0	11.8	4.4
Fisher's Exact Test =0.000			
<b>Substance dependence in the last 12 months</b>			
No	98.7	96.4	98.3
Yes	1.3	3.6	1.7
Fisher's Exact Test =0.103			
<b>Alcohol 6 hrs prior to injury</b>			
No	88.0	54.5	82.8
Yes	12.0	45.5	17.2
$X^2=72.8$ ; $p=0.000$			
<b>RAPS-alcohol in the last 12 months</b>			
No	76.9	66.4	75.2
Yes	23.1	33.6	24.8
$X^2=5.4$ ; $p=0.019$			
<b>Alcohol dependence in the last 12 months</b>			
No	93.8	89.1	93.0
Yes	6.2	10.9	7.0
$X^2=3.1$ ; $p=0.077$			

hours, were more likely to be current drinkers (although this was not significant), and were more likely to screen positive on the RAPS and to have an alcohol dependence disorder. Likewise, patients with drug dependence were more likely to have used alcohol six

hours prior to the injury, to screen positive on the RAPS, and to meet criteria for a comorbid alcohol dependence diagnosis.

## DISCUSSION

According to these results, 7.5% of the patients attending this ED used at least one drug in the last 12 months, 1.0% used these substances within six hours prior to the injury, 4.4% scored positively on a drug problem screener, and 1.7% met criteria for substance dependence in the last 12 months. Regarding alcohol, 17.4% reported alcohol use within six hours prior to the injury and 15.5% were positive on the breathalyzer test. The prevalence of alcohol problems (RAPS) was 24.8%, and 7.0% were positive for alcohol dependence in the last 12 months. Patients attending the ED with a violence-related injury were more likely to report substance use and substance use disorders, and to report alcohol use and alcohol use disorders than those with non-violent-related injuries. Finally, a close relationship was found between reporting substance use and/or substance use disorders and reporting alcohol use and/or alcohol use disorders, since patients who reported substance involvement were more likely to also report alcohol involvement.

Comparisons of these data with a previous ED study in Pachuca, Mexico (12), found slightly higher rates in the present study for reporting drug use within six

**TABLE 5**  
**Alcohol and drug consumption among injured patients in an Emergency Department (ED). Mexico City, 2002**

	DRUGS							
	Drugs 6 hrs prior		Drugs 12 months		RDPS-drugs last 12 months*		Substance dependence in the last 12 months**	
	No	Yes	No	Yes	No	Yes	No	Yes
<b>ALCOHOL</b>								
<b>Alcohol 6 hrs prior to injury</b>								
No	83.3	42.9	84.6	58.5	84.5	45.2	83.4	41.7
Yes	16.7	57.1	15.4	41.5	15.5	54.8	16.6	58.3
Fisher's Exact Test =0.019; $X^2=23.3$ ; $p=0.000$ ; $X^2=32.0$ ; $p=0.000$ ; $X^2=14.2$ ; $p=0.000$								
<b>Current drinker in the last 12 months</b>								
No	32.4	-	34.0	7.5	33.6	-	32.6	-
Yes	67.6	100.0	66.0	92.5	66.4	100.0	67.4	100.0
Fisher's Exact Test =0.103; $X^2=15.7$ ; $p=0.000$ ; Fisher's Exact Test =0.000; Fisher's Exact Test =0.017								
<b>RAPS-alcohol in the last 12 months***</b>								
No	75.6	42.9	78.8	32.1	78.4	12.9	76.1	25.0
Yes	24.4	57.1	21.2	67.9	21.6	87.1	23.9	75.0
Fisher's Exact Test =0.067; $X^2=57.3$ ; $p=0.000$ ; $X^2=68.5$ ; $p=0.000$ ; Fisher's Exact Test =0.000								
<b>Alcohol dependence in the last 12 months****</b>								
No	93.4	57.1	95.8	58.5	95.2	46.7	94.1	33.3
Yes	6.6	42.9	4.2	41.5	4.8	53.3	5.9	66.7
Fisher's Exact Test =0.009; $X^2=105.4$ ; $p=0.000$ ; $X^2=106.5$ ; $p=0.000$ ; Fisher's Exact Test =0.000								

\* RDPS screening test is a measure of problem drugs in last 12 months (see text for definition).

\*\* Substance dependence according to DSM-IV diagnostic criteria (see text for definition).

\*\*\* The RAPS (Rapid Alcohol Problems Screen) is a measure of problem drinking in last 12 months (see text for definition).

\*\*\*\* Alcohol dependence according to DSM-IV diagnostic criteria. (see text for definition).

hours prior to injury (1.0% vs. 0.6%, respectively), and for reporting substance use in the last 12 months (7.5% vs. 4.0%, respectively). When compared to similar data on Mexican-American ED patients in California, however, rates are significantly lower than those in Mexico, with 4% of injured Mexican-Americans reporting drug use within six hours of injury and 39% reporting drug use during the last year (13). Among Mexican-Americans, these rates were found to vary according to the degree of acculturation, with those low on acculturation (and most like those in Mexico) showing similar rates to those reported in the present study. Among both injured and non-injured, 1% in the low acculturation group reported drug use within six hours prior to the event compared to 6% in the high acculturation group, while 4% of those low on acculturation reported drug use during the last year compared to 49% of those high on acculturation (13).

While diagnoses of drug dependence have not frequently been obtained among ED patients, one U.S. study found a rate of 17.7% for a current drug use disorder among an unselected sample of patients treated at a level I trauma center, which is dramatically higher than that found in this Mexican sample (1.7%)(22).

Although the relationship of drug use to violence-related injuries is similar to that found in other studies, the magnitude of this association is, again, smaller. For example, data across all ethnic groups in a U.S. study found that 11% of those with violence-related injuries reported drug use within six hours prior to injury compared to 2% of those with other injuries, and 61% reported drug use during the last year compared to 43% of those with injuries unrelated to violence (13). Similarly, another U.S. study found that 48% of those with intentional injuries had a lifetime diagnosis of drug dependence compared to 10% of those with unintentional injuries (22). This same study found higher rates of comorbid disorder among those with violence related injury compared to other injuries: 24% of those with violence-related injuries had a lifetime diagnosis for both alcohol and other drug dependence compared to 13% of those without violence-related injuries.

Given these comparative findings, then, associations of substance use and abuse to injuries in this ED study are similar to findings from other ED studies in Mexico, and to ED studies of those Mexican-Americans who may only have recently immigrated from Mexico. The data suggest, however, that the magnitude of these associations is smaller when compared to other, non-Mexican, groups.

The limitations of this study findings pertain mainly to the lack of a biological specimen for toxicology

testing for drug use in the ED sample. Thus, we are not able to discard the possibility of a bias in the self-reported prevalence of drug use prior to the injury. While positive results from toxicology screens are not truly comparable in time frame with self-reported substance use within the six hours prior the event, in the case of alcohol consumption self-reported use prior to the event has been found to be a more accurate indicator of use than biological specimens (breath analysis) obtained at the time of the ER visit (9), and some data suggest this may also be true for drug use (7).

Despite these limitations, data on substance use and associated disorders in the ED, obtained for the first time in Mexico, suggest that drug dependence in ED patients may be higher than expected. Data from the last National Survey (20) found a 1.4% 12 month prevalence of drug use disorder in Mexico City. This is an important topic that should be covered in future research. Finally, we are reporting here for the first time the results of a drug screener that is brief and easy to use. Future reports from our group will discuss more in depth the properties of this scale.

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