The profile of amphetamine users in a substance abuse treatment center in Mexico

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RESUMEN

Introducción: en México, el consumo de anfetaminas es un problema de salud pública. **Objetivo:** describir el perfil de los consumidores de anfetaminas. **Método:** estudio retrospectivo y transversal. Se revisaron las historias clínicas de los ingresados en el Centro Estatal contra las adicciones Cúspide, durante el período 2016-2018. **Resultados:** de 112 pacientes (89 hombres, 23 mujeres), 40.2% cursó bachillerato; 67.9% provenía de una familia desestructurada y 93.8% tenía una familia disfuncional con mala relación afectiva parental; 55.3% tenía problemas de alcoholismo en el núcleo familiar; también presentaron inicio precoz de relaciones sexuales y consumo de tabaco; asimismo, el intento de suicidio se presentó en 35.7%, y las lesiones a terceros y robo en 73.2% de los pacientes. **Discusión y conclusiones:** el uso de anfetaminas y su creciente prevalencia son una realidad; el problema va más allá del campo de la salud y se convierte en un problema social que involucra a toda la población en mayor o menor medida. Conocer el perfil epidemiológico del paciente consumidor es un referente para implementar políticas de salud y establecer medidas preventivas y terapéuticas adecuadas.

Palabras clave: metanfetamina; anfetamina; usuarios de drogas; perfil; centro contra las adicciones

ABSTRACT

Introduction: in Mexico, amphetamine use is a public health problem. **Objective:** to describe the profile of consumers of amphetamines. **Method:** it was retrospective and cross-sectional study. The medical records of those admitted to the state Cúspide substance abuse treatment center, during the period 2016-2018, were reviewed. **Results:** 112 patients (89 men, 23 women) were analyzed. The profile included a patient with high school (40.2%), coming from an unstructured (67.9%) and dysfunctional family (93.8%) with poor parental affective relationship, alcoholism in the family nucleus (55.3%), early onset of sexual activity, alcohol and tobacco consumption; impulsive personality, suicide attempts (35.7%), and injuries to third parties and theft (73.2%). **Discussion and conclusions:** amphetamine use and rising prevalence behavior are a reality; the problem goes beyond the field of health and becomes a social problem that potentially involves the entire population to a greater or lesser extent. Knowing the epidemiological profile of the amphetamine consumer is a reference for implementing health policies and establishing preventive and therapeutic measures in order to solve the problem.

Keywords: methamphetamine; amphethamine; drug users; profile; substance abuse treatment center.

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INTRODUCTION

Amphetamine-type stimulants (ATS)

It is a group of drugs that includes ecstasy and amphetamines, the latter group includes amphetamine and methamphetamine. Ecstasy-like substances include 3,4-methylene-dioxy-methamphethamine (MDMA), 3,4-methylene-dioxy-amphetamine (MDA) or 3,4-methylene-dioxy-N-ethylamphetamine (MDEA). Ecstasy-like substances are stimulants, but they are also hallucinogenic (OEA & CICAD, 2019). In the amphetamine group, the psychoactive component is N-methyl-1-phenylpropan-2-amine which acts by releasing dopamine in the intersynaptic space of the reward system pathways.

Historical background

The drug was initially synthesized in Japan in 1919 and was marketed in 1938 as Methedrine, which was used in nasal decongestant and bronchial tubes inhaler. During World War II, both sides used this substance to stimulate their troops. In the 50's and 60's, these substances were used for obesity and depression treatment in such a way that in 1967, 31 million prescriptions were issued (Anglin et al., 2000). In 1970, ATS were reclassified according to the International Convention on Psychotropics, in Schedule II, as drugs with high addiction potential, accessible only by controlled medical prescriptions. Consequently, illicit production grew up, using phenyl-2-propanone (P2P) and methylamine; however, in 1980 P2P was also included as controlled substance so ephedrine and pseudoephedrine were the most important precursors, and the trafficking of these substances also began (Maxwell & Brecht, 2011).

Biopsychosocial repercussions of amphetamine use

Personal and social effects of consumption are serious. The user can experience memory loss, aggressive behaviors, psychotic behaviors, cardiovascular system damage, malnutrition, serious dental problems and is more susceptible to adquire infectious diseases, such as hepatitis and HIV-AIDS. Socioeconomic cost is very high too. Methamphetamine is the drug that contributes the most to violent crime. Therefore, also increases the waves of crime, unemployment, neglect and child abuse (U.S. Department of Justice, 2016). Secondary to this, there is an economic cost that must be paid by society.

Consumption statistics

Methamphetamine "eecreational" use has become a serious health problem in Mexico and in the world (Courtney & Ray, 2014) According to the United Nations Office on Drugs and Crime, of all ATS, methamphetamine is the most widely used, and the second most consumed drug worldwide (UNODC, 2012). It is calculated that in 2010, 0.7% (33.8 million) of the world population (15 to 64 years old) used ATS (UNODC, 2013).

Although there is a general global alarm about the consumption of these substances, the most systematic review of the prevalence was carried out in 2014, by Courtney & Ray (2014). However, there are some more recent publications that report prevalences of regional methamphetamine use. For example, in Germany, based on the 2015 Epidemiological Survey of Substance Abuse, a lifetime prevalence of methamphetamine consumption in the individual states ranged from 0.3% (North Rhine-Westphalia) to 2.0% (Saxony; Gomez de Matos et al, 2018). The 2019 EMCDDA-Europol Threat Assessment declared that the value of the combined market of amphetamine and methamphetamine was estimated to be about EUR 1 billion, implying that at least 62 tons of amphetamines are consumed annually in Europe Although there is a lack of quantitative data on methamphetamine use, other data, such as global drug seizures suggest that methamphetamine is the synthetic stimulant most consumed at world level (EMCDDA & Europol, 2019).

In 2011, in the United States, some 329,000 individuals were classified as addicts to stimulants, and this number increased to 535,000 in 2012 (SAMHSA, 2013).

In Mexico, the National Survey on the Consumption of Drugs, Alcohol and Tobacco (ENCODAT) periodically evaluates the global prevalences and the main state variations of drug consumption in population of 12 to 65 years old, selected in a probabilistic way in the 32 Federal entities of the country. This survey reported that the prevalence of the consumption in general population of any drug at some time in life was 10.3 % (men 16.2 % and women 4.8 %), in the last year 2.9 % (men 4.6 % and women 1.3%). A significant increase was observed in both prevalences compared to the 2011 survey, for both men and women. On the other hand, it was identified that those who had developed dependence on any drug were 0.6% of the population (546,000 people: 1.1 % of men and 0.2 % of women; [ENCODAT, 2017]).

Another worrying fact is that the age of onset of consumption is getting younger. In males, age decreased from 18.5 to 17.7 years old, while in women went from 20.1 years in 2011 to 18.2 years old in 2016 (ENCODAT, 2017). On the other hand, the analysis of the population (3,844 adolescents, 94% men) of the 55 Internal Treatment Centers for Adolescents who violate criminal laws showed that 98 % had used drugs, including alcohol and tobacco, prior to entering the treatment center and that 40 % had committed crimes under the influence of some drug (CONADIC, 2019).

According to 2018 data from the Information System of the State Councils against Addictions (SICECA), at national level people were admitted to primary treatment centers for alcohol consumption (15,971), marijuana (13,994), amphetamines and methamphetamines (6,533), tobacco (4,920), cocaine (2,288) and inhalants (1,266). In the same year, the primarly drug for which treatment was requested was alcohol (35.0%), marijuana (30.7%), methamphetamines (14.1%) and tobacco (10.8%). However, it was observed that in the north of the country methamphetamine ranked first as the primarly drug (31.2 %). Also, 2.2% of Mexican high-school students consume amphetamine drugs, while in the United States 0.8% of young people of the same school grade, do it (CONADIC, 2019).

In our country, the number of amphetamine addicts in treatment grew 775% in 18 years, from 1.2 to 10.5 people per 100,000 inhabitants (CONADIC, 2019). Of the 32 federal entities that constitute Mexico as a country, Veracruz is the eleventh largest state, and is located in the eastern part of the country. It borders the Gulf of Mexico and 7 other states. In Veracruz, a significant increase in drug consumption was observed, from 0.8% in 2008 to 2.5% in 2016, while the accumulated incidence of the use of illegal drugs in the population between 12 and 65 years of age increased from 2.7% in 2008, to 8.5% in 2016 (ENCODAT, 2017).

Given this worrying panorama of methamphetamine consumption, our objective was to describe the profile of amphetamine users who required admission to a state substance abuse treatment center in Veracruz, Mexico.

METHODS

Type of study

A descriptive cross-sectional study was conducted in which the clinical records of all those admitted to the State CUSPIDE substance abuse treatment center from 2016-2018 were reviewed; those whose reason for admission was amphetamine use, were selected.

Sample size

Sample size was 112 cases, which was the total of the universe treated for amphetamine use, during the selected years.

Study protocol

For all patients admitted to the Rehabilitation Center, a protocol is applied by different members of the multidisciplinary team. This protocol includes a complete medical examination, performed by a certified physician who also analyzes the basic general examinations (hematic biometry, blood chemistry with liver function tests, general urine examination, tests for HIV and hepatitis B and C). During the first 10 days of patient's stay in the Center, the clinical psychology team applies a series of tests. The evaluations include interviews to evaluate aspects such as psychological, psychometric, family, and spiritual, an also, history of drug use. Also, a series of tests are applied that include Raven's Progressive Matrices Test, Cattell's 16-factor personality test, human figure drawing test by Karen Machover, HTP test (house-tree-person),-the Beck Depression Inventory, The Beck ansiety inventory, Psychosis scale (Wisconsin Psychosis Vulnerability Scales and Esquizo-Q) and the Satisfaction Scale with Life (SWLS) by Diener; self-aggressive behavior was considered to be the presence of tattoos, and the direct or indirect production of harm to the patient himself (injuries, suicide attempts, consumption of non-prescribed toxic substances). Impulsivity was evaluated with a psychological interview as a present category when there is evidence of the commission of acts dictated by a sudden need, frequently incoercible related to a fragmented conscience (Medina et al., 2017). In this protocol, the social work staff investigates, through an interview, the family structure and function based on the clinical rating scale of the McMaster model of family functioning and CIE-10 (Miller et al., 1994). The different categories of the consumer profile were integrated from the variables reviewed in the protocol, which provide a comprehensive view of the individual and the problem. Inside, the presence or absence of the variable was identified when it corresponded to a nominal or ordinal variable; in continuous variables, the moment in which the event occurred was identified. The population profile was grouped into five categories, and was studied for the general population, for women and for men.

- Sociodemographic and educational profile included age, civil status, scholarship, school dropout, religion and previous occupation.
- Nutritional profile and personal habits included body mass index (BMI), nutritional condition, smoking, smoking age of onset, alcohol consumption, and alcohol age of onset.
- Psychological, sexual behavior and intellectual profiles. The features included were self-injurious behavior, type of self-injurious behavior, previous antisocial behavior, type of previous antisocial behavior, impulsiveness, sexual behavior, and intellectual coefficient (IQ) and IQ category.
- Familiar structure, family dynamics and neuro-psychiatric disease profile. The following characteristics were studied: Sibling position, personal care recei-

ved from the father, personal care received from the mother, familial structure, family functionality, father's occupation, neuro-psychiatric disease in the nuclear family and type of neuro-psychiatric illness.

- Amphetamine use profile. Drug use before amphetamines, type of drugs used before amphetamines, place of initial consumption, person who initially provided the drug, intensity of consumption either alone or with company, type of psychotic and systemic manifestations, way of consumption, percentage of patients who finished the treatment in hospitalization and follow-up of the patient as an outpatient until completing the treatment scheme.

Statistical analysis

Nominal or ordinal scales were used for most of the variables; in these cases, the statistical analysis included the percentage. The variables age, age of beginning of active sexual life, age of beginning of tobacco consumption, age of beginning of alcohol consumption, and IQ, were measured on a continuous scale; the central tendency estimator was used as average, and standard deviation as a measure of dispersion. Analysis was performed with the SPSS statistical package, version 20.

Ethics

The Institutional Ethics and Research Committee approved the protocol. The confidential data of the patient were respected, and identification numbers were used. The clinical file of each patient, according to the Official Mexican NOM-004-SSA3-2012, has the full name of the patient, and the file number; an identification number was also, added, and data was handled without personal information that would allow the participants to be identified.

RESULTS

Sociodemographic and educational profile

In the study population, men predominated with 79.5%, women represented 20.5%. The mean age in general, was 26.47 (8.26) years; for men 27.05 (8.29) years, and for women 24.21 (7.92) years. Single subjects predominated. Most had a maximum education level of 10-12 years of study (high school). Regardless of the maximum level of education achieved, the dropout rate was very high (around 80%). The majority (~50%), were Catholic, but a high percentage of patients who declared themselves atheists (~30%) were observed. The majority (40%) had an office job before entering, although 25-30% were already unemployed. Table1 shows the data on education level, marital status, school dropout, religion and previous occupation.

Nutritional profile and personal habits

Most of the population referred alcohol (99%) and tobacco (85.7%) consumption, and the age of initiation of consumption was adolescence, 14.31 (3.27) years for alcohol and 15.39 (4.18) years for tobacco. In relation to BMI, the majority, were within normal limits and to a lesser degree, overweight. Table 2 presents the information for men and women.

Psychological, sexual behavior and intellectual profiles

Self-aggressive (86.6%) and antisocial behaviors (73.2%), as well as impulsivity (52.7%) were frequent in these patients; the average age at onset of active sexual life was 15.35 (2.36) years, and the IQ was more often, lower than mean. The distribution of these characteristics by sex is observed in table 3.

Familiar structure, familiar dynamics and neuro-psychiatric disease profile

The unstructured family predominated (67.9%) and family dysfunction (93.8%); the prevalence of neuropsychiatric disease was 81.3%. Family history of alcoholism and drug addiction was very frequent. Table 4 shows the rest of the characteristics of the family profile and neuropsychiatric diseases, in general and by sex.

Amphetamine use profile

The prevalence of drug use before the use of amphetamines was 98.2%, especially alcohol 93.8% and marijuana (97.8%). Home was the most frequent place of initial consumption (38.4%), and friends (51.8%) provided the drug, more frequently, at the begining. Table 5 presents the rest of the information.

DISCUSSION

Amphetamine use and rising prevalence of behavioral addictions are a reality; when viewed in this way, the problem goes beyond the field of health and becomes a social issue that can involve the entire population to a greater or lesser extent. As a society, answers are necessary. Addiction treatment centers are an alternative in the therapeutic field, but it cannot be denied that preventive actions are required to avoid reaching this stage. In order to design preventive health policies, it is necessary

Table 1
Sociodemographic and educational profile, in general, and by sex, of the population that uses amphetamines

Characteristic	General (*N* =112)	Men (*n* = 89)	Women (*n* = 23)
	Percentage	Percentage	Percentage
Civil status			
Single	60.7	57.3	73.9
Married	19.6	23.6	4.4
Separated	4.5	2.3	13.0
Cohabit	15.2	16.8	8.7
Education level			
Primary (grades 1-6)	5.3	5.6	4.4
High school (grades 7-9)	22.3	24.7	13.0
High school (grades 10-12)	40.2	40.4	39.1
Technical career	3.6	2.3	8.7
Bachelor's degree	26.8	24.7	34.8
Master's degree	1.8	2.3	0.0
School dropout			
School dropout	81.3	81.0	82.6
Religion			
Atheist	32.1	30.3	39.1
Catholic	50.9	50.6	52.2
Protestant	16.1	18.0	8.7
Budist	0.9	1.1	0.0
Previous occupation			
Unemployed	29.5	28.1	34.8
Office worker	42.0	43.8	34.8
Professional	1.8	2.3	0.0
Self-employed	8.0	10.1	0.0
Housewife	2.7	0.0	13.0
Student	10.7	9.0	17.4
Farmer	5.3	6.7	0.0

Table 2
Nutritional profile and personal habits, in general, and by sex, of amphetamine users

Characteristic	General (*N* = 112)	Men (*n* = 89)	Women (*n* = 23)
	Percentage Average	Percentage Average	Percentage Average
Nutritional profile	*N* = 109	*n* = 87	*n* = 22
BMI	25.79(4.73)	26.07(4.70)	24.66(4.82)
Underweight	6.4	3.4	18.2
Normal	43.1	44.8	36.4
Overweight	34.9	35.6	31.8
Obesity	15.6	16.1	13.6
Smoking			
Smoking	85.7	86.5	82.6
Age of onset (years)	15.39(4.18)	15.54(4.39)	14.78(3.18)
Alcohol			
Alcohol consumption	99.1	100.0	95.7
Age of onset (years)	14.31(3.27)	13.93(3.05)	15.86(3.75)

Table 3
Psychological profile, sexual behavior and intellectual profile, in general and by sex, in amphetamine users

Characteristic	General (*N* = 112)	Men (*n* = 89)	Women (*n*= 23)
	Percentage Average	Percentage Average	Percentage Average
Self-injurious behavior			
Self-injurious behavior	86.6	79.8	95.7
Type of self-injurious behavior			
Tattoos	39.3	36.0	52.2
Suicide attempt	35.7	34.8	39.1
Self-injuries	9.8	9.0	13.0
Tattoos and self- injuries	5.4	2.2	17.4
Previous antisocial behavior			
Previous antisocial behavior	73.2	75.3	65.2
Type of previous antisocial behavior			
Robbery without violence	13.4	11.2	21.7
Robbery + others	17.8	19.1	13
Robberies (total)	31.3	30.3	34.8
Injury to third parties	16.1	16.9	13.0
Injury to third parties + others	16.1	16.9	13.0
Injury to third parties (total)	32.2	33.7	26.0
Vandalism	2.7	3.4	0.0
Vandalism + others	16.9	16.8	17.4
Gang membership	1.8	2.2	0.0
Gang membership + others	5.4	5.6	4.3
Impulsiveness			
Impulsiveness	52.7	55.1	43.5
Sexual behavior	*N* = 111	*n* = 88	*n* = 23
Age of onset of active sexual life (years)	15.35(2.36)	15.31(2.43)	15.47(1.95)
Startbeforeage 15	36.0	37.5	30.4
Intellectual profile	*N* = 102	*n* = 83	*n* = 19
IQ (mean)	39.28(9.16)	39.31(9.40)	39.15(8.25)
Deficient	22.5	21.7	26.3
Lower than mean	49.0	48.2	52.6
Middle	17.6	18.1	15.8
Higher tan mean	10.8	12.0	5.3

Table 4
Family structure, family dynamics and neuro-psychiatric diseases, in general, and by sex in amphetamine users

Characteristic	General (*N* = 112)	Men (*n* = 89)	Women (*n*= 23)
	Percentage	Percentage	Percentage
Sibling position			
Eldest child	33.0	31.5	39.1
Middle child	19.6	21.4	13.0
Younger child	37.5	36.0	43.5
Only child	8.9	10.1	4.4
Personal care received from the father			
Indifferent	28.6	25.8	39.1
Hostile	10.7	12.4	4.3
Indifferent-hostile	23.2	24.7	17.4
Good	21.4	21.3	21.7
Non-exixting relationship	16.1	15.7	17.4

Table 4
Family structure, family dynamics and neuro-psychiatric diseases, in general, and by sex in amphetamine users (Continuation)

Characteristic	General (*N* = 112)	Men (*n* = 89)	Women (*n*= 23)
	Percentage	Percentage	Percentage
Personal care received from the mother			
Indifferent	21.4	17.9	34.8
Hostile	4.5	4.49	4.3
Indifferent-hostile	23.2	17.9	43.5
Good	47.3	55.1	17.4
Non-existent relationship	3.6	4.5	0.0
Familial structure			
Unstructured	67.9	66.3	73.9
Structured	22.3	22.5	21.7
Restructured	9.8	11.2	4.4
Family functionality			
Dysfunctional	93.8	93.3	95.7
Functional	6.2	6.7	4.3
Father'soccupation/ job			
Urban employment	31.3	32.58	26.09
Unknown	17.9	15.73	26.09
Urban under employement	12.5	11.24	17.39
Independent/ professional	6.3	7.9	0.0
Farmer	5.4	6.7	0.0
Factory worker	1.8	2.2	0.0
Retired	12.5	12.4	13.0
Unemployed	1.8	2.2	0.0
Dead	10.0	8.9	17.4
Neuro-psychiatric disease in the nuclear family			
Yes	81.3	77.5	95.7
Type of neuro-psychiatric illness	22.5	21.7	26.3
Alcoholism	55.3	53.9	60.9
Other addictions	34.8	33.7	39.1
Schizophrenia	6.3	5.6	8.7
Bipolar disorder	2.7	2.2	4.3

Table 5
Profile of amphetamine use, in general and by sex in amphetamine users

Characteristic	General (*N* = 112)	Men (*n* = 89)	Women (*n*= 23)
	Percentage	Percentage	Percentage
Drug use before amphetamines			
Yes	98.2	97.8	100.0
Less than a year	18.8	19.1	17.4
1 - 6 years	45.5	43.8	52.1
Daily consumption	54.5	50.6	69.6
1 - 3 times per week	21.4	23.6	13.0
4 - 6 timesperweek	18.8	20.2	13.0
Type of drugs used before amphetamines			
Alcohol	93.8	93.3	91.3
Marijuana	69.6	67.8	73.9
Nicotine	68.8	66.7	73.9
Cocaine	46.4	51.1	26.1
Solvents	12.5	10.0	21.7
Benzodiazepines	9.8	8.9	13.0

Table 5
Profile of amphetamine use, in general and by sex in amphetamine users (Continuation)

Characteristic	General (*N* = 112)	Men (*n* = 89)	Women (*n*= 23)
	Percentage	Percentage	Percentage
Place of initial consumption			
Home	38.4	33.3	56.5
In parties	17.9	15.6	26.1
At work	16.1	20.0	0.0
On the street	16.1	17.8	8.7
At school	6.3	6.7	4.3
Others	5.2	6.6	4.4
Person who initially provided the drug			
Friends	51.8	55.1	39.1
Drug dealer	23.2	23.6	21.7
Relatives	17.8	15.7	26.1
Others	7.2	5.6	13.1
Consumption was higher:			
Alone	53.6	55.1	47.8
Accompanied	44.6	43.8	47.8
Both of them	0.9	0.0	4.4
Unknown	0.9	1.1	0.0
Psychotic manifestations			
Yes	85.7	83.1	95.6
No	14.3	16.9	4.3
Type of psychotic manifestations			
Visual hallucinations	64.3	60.7	78.3
Auditory hallucinations	60.7	56.2	78.3
Paranoia	53.6	51.7	60.9
Delirium	34.8	29.2	56.5
Depression	44.6	42.7	52.2
Systemic manifestations (*n* = 95)	22.5	21.7	26.3
Yes	38.9	38.7	40.0
No	61.1	61.3	60.0
Type of systemic manifestations			
Malnutrition	18.9	18.7	20.0
Intense itching	8.4	5.3	20.0
Black teethand tooth loss	3.2	2.6	5.0
Via of consumption	*N* = 104	*n* = 82	*n* = 22
Inhaled	77.8	75.6	86.4
Oral-Gastric	15.3	15.9	13.6
Combined	6.7	8.5	0.0
Inpatient treatment			
Concluded	79.5	80.9	73.9
Follow-up as an outpatient			
Relapse of consumption	17.0	14.6	26.1
Lost communication with the patient	61.6	65.2	47.8
Free of consumption	0.9	1.1	0.0

to know the characteristics of the consuming population, hence the importance of this article, in which the epidemiological profile of the amphetamine consuming population is identified.

It is true that the studied population had already asked for help in a treatment center, which means that they recognized the use of amphetamines as a health problem, a scenario that could pose different characteristics to the population that refuses to recognize it as such, and therefore it does not request attention. In this regard, when the results are interpreted, it must be considered to which population can be extrapolated. Identifying different dimensions as part of the epidemiological profile contributes to the conceptualization of the

patients, facilitates the interpretation of results and becomes a reference when the data are used for the design of health policies.

We must consider that, since it is a descriptive study, causality relationships cannot be established with this design, so its scope is limited. However, the information is obtained in a protocolized way and the protocol was the product of the analysis of the scientific literature by the work team of this institution, therefore, despite being a retrospective study, the information is uniform for all patients.

Focusing on the profile, the sociodemographic and educational profile identifies a young and single population, characteristics that could be interpreted as a stage of instability in which references are sought to overcome it; the high degree of school dropout recorded, could support this theory; However, it will be necessary to investigate whether the use of amphetamines favors dropout or vice versa. Moreover, it has been described that dropout is related to both, low IQ and low academic achievement, conditions frequently observed in these patients (Gubbels et al., 2019).

Mexico is a country where Catholicism predominates, however, in the 2018 population census, the population that did not profess any religion increased from 3.5% in 2000 to 4.6% in 2010 and it is estimated that this percentage increased in 2018 to 10.6% (Instituto Nacional de Estadística y Geografía [INEGI], 2005). This characteristic in the population studied is much higher than that referred to in the literature, since at least 1 in 3 refers to himself as an atheist. The relationship between drug use and religion is documented; some authors mention that faith is a positive factor in addiction prevention or recovery. (Grim & Grim, 2019). In this work, that relationship cannot be affirmed; but being an atheist was a frequent observation in amphetamine users.

In the sample, 30 % of participants were unemployed at the time of admission. The literature establishes that the use of amphetamines can contribute to job loss (Maiorana et al., 2020).

In relation to the nutritional profile, it can be pointed out that in Mexico, the prevalence of overweight and obesity is reported in 39.1 and 36.1% of the population. (SS, INSP & INEGI, 2018). The prevalence of overweight in the general population was very similar to that of amphetamine users, while the prevalence of obesity was higher in the general population. It has been pointed out that amphetamines are anorexigen drugs associated with a decrease in BMI (Zhang et al., 2017), condition that can probably explain the differences in obesity and the prevalence of underweight people (especially women) in this work.

The escalation in drug use is clear; users start with socially accepted drugs, and as time goes by, they make new addictions, including alcohol, nicotine, marijuana, cocaine, solvents and benzodiazepines, a panorama that is identified in the population studied.

Although in Mexico this information is unknown, in the United States, 12.3 percent of children aged 17 or younger (8.7 million children) live in households with at least one parent who had a substance use disorder (SUD; alcohol or drugs; Lipari et al., 2020). These kids are 4 times more likely than other children to develop symptoms of an alcohol use disorder themselves; independent of familial risk, exposure to parental SUDs predicted SUDs in the offspring (Biederman et al., 2000).

It is evident that the problem started early, and it is not possible to stop analyzing family conditions in which these patients developed. Child maltreatment is any dysfunction in the parent-child relationship, including from the classic child abuse to indifferent or hostile behavior towards the child (Morales et al., 1997). It seems that regardless of the substance of abuse, parental rearing practices (Glavak et al., 2003) and education with values and rules (Masood & Us Sahar, 2014) are important factors not only in the development of addictions but, in recovery after treatment. In fact, low parent-child attachment has been linked to alcohol use in adolescents (Lee et al., 2016). In this regard, the profile included belonging to unstructured families, with a bad relationship with the mother, and a worse relationship with the father. This information is not of less value, if effective rehabilitation programs are intended. Ignoring these relationships and not including them in rehab builds the program's path to failure.

The place of initial consumption of amphetamines and the people who provide them, identify the family and the close circle, which coincides with the panorama reported in the literature. About it, what has been published states that the family and the immediate environment of the patients do not favor rehabilitation, because those who finish the treatment return to a family and friends who promote consumption (Gideon, 2007; Hernández-Serrano et al., 2015).

Psychotic manifestations occurred more frequently than systemic ones, and women showed higher prevalences. The literature refers that the methamphetamine-induced psychosis may remain after months of follow-up (Hajebi et al., 2018). And added to that, long-term consumption is associated with high-risk behaviors, memory disturbances and changes in the eating pattern, as observed in these patients (Yoosefi Lebni et al., 2020).

On the other hand, the prevalence of self-aggressive behavior is very high, much higher in women than in men; however, the suicide attempt is very similar in both genders. It seems that visual hallucinations, depressive syndrome and suicide attempt may elevate the risk of suicide

in amphemtamine consumers (Kuo et al., 2011). Previous antisocial behavior is a characteristic of the population studied. Abnormalities in ventral striatal function and corticostriatal resting-state functional connectivity have been described in methamphetamine consumers. These alterations are related to poor behavioral regulation and impulsiveness and to increased propensity for aggression and violence (Hoffman et al., 2020).

The early beginning of sexual life is also a characteristic; however, it seems that this is a more generalized social behavior in Mexico (CONAPO-ENAPEA, 2017).

In conclusion, the profile of amphetamine users described in this work coincide in many points with the general profile of drug users, that is, they are subjects who come from frequently unstructured and dysfunctional families, where parents do not live harmoniously with their children —or are indifferent to them—, and there also is a history of alcoholism and use of other drugs, especially in the case of the father.

Except for isolated cases, most do not directly initiate drug consumption with amphetamines, but with "socially accepted" drugs. The gateway drugs are generally alcohol, tobacco and marijuana, and the initial use of these drugs is commonly at home, during adolescence, frequently with the knowledge of the parents; later on, amphetamines are generally provided by “friends”.

On the other hand, the profile of amphetamine users has some peculiarities. Psychotic manifestations were very frequent in the population, especially in women, with auditory hallucinations, delirium, depression and paranoia, which facilitate aggressive behaviors against themselves and towards third parties. Suicide attempts were frequent, with an overall frequency of 35.7%. The antecedent of previous antisocial behavior was also high.

Malnutrition, severe itching, teeth loss, and black teeth were more common in women, and the drug's preferred route of use was inhaled.

Knowing the epidemiological profile of the amphetamine consumer patient is a reference for implementing health policies and establishing preventive and therapeutic measures in order to solve the problem.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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REFERENCES

Anglin, M. D., Burke, C., Perrochet, B., Stamper, E., & Dawud-Noursi, S. (2000). History of the methamphetamine problem. *Journal Psychoactive Drugs*, 32, 137–141.

Biederman, J., Faraone, S. V., Monuteaux, M. C., & Feighner, J. A. (2000). Patterns of alcohol and drug use in adolescents can be predicted by parental substance use disorders. *Pediatrics, 106*(4), 792-797. doi:10.1542/peds.106.4.792

Comisión Nacional contra las Adicciones. (2017). *Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco, ENCODAT 2016-2017. (2017). Reporte de Drogas*. México: Conadic. https://www.gob.mx/salud%7Cconadic/acciones-y-programas/encuesta-nacional-de-consumo-de-drogas-alcohol-y-tabaco-encodat-2016-2017-136758

Comisión Nacional contra las Adicciones-Secretaría de Salud. (2019). *Informe sobre la situación del consumo de drogas en México y su atención integral 2019*. https://www.gob.mx/cms/uploads/attachment/file/477564/Informe_sobre_la_situacio_n_de_las_drogas_en_Me_xico_.pdf?utm_source=Drom%C3%B3manos+Newsletter&utm_campaign=5810baa060-EMAIL_CAMPAIGN_2020_05_07_08_13_COPY_01&utm_medium=email&utm_term=0_1754eeb135-5810baa060-53096605

Consejo Nacional de Población [CONAPO]. (2017). *Estrategia Nacional para la Prevención del Embarazo en Adolescentes (ENAPEA).* https://www.gob.mx/cms/uploads/attachment/file/232826/ENAPEA_0215.pdf

Courtney, K. E., & Ray, L. A. (2014). Methamphetamine: an update on epidemiology, pharmacology, clinical phenomenology, and treatment literature *Drug and Alcohol Dependence, 143*, 11-21. doi: 10.1016/j.drugalcdep.2014.08.003

European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], (2019). *European drug report: trends and developments, Publications Office of the European Union, Luxembourg*. https://www.emcdda.europa.eu/system/files/publications/11364/20191724_TDAT19001ESN_PDF.pdf

Gideon, L. (2007). Family role in the reintegration process of recovering drug addicts: a qualitative review of Israeli offenders. *International Journal of Offender Therapy and Comparative Criminology, 51*(2), 212-226. doi:10.1177/0306624X06287104

Glavak, R., Kuterovac-Jagodic, Jagodic, G. &, Sakoman, S. (2003). Perceived parental acceptance-rejection, family-related factors, and socio-economic status of families of adolescent heroin addicts. *Croatian Medical Journal, 44*(2), 199-206.

Gomez de Matos, E. G. Hannemann T. V., Atzendorf, J., Kraus, L., & Piontek, D., (2018) The Consumption of New Psychoactive Substances and Methamphetamine. *Deutsches Arzteblatt International, 115*(4), 49-55. doi: 10.3238/arztebl.2018.0049.

Grim, B. J., & Grim, E., M. E. (2019). Belief, Behavior, and Belonging: How Faith is Indispensable in Preventing and Recovering

from Substance Abuse. *Journal of Religion and Health, 58*(5), 1751-1752. doi:10.1007/s10943-019-00898-4

Gubbels, J., Van der Put, C. E., & Assink, M. (2019). Risk Factors for School Absenteeism and Dropout: A Meta-Analytic Review. *Journal of Youth and Adolescence, 48*(9), 1637-1667. doi:10.1007/s10964-019-01072-5

Hajebi, A., Amini, H., Kashani, L., & Sharifi, V. (2018). Twelve-month course and outcome of methamphetamine-induced psychosis compared with first episode primary psychotic disorders. *Early Intervention in Psychiatry, 12*(5), 928-934. doi: 10.1111/eip.12404

Hernández-Serrano, O., Font-Mayolas, S., & Gras, M. E. (2015). Polydrug use and its relationship with the familiar and social context amongst young college students. *Adicciones, 27*(3), 205-213.

Hoffman, W. F., Jacobs, M. B., Dennis, L. E., McCready H. D., Hickok A. W., Smith S. B., & Kohono, M. (2020). Psychopathy and Corticostriatal Connectivity: The Link to Criminal Behavior in Methamphetamine Dependence. *Frontiers in Psychiatry, 11*, 90. doi:10.3389/fpsyt.2020.00090

Instituto Nacional de Estadística y Geografía [INEGI]. (2005). *La diversidad religiosa en México. XII Censo general de población y vivienda 2000*. http://internet.contenidos.inegi.org.mx/contenidos/productos/prod_serv/contenidos/espanol/bvinegi/productos/historicos/2104/702825460723/702825460723_1.pdf

Kuo, C. J., Tsai, S. Y., Liao, Y. T., Conwell, Y., Lin, S. K., Chang, C. L., Chen, C. C., & Chen, W. J. (2011). Risk and protective factors for suicide among patients with methamphetamine dependence: a nested case-control study. *The Journal of Clinical Psychiatry, 72*(4), 487-493. doi:10.4088/JCP.09m05360gry

Lee, J. Y., Brook, J. S., Nezia, N., & Brook, D. W. (2016). Adolescent predictors of alcohol use in adulthood: A 22-year longitudinal study. *The American Journal on Addictions, 25*(7), 549-556. doi:10.1111/ajad.12438

Lipari, R. N., Struther, L., & Van Horn, M. A. (2020). *Children Living with Parents Who Have a Substance Use Disorder. The CBHSQ Report Header 2017*. Retrieved August 15, 2020 from: https://www.samhsa.gov/data/sites/default/files/report_3223/ShortReport-3223.html

Maiorana, A., Kegeles, S. M., Brown, S., Williams, R., & Arnold, E. A. (2020). Substance use, intimate partner violence, history of incarceration and vulnerability to HIV among young Black men who have sex with men in a Southern US city. *Culture, Health & Sexuality*, 1-15. doi:10.1080/13691058.2019.1688395

Masood, S., & Us Sahar, N. (2014). An exploratory research on the role of family in youth's drug addiction. *Health Psychology and Behavioral Medicine, 2*(1), 820-832. doi: 10.1080/21642850.2014.939088

Maxwell, J. C., & Brecht, M. L. (2011). Methamphetamine: here we go again? *Addictive Behaviors, 36*, 1168–1173. doi: 10.1016/j.addbeh.2011.07.017

Medina, A., Moreno, J. M., Lillo, R., & Guija, J. A. (2017). *Los trastornos del control de los impulsos y las psicopatías*. Fundación Española de Psiquiatría y Salud Mental. Primera edición, España.

Miller, W., Kabakoff, R. I., Epstein N. B., Bishop, D. S., Keitner, G. I., Baldwin, L. M., & van der Spuy H. I. (1994). The Development of a Clinical Rating Scale the McMaster Model of Family Functioning. *Family Process, 33*(1), 53–69. doi: 10.1111/j.1545-5300.1994.00053.x

Morales, J. M., Zunzunegui Pastor. V., & Martínez Salceda, V. (1997). Modelos conceptuales del maltrato infantil: una aproximación biopsicosocial [Conceptual models of child mistreatment: a biopsychosocial approach]. *Gaceta Sanitaria, 11*(5), 231-241. doi: 10.1016/s0213-9111(97)71302-5

Organización de Estados Americanos [OEA]. Comisión Interamericana para el Control del Abuso de Drogas [CICAD]. (2019). *Informe sobre el consumo de drogas en las Américas*.Washington, D.C. ISBN 978-0-8270-6794-3

Secretaría de Salud [SS], Instituto Nacional de Salud Pública [INSP], Instituto Nacional de Estadística y Geografía [INEGI]. (2018). *Encuesta Nacional de Salud y Nutrición ENSANUT 2018*. https://ensanut.insp.mx/encuestas/ensanut2018/doctos/informes/ensanut_2018_presentacion_resultados.pdf

Substance Abuse and Mental Health Services Administration [SAMHSA]. (2013). Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings, NSDUH Series H-46, HHS Publication No. (SMA) 13-4795. Substance Abuse and Mental Health Services Administration; Rockville, MD. https://www.samhsa.gov/data/sites/default/files/NSDUHresults2012/NSDUHresults2012.pdf

Tait, RJ., Whetton, S., Shanahan, M., Cartwright, K., Ferrante, A., Gray, D., Kaye, S., McKetin, R., Pidd, K., Ritter, A., Roche, A., & Allsop, S. (2018). Quantifying the societal cost of methamphetamine use to Australia. *International Journal on Drug Policy*, 30-36. doi: 10.1016/j.drugpo.2018.08.015.

United Nations Office on Drugs and Crime [UNODC]. (2012). *World Drug Report 2012*. United Nations; Vienna, Austria. e-ISBN: 978-92-1-055038-3

United Nations Office on Drugs and Crime [UNODC]. (2013). *World Drug Report 2013*. United Nations; Vienna, Austria https://www.unodc.org/unodc/secured/wdr/wdr2013/World_Drug_Report_2013.pdf

U.S. Department of Justice DEA, Diversion Control Division. *National Forensic Laboratory Information System (NFLIS)*. 2015. Annual Report. 2016.

Villatoro-Velázquez, J. A., Resendiz-Escobar, E., Mujica- Salazar, A., Bretón-Cirett, M., Cañas-Martínez, V., Soto-Hernández, I., Fregoso-Ito, D., Fleiz-Bautista, C., Medina-Mora, M.E., Gutiérrez-Reyes, J., Franco-Núñez, A., Romero-Martínez, M., & Mendoza-Alvarado, L. (2017). *Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco: Reporte de Drogas*. Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Comisión Nacional Contra las Adicciones, Secretaría de Salud. https://drive.google.com/file/d/1zIP-BiYB3625GBGIW5BX0TT_YQN73eWhR/view

Yoosefi Lebni, J., Ziapour, A., Qorbani, M., Baygi, F., Mirzaei, A., Safari, O., Rastegarimehr, B., Khosravi, B. & Mansourian, M.I. (2020) The consequences of regular methamphetamine use in Tehran: qualitative content analysis. *Substance Abuse Treatment Prevention Policym, 15*(1), 33. doi: 10.1186/s13011-020-00277-3

Zhang, M., Lv, D., Zhou, W., Ji, L., Zhou, B., Chen, H., Gu, Y., Zhao, J., & He, J. (2017). The levels of triglyceride and total cholesterol in methamphetamine dependence. *Medicine, 96*(16), e6631. doi:10.1097/MD.0000000000006631