

Mexico: systems for the epidemiological diagnosis of drug abuse

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ABSTRACT

The study of the demand for psychoactive substances in Mexico has a long history, with the earliest accounts dating from the eighteenth century. It was not, however, until the 1970s that epidemiological studies began to be undertaken. The strategies that have been adopted to assess the problem of drug abuse are similar to those used internationally: they include household surveys, studies of student populations and high-risk groups, the introduction of epidemiological observation systems and the analysis of mortality statistics. They have also included other methodologies suited to studying populations that are difficult to access and analysing the contextual factors surrounding drug consumption. These methodologies are employed from an anthropological perspective through qualitative methods, including ethnographic observations, interviews with key informants, focus groups and in-depth case studies. Through these studies, it has been shown that since the 1990s, there has been a significant increase in the illicit use of drugs in Mexico, primarily cocaine and certain amphetamine-type drugs (the most common being methylenedioxyamphetamine (MDMA), known as "Ecstasy") and a decrease in the abuse of inhalants. Existing data collection systems also show an increase in the consumption of heroin in the area bordering the United States of America, with a large proportion of the heroin

users injecting the drug and engaging in injecting practices that carry a high risk of transmitting blood-borne viruses such as human immunodeficiency virus (HIV) and hepatitis. Cases of heroin use are also beginning to appear in other parts of the country. The research strategy followed in Mexico has been useful in establishing an epidemiological diagnosis of the drug abuse situation; however, action needs to be taken to meet the new challenges presented to decision makers by drug use trends.

Keywords: epidemiology; drug use; trends; Mexico.

Introduction

Substance abuse in Mexico follows the same pattern as in other countries with regard to the type of substances used, consumption patterns and associated problems. However, it also has features specific to the local social and cultural context in which consumption takes place. Social research in this field has a long history in Mexico, with accounts of the consumption of alcoholic drinks in colonial times [1] and of the use of other substances for the purpose of intoxication in the eighteenth century [2]. It was not, however, until the 1970s that carefully designed epidemiological studies began and academics from different institutions carried out surveys to establish the extent of the problem among various population groups [3-5].

The founding of the Centro Mexicano de Estudios en Farmacodependencia (CEMEF) in 1972 led to an expansion of epidemiological and social research. Household surveys [6], student population surveys [7] and studies of high-risk groups [8] were conducted. A register was established of patients attending the Centros de Integración Juvenil (CIJ) (youth integration centres) [9], which began operating in the early 1970s and which offer specialized care for drug addicts. CEMEF subsequently changed its name to the Centre for Mental Health Studies and changed it once again to the Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz (the Ramón de la Fuente Muñiz National Institute of Psychiatry). Various lines of research were pursued and expanded in the new institutions.

In the 1980s, the General Directorate of Epidemiology and the National Institute on Psychiatry carried out the country's first national household survey [10] and the city's first drug information system (Sistema de reporte de información en drogas (SRID)) was established [11]. That system gathered information from all the cases treated in health and rehabilitation centres. CIJ continued to report on drug demand and to conduct studies on high-risk populations [12, 13]. In the 1990s, the same strategies were maintained and an epidemiological monitoring system was introduced in selected cities to obtain information on the demand for treatment in specialized addiction treatment centres, some run by the Government and some not, and emergency departments, on actions detrimental to health and on the consumption of tobacco, alcohol and illicit and medicinal drugs by the general public or high-risk groups [14].

Through these data collection activities, it has been possible to assess the scope of substance use, abuse and dependence, as well as their underlying trends,

the problems arising from the introduction of new drugs, such as changes in consumption patterns and in the characteristics of the population groups that use drugs, the social and health consequences of drug use, the utilization of services and the context in which drug use takes place. Several factors increased the usefulness of the data collected on the nature of the drug problem. These included the diversity of the population groups studied, the regularity with which the studies were conducted, the use of common indicators suggested by the World Health Organization in 1976 and the testing of methodologies, definitions and instruments in various contexts, including Mexico [15]. It was therefore possible to make a realistic diagnosis of the substance abuse phenomenon, which was used as a basis for the national programmes against addiction.

To meet the need for early publication of drug consumption data (that is, prior to their publication in the scientific literature), a new Epidemiological Surveillance System on Addictions (SISVEA) was set up under the General Directorate of Epidemiology. SRID created links between the various institutions involved in the gathering of epidemiological data. More recently, in 2001, a drug observatory was established under the National Council against Addictions, with participation by the various institutions that compile systematic information in this field. Among the objectives of the drug observatory is standardization of information on drug demand, establishing priorities and promoting the gathering and timely reporting of information on drug consumption to facilitate decision-making.

Data collection methods

Information is obtained through regular population surveys, carried out among sample households, student populations and high-risk groups, and through continuous epidemiological monitoring systems.

General population surveys: household surveys (1974-2002)

The strategy of the first household surveys, conducted between 1974 and 1986, was to investigate substance use in cities with different characteristics and risks; seven surveys were conducted. The first national survey of the country's urban population, which took place in 1988, included questions on alcohol, tobacco and other drugs [10]; the second was conducted in 1993 [16] and a third in 1998 [17]. Those surveys were carried out on the basis of probabilistic samples of individuals of both sexes between the ages of 12 and 65 living in urban areas containing more than 2,500 inhabitants and covered 75 per cent of the country's population.

The 1993 survey included a specific study of cities in the northern border area, Tijuana, Ciudad Juárez and Matamoros, and two large conurbations, Monterrey and Mexico City. The survey design allowed for countrywide data on adolescents (persons aged 12-17) and adults (persons aged 18-65) as well as data on the northern, central and southern regions of Mexico. It also included new information on three cities located on the northern border and the three large

metropolitan areas covered by the earlier survey. A fourth national survey is currently in progress; it will provide, for the first time, information on the country's rural population.

In 2002, a new national survey of the urban and rural population of from 12 to 65 years of age was carried out. In the above-mentioned surveys, information was obtained through a standardized questionnaire administered through face-to-face interviews. The questionnaire had been extensively piloted and included questions from household surveys conducted in the United States of America and, more recently, questions proposed by the Inter-American Drug Abuse Control Commission (CICAD) to facilitate comparability of data within the region.

Studies of student population (1975-2000)

The Institute and the Secretariat of Public Education have carried out cross-sectional epidemiological studies using representative samples of the student population at the intermediate and upper intermediate educational levels. The aim of these surveys was to establish the prevalence of drug use and the subgroups of the student population most affected. To date, there have been three national surveys of the student population, carried out in 1976, 1986 [18] and 1991 [19]; the first two focused on the urban population, while the most recent covered the whole country, including rural areas.

In the federal district, surveys have been conducted every two or three years between 1976 [18] and 2000. The last two covered all 16 districts, with samples of more than 12,000 adolescents registered in the school system [20, 21]. In 1981, CIJ carried out a study in the 15 cities that they serviced, surveying young people from the sixth grade of primary level to university level [22]. Studies have also been carried out at the State level, which have improved understanding of the specific local features of the problem.

Studies of marginal, hidden and high-risk groups (1978-2002)

Population groups that were impossible to access through general or school surveys, or both, were the subject of special studies. Intensive research methods used to examine such groups included case studies [23], key informants [24] and capture-recapture methods [25, 26].

In this category, the most striking research has concerned working children, with a particular focus on those who work for their living on the streets [27, 28], and specific groups, such as women [29]. With support from the United Nations Children's Fund and the United Nations International Drug Control Programme, the National System for Comprehensive Family Development (DIF) conducted a study of child workers aged 6-17 in 101 Mexican cities [28]. More recently, in 2001, Cravioto carried out a study of heroin abuse on Mexico's northern border. This study analysed the magnitude of the problem, using capture-recapture methods, and also used focal studies and life stories to provide more in-depth information on the nature of drug use patterns and information on the contextual factors associated with drug use [26].

Studies have also been conducted on the psychological and social features associated with cocaine use, on how psychotropic drugs used outside a medical context are distributed and on the use of methamphetamines and their growing role in juvenile subcultures, among others. In all these studies, qualitative orientation techniques have been developed or adapted, or both, according to the particular needs of the groups under consideration.

Drug information reporting system (1986-2002)

SRID, the drug information reporting system that began operating in 1986, records the most important trends in drug use in Mexico City through assessment of data obtained in June and November of each year. Everyone held in participating institutions during the observation period, whether they be first time or recurrent users of the services, is asked whether he or she has ever taken drugs. More detailed information on drug use is obtained in cases where drug use is identified. A "case" is taken to be anyone over 12 years of age enrolled with a participating institution who admits to having taken any non-prescription drug at least once or to having deliberately used a prescription drug in a way not in accordance with its prescribed use. Cases of occupational or accidental, or both, intoxication are not included in this category. The interview form used for data collection contains sections relating to users' socio-demographic data, including the reason why they are in the institution, and problems associated with drug use. Consumption patterns are charted with reference to 12 drugs. This makes it possible to assess which drugs are most commonly used, the frequency of use, the route of administration and the age of initiation into drug use. Alcohol and tobacco consumption is also investigated, but only in relation to the use of other drugs, since people who use only alcohol and tobacco are not included in the data collection system [30]. To date, 34 assessments have been carried out. SRID contains information on more than 15,000 users in 44 health and rehabilitation institutions that provide services to people of all ages in the general population, although only data from the population 12 years and older are considered, the majority of cases being from youth integration centres.

Epidemiological Surveillance System on Addictions (1990-2002)

SISVEA operates under the General Directorate of Epidemiology of the Secretariat of Health and obtains information from the country's governmental and non-governmental treatment centres, supervisory institutions, admissions to emergency reception centres, the forensic medical service and drug seizures. It gathers information on the basic socio-demographic characteristics of cases identified, the drugs used, the principal drug of use (the one causing the greatest problem) and the user's personal history (the order in which he or she took the drugs), among other variables. SISVEA is part of an international network of systems operating in the United States, Central and South America and the Caribbean and is a member of the Community Epidemiology Work Group in the United States.

SISVEA categorizes information on patterns and trends by city and state, using quantitative indicators obtained from public health agencies, medical treatment centres, law enforcement agencies, surveys and any other source of information available in the reporting areas. The most significant indicators include:

- (a) Cases of death related to drugs obtained from the forensic medical service;
- (b) Drug use claimed in emergency reception centres;
- (c) Main drug of abuse reported by patients attending treatment centres;
- (d) Urine analysis of arrested persons;
- (e) Drug seizures; and the price, purity and characteristics of the drugs seized.

In addition to such quantitative information, SISVEA also includes qualitative information obtained from daily records in the field, focal groups and interviews, among other sources. It is currently extending its activities to cover one city in each Mexican state [14].

Register of cases under treatment (1977-2002)

In the framework of SISVEA, CIJ reports information obtained from 72 centres across the country and from regions that have treatment centres. CIJ also has a system for monitoring drug consumption in the towns and districts covered by them, comprising:

- (a) An assessment of the social stratification in those towns (that is, urban infrastructure, public services, buildings, the “environmental area”, including indicators of public safety and the existence of open spaces and recreational areas);
- (b) Key informant surveys classified into three categories: institutional informants (that is, middle management or working staff in public or private institutions); community informants; and experts working for CIJ. Also conducted are surveys of social factors in high- and low-risk groups among students in the fifth and sixth grades and in secondary education and among heads of household [31].

Psychiatric epidemiology (1990-2002)

The 1990s saw the introduction of studies on psychiatric epidemiology, including the epidemiology of substance dependence [32, 33] using international psychiatric diagnostic instruments that have been validated in Mexico [32]. A national survey of the urban population is currently being conducted as part of Mental Health Survey 2000 of the World Health Organization.

Evolution of the problem

The most recent national addiction survey, conducted in 1998 [17], found that 5.27 per cent of the urban population between the ages of 12 and 65 had tried an illegal drug (including inhalants), while 1.23 per cent had done so in the month preceding the study and 0.8 per cent over the previous 30 days. The highest lifetime prevalence occurred among men between the ages of 18 and 34 (15.61 per cent), followed by men and women between 35 and 65 (10.65 per cent) and, in the last place, among persons aged 12-17 (3.57 per cent). If only current use in the month prior to the study is considered, however, more adolescents had used these substances (1.4 per cent) than had people over 35 (0.85 per cent), with the highest rates being found among young adults aged 18-34 (2.72 per cent). Consumption is much lower among women, the figures given for having ever taken drugs being 0.6 per cent, 1.18 per cent and 0.62 per cent respectively in the three age groups considered (ages 12-17, 18-34 and 35-65).

The drug with the highest lifetime prevalence is marijuana (4.7 per cent), followed by cocaine (1.45 per cent) and inhalants (0.8 per cent). The northern and central regions of the country reported higher prevalence (6 and 5.97 per cent respectively), while prevalence was significantly lower in the southern region (2.69 per cent). Among the cities included in the study, the highest rates were found in two cities on the border with the United States, Tijuana (14.73 per cent) and Ciudad Juárez (9.2 per cent), and the country's two major cities, Guadalajara (7.5 per cent) and Mexico City (7.28 per cent). In every case, the prevalence for men was higher than for women; for example, drug use among men interviewed in Tijuana was as high as 28 per cent, while that among women was no more than 0.92 per cent.

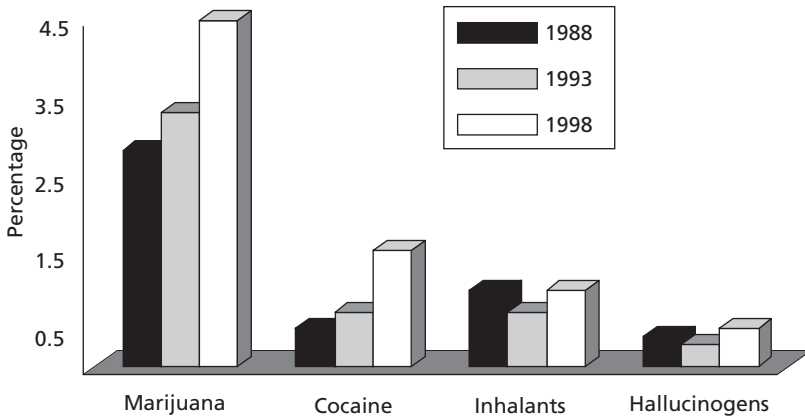
Significant variations also occurred in the rate of drug use by region. Marijuana is consumed primarily in the central (5.4 per cent) and northern (5.25 per cent) regions, cocaine in the central (5.4 per cent) and northern (1.84 per cent) regions and inhalants in the central and southern regions.

Trends

Data from the three addiction surveys conducted in 1988, 1993 and 1998 show significant increases in the lifetime use of illicit drugs (3.33 per cent in 1988, 3.9 per cent in 1993 and 5.27 per cent in 1998 reported having used such substances), with increases in the consumption of marijuana (2.99, 3.32 and 4.7 per cent respectively) and cocaine (0.33, 0.56 and 1.45 per cent), while the figures for the use of inhalants (0.76, 0.5 and 0.8 per cent) remained stable (figure I) [10, 16, 17].

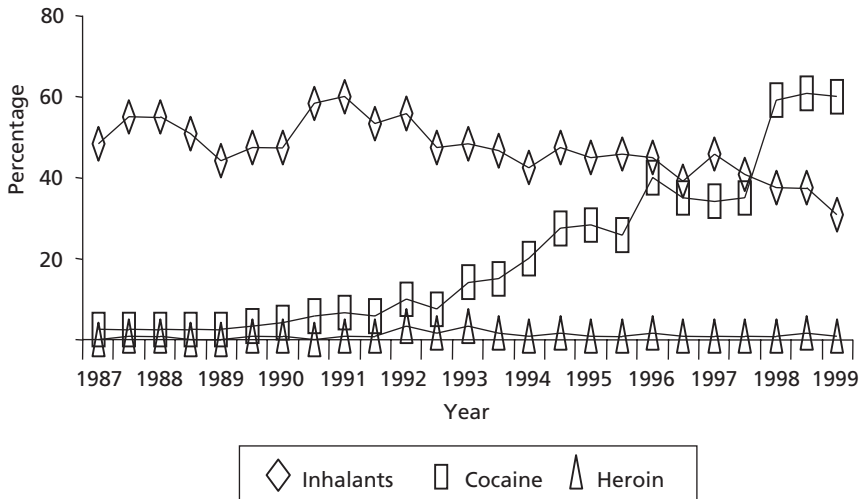
Cocaine was responsible for the highest increase in substance abuse, a fact reflected in all the available information systems. The Mexico City registration system shows that the number of registered drug users reporting the use of cocaine rose from 4 per cent of cases in 1986 to 60 per cent in 1999 [30] (figure II). Results from SISVEA have shown an increase in the demand for treatment for cocaine from 7.8 per cent in 1991 to 35.3 per cent in 2001 [14].

Figure I. Trends in lifetime prevalence of drug use in Mexico, from national household surveys, 1988, 1993 and 1998



Sources: México, Secretaría de Salud, *Encuesta Nacional de Adicciones*, 1988 (Dirección General de Epidemiología, Instituto Mexicano de Psiquiatría, 1990); México, Secretaría de Salud, *Encuesta Nacional de Adicciones*, 1993 (Dirección General de Epidemiología, 1993); México, Secretaría de Salud, *Encuesta Nacional de Adicciones*, 1998 (Dirección General de Epidemiología, Instituto Mexicano de Psiquiatría, 1998).

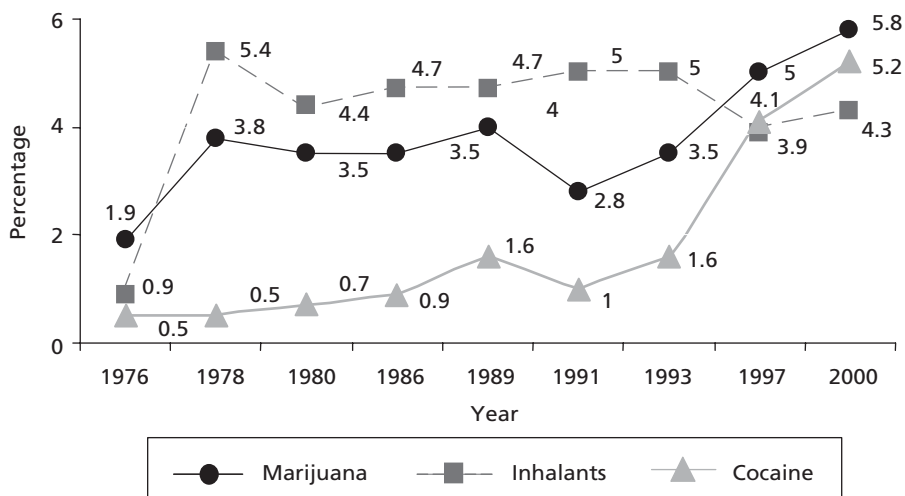
Figure II. Drug information reporting system, 1987-1999 (Percentage of cases by drug type)



Source: A. Ortiz and others, "Sistema de reporte de información en drogas: tendencias 1987-1999", *Observatorio Epidemiológico sobre Adicciones* (Mexico City, Instituto Mexicano de Psiquiatría, 2001).

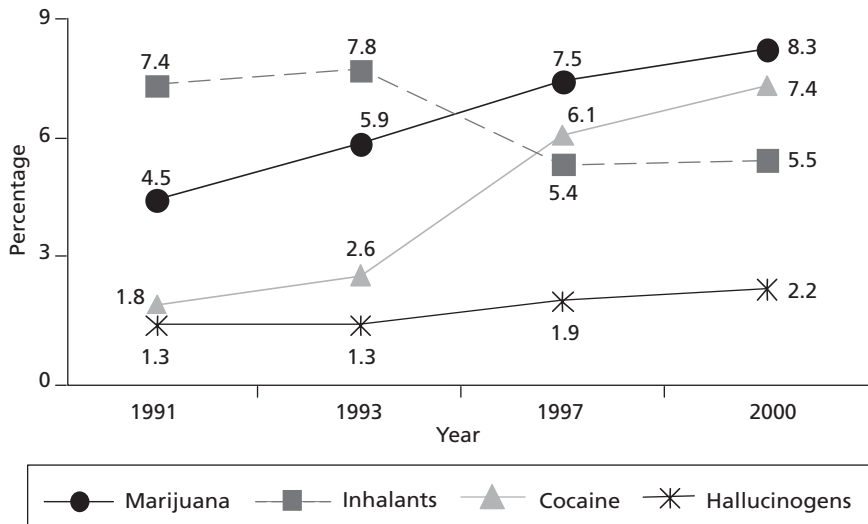
Studies conducted among the student population also show an increase in the proportion of students who have experimented with cocaine; in Mexico City lifetime prevalence of cocaine use rose from 0.5 per cent in 1976 to 5.2 per cent in 2000. A slight decrease in solvent inhalation was observed, with the lifetime prevalence dropping from 5.4 per cent in 1978 to 4.3 per cent in 2000 [18, 20, 21, 34] (figure III). Relative trends in the lifetime prevalence of drug use among males and females in the student population are shown in figures IV and V. More males than females consumed substances; there were significant increases in marijuana and cocaine use in both groups; and there was a drop in solvent use among males, a trend not observed among females. The drop in inhalant consumption could be seen in the lower demand for treatment in government-run centres, which fell from 56 per cent in 1990 to 35 per cent in 2000 [31]. However, inhalants remained the preferred substance among child workers.

Figure III. Trends in lifetime prevalence of drug use among intermediate and upper intermediate students, Mexico City, 1976-2000



Sources: M. E. Castro and others, "Epidemiología del uso de drogas en la población estudiantil: tendencias en los últimos 10 años", *Salud Mental*, 1986, vol. 9, No. 4, pp. 80-85; J. De la Serna and others, "Medicinas del uso de drogas en estudiantes de educación media y media superior del Distrito Federal y zona conurbada, 1989", *Memorias de la IV Reunión de Investigación, Instituto Nacional de Psiquiatría*, 1991, pp. 183-187; M. E. Medina-Mora and others, "Consumo de sustancias con efectos psicotrópicos en la población estudiantil de enseñanza media y media superior de la República Mexicana", *Salud Mental*, vol. 16, No. 3 (1993), pp. 2-8; J. Villatoro and others, "La situación del consumo de sustancias entre estudiantes de la Ciudad de México: medición otoño 1997", *Salud Mental*, vol. 22, No. 1 (1999), pp. 18-30; J. Villatoro and others, "Estudios en estudiantes de enseñanza media y media superior, Ciudad de México", *Observatorio Epidemiológico en Adicciones* (Mexico City, Secretaría de Salud, 2001).

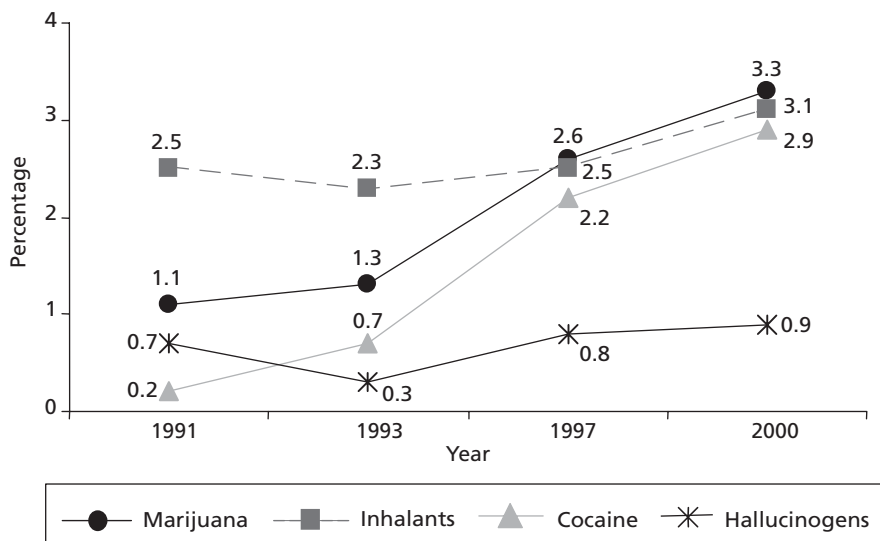
Figure IV. Trends in lifetime prevalence of drug use among intermediate and upper intermediate male students, Mexico City, 1991-2000



Sources: M. E. Castro and others, "Epidemiología del uso de drogas en la población estudiantil: tendencias en los últimos 10 años", *Salud Mental*, 1986, vol. 9, No. 4, pp. 80-85; J. De la Serna and others, "Medicina del uso de drogas en estudiantes de educación media y media superior del Distrito Federal y zona conurbada, 1989", *Memorias de la IV Reunión de Investigación, Instituto Nacional de Psiquiatría*, 1991, pp. 183-187; M. E. Medina-Mora and others, "Consumo de sustancias con efectos psicotrópicos en la población estudiantil de enseñanza media y media superior de la República Mexicana", *Salud Mental*, vol. 16, No. 3 (1993), pp. 2-8; J. Villatoro and others, "La situación del consumo de sustancias entre estudiantes de la Ciudad de México: medición otoño 1997", *Salud Mental*, vol. 22, No. 1 (1999), pp. 18-30; J. Villatoro and others, "Estudios en estudiantes de enseñanza media y media superior, Ciudad de México", *Observatorio Epidemiológico en Adicciones* (Mexico City, Secretaría de Salud, 2001).

According to the 1999 survey of the National System for Comprehensive Family Development [28], the drugs most frequently taken by child workers were inhalants (lifetime prevalence: 3.5 per cent of males and 0.9 per cent of females) and marijuana (lifetime prevalence: 3.4 per cent of males and 0.9 per cent of females). Prevalence was lower for cocaine (0.7 per cent of males and 0.4 per cent of females) and pills (0.7 per cent of males and 0.5 per cent of females). Prevalence rates varied significantly according to the type of population group considered, rising to 56 per cent when the child did not live at home [28]. The average age of child workers in the sample was 13 years (range: 6-17 years), of whom 72 per cent were male, 23 per cent worked packing groceries in supermarkets and 44 per cent were street vendors. The majority lived with family members, including father figures (90 per cent), while only 2 per cent lived in the street; 65 per cent were enrolled in school.

Figure V. Trends in lifetime prevalence of drug use among intermediate and upper intermediate female students, Mexico City, 1991-2000



Sources: M. E. Castro and others, "Epidemiología del uso de drogas en la población estudiantil: tendencias en los últimos 10 años", *Salud Mental*, 1986, vol. 9, No. 4, pp. 80-85; J. De la Serna and others, "Medicina del uso de drogas en estudiantes de educación media y media superior del Distrito Federal y zona conurbada, 1989", *Memorias de la IV Reunión de Investigación, Instituto Nacional de Psiquiatría*, 1991, pp. 183-187; M. E. Medina-Mora and others, "Consumo de sustancias con efectos psicotrópicos en la población estudiantil de enseñanza media y media superior de la República Mexicana", *Salud Mental*, vol. 16, No. 3 (1993), pp. 2-8; J. Villatoro and others, "La situación del consumo de sustancias entre estudiantes de la Ciudad de México: medición otoño 1997", *Salud Mental*, vol. 22, No. 1 (1999), pp. 18-30; J. Villatoro and others, "Estudios en estudiantes de enseñanza media y media superior, Ciudad de México", *Observatorio Epidemiológico en Adicciones* (Mexico City, Secretaría de Salud, 2001).

Heroin consumption in Mexico seems to be concentrated in regions on the border with the United States, although some cases are found in other regions of the country [35]. Suárez-Toriello [36] noted a sudden increase in the number of new heroin cases in the 1970s among the prison population in Baja California State and among patients attending the Centro de Integración Juvenil in Tijuana, Baja California, the only Centre to have a residential programme at that time. Taking the starting year as a baseline indicator, he noted that the incidence of new cases was stable between 1960 and 1970, but rose significantly from 1972 in the prisons and from 1973 in the treatment centres, where a 700 per cent increase was observed in the number of new cases found in 1976 by comparison with those found in 1970.

Between 1976 and 1982, 2 out of every 100 people attending CIJ across the country were heroin users. Of those, 82 per cent were treated in the treatment

centres located in the four cities on the United States border, Tijuana, Ciudad Juárez, Nogales and Piedras Negras [12]. In 2000, 5 per cent of the patients who came to CIJ had used heroin; this figure rose to between 23 per cent and 46 per cent in the Centres on the United States border [31]. SISVEA noted a rise in the use of heroin as the drug of impact from 6.2 per cent to 43.9 per cent between 1994 and 1998 among patients attending non-governmental institutions on the country's northern border [14].

According to the 1998 national survey on addictions, 6 out of every 1,000 adult males had injected drugs, compared with only 5 out of every 100,000 women. Just over half the men (56 per cent) had engaged in intravenous injection in the year prior to the study. The drug most frequently associated with this mode of use is heroin: 73 per cent of users said that they had injected the drug, whereas very few cocaine users had done so (1.2 per cent). One in five of those injecting reported having done so with a used syringe. According to acquired immunodeficiency syndrome (AIDS) registers, 1.7 per cent had been infected by injecting drugs [37]. Given current trends, this proportion may well be on the rise.

These studies document the fact that the drug problem is not identical across all regions of Mexico: surveys in the northern border region show that the rate of drug use is more than twice as high in Tijuana and Ciudad Juárez as in the rest of the country. Studies of adolescents also show significant variations in consumption rates; for example, the inhalation of solvents occurs far more frequently in central and southern Mexico. Information systems show that the heroin problem is at its most acute on the country's northern border.

Emerging problems

Not only have new groups of users appeared, but new substances of abuse have also emerged. One such substance, Refractyl Ofteno, which is inhaled in order to achieve intoxication, was first observed in Mexico City in 1995, but controls were placed on it and it ceased to be abused shortly afterwards. Substances of medical utility, such as flunitrazepam, are also abused, as shown by the number of times that drug users in the capital's registration system report having used it: 105 in 1994, compared with 16 in 1988. High levels of abuse have persisted since then [30].

Amphetamine-type drugs (the most common one being methylenedioxymethamphetamine (MDMA), known as "Ecstasy") have appeared on the market. The use of "Ecstasy" was first documented in the early 1990s, mainly on the country's north-western border. The patient registers of CIJ indicate a national average of 2.7 per cent "Ecstasy" use for 1995, whereas in that same year the drug had been taken by 42 per cent of patients attending the centre in Tijuana, Baja California. This geographical variation remains in force to this day.

Perspectives

The research strategy pursued by Mexico has been useful in providing an epidemiological diagnosis of the drug consumption situation. Of particular

significance has been the uniformity of indicators used across various studies conducted by different institutions. This has allowed information from different sources to be assembled to form an overall diagnosis of the situation, while the continuity of the studies has made it possible to note the emergence of trends.

Several challenges remain for the diagnosis of the epidemiological situation on drug consumption in Mexico. Action needs to be taken to ensure that information on the drug situation supports decision makers in how they tackle the new challenges presented by drug trends. To date, reporting timetables have been tailored to meet academic needs, in terms of deadlines for publication in scientific journals. What is now needed is a system whereby the data can be produced in a manner more appropriate for decision-making. Routine studies and existing information systems should also be expanded to take more timely account of new trends, including new drugs of abuse, changes in the groups that abuse drugs and changes in the ways in which drugs are administered. Strategies could include indicators sensitive to such changes which could be complemented with the introduction of rapid assessment studies on emerging problems. Despite their importance, few studies have been conducted to date on court-initiated referrals. People under arrest or in social rehabilitation institutions should be included in information systems. Various studies could provide information that would be more useful in assessing treatment needs and evaluating prevention, treatment and rehabilitation programmes. It would therefore be advisable to include indicators providing such evaluations. These are the challenges that the recently established drug observatory is currently attempting to address.

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