Introduction

There is growing concern in many countries about the scope and effects of the abuse of chemical substances among their populations. The Thirty-seventh World Health Assembly (May 1984) voiced this concern in its fourteenth plenary session, and the last report issued by the International Narcotics Control Board (INCB) states that the menace of drug abuse has reached unprecedented dimensions. Both WHO and INCB as well as other international bodies have called for sustained and determined counteraction, particularly focused on adolescent substance abuse.

Epidemiological data are especially useful in the planning of both health care delivery to drug addicts and effective prevention programs, but research on the subject has shown considerable variance among the countries of the Americas. Canada and the United States have developed epidemiological surveillance systems with special emphasis on youth; few other countries have attempted to collect data in a systematic fashion. In view of its importance as a public health problem, it was considered pertinent to present the available evidence on illicit drug consumption in Latin America and the Caribbean.

Following is a review and methodological appraisal of major drug consumption studies carried out in countries of the Region, and a discussion of the nature and extent of drug-related problems. Patterns of consumption are described in relation to the main drugs subject to abuse: cocaine, marihuana, inhalants, tranquilizers, and stimulants. Finally, an overall comment is made on the basis of existing epidemiological evidence, including recommendations for further research as needed.

Review by Countries

Mexico

Since 1974 there have been many surveys of drug use among Mexico's general and student populations. The household surveys were all based on stratified random samples of households drawn from census data in a multistage selection procedure. The population of interest included all inhabitants aged 14 years and over. Response rates for these surveys are reported to be quite high, ranging from 83 to 93%; sample size ranged from 250 to 2,800 cases. Most of the Mexican studies were well designed, relying on interview schedules developed for trained personnel. This type of questionnaire contains complex branching questions which require well-selected and trained interviewers for proper administration.

The surveys show that the legal drugs most frequently used in Mexico are alcohol, tobacco, and medically prescribed tranquilizers, especially among women. Illegal, nonmedical drugs are used preferentially by young people. Drug abuse primarily involves the use of cannabis and psychotropic drugs by adolescents and youth and the use of inhalants among children. However, overall prevalence rates are far below

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those reported in Canada and the United States. A Mexico City survey, for example, showed that none of the illegal drugs had been recently used by over 5% of the population sampled and the proportion of users fell mostly under 1%. One of the few cross-cultural studies available shows that Canadian high school students use all types of drugs more frequently than their Mexican counterparts, and concludes that illicit drug use is not nearly as widespread in the Mexican population as it is in some neighboring countries.

The Mexican experience demonstrates the validity of survey methodology as an approach to the development of national data on drug abuse. By aggregating data collected from various local (city-wide) studies, it has been possible to envisage national trends. The Mexican surveys appear to be the most thorough among the studies made in Latin America and the Caribbean, and they should continue to be developed as they constitute good sources of epidemiological data on drug consumption.

Central America and the Caribbean

The majority of published studies about drug consumption in the countries of the Central American area point to the high prevalence of heavy alcohol use. One of them, performed by the Costa Rican National Institute on Alcoholism, evidences interesting and useful research in the wider area of drug dependence, with findings similar to those obtained in other parts of Latin America and the Caribbean. Marihuana appears to be the commonest illegal drug in use, especially among youth, followed by inhalants in the younger age brackets. Cocaine use has only been reported in Panama, and this relates to INCB data suggesting intense drug traffic activity in that country.

Most Central American countries remain transit points for the illicit traffic of cocaine and cannabis. After a successful eradication campaign in Mexico, illicit opium poppy and cannabis cultivation has been reported in Guatemala. In Belize, the ostensibly rapid expansion of illicit cannabis cultivation and traffic has led to aerial eradication undertaken with the assistance of Mexican authorities. Panama plays an important role as a transit country due to its geographical location across the major smuggling routes. Energetic enforcement action against drug traffic has resulted in extensive confiscation of cocaine, cannabis and methaqualone.

The use of small vessels for seaborne drug traffic in the Caribbean has added expediency to illegal transactions. Islands in the Netherlands Antilles have been reportedly used as refueling stations for vessels transporting cannabis from Colombia's north coast to other countries. Airdrops of cannabis to ships waiting in the proximity of the Bahamas have also been reported. Consequently, in March 1983 the Bahamas Government hosted a law enforcement seminar conducted by the United Nations Division of Narcotic Drugs.

There are no epidemiological data available on drug abuse in Caribbean countries, other than Jamaica, where the use of ganja (local name for cannabis) is very common, accepted among rural peasants, and dates back at least 130 years. Those studies were not available at the time this report was prepared. According to the INCB, Jamaica has become an important center for the production of high potency cannabis, illicitly cultivated on a commercial basis. The extent of cannabis traffic is shown by the large number of illegal airstrips on the island utilized by drug runners. In addition to the use of cannabis, cocaine abuse has been lately detected among the local population.

Venezuela

There are few published studies on the subject of drug use in Venezuela, and the quality of their methodology cannot be ascertained. In a random sample of 14,300 high school students of 24 major metropolitan areas an overall consumption rate of 2.2% was found; marihuana was the most commonly abused substance (1.7%). In a comparative study of 100 drug users, 32% of them used marihuana, 20% LSD and 16% cocaine.

The Permanent Secretariat of the South American Agreement on Narcotic Drugs and Psychotropic Substances reports that there is a tendency toward multidrug abuse in Venezuela. The most widely abused drugs, in decreasing order of frequency, are alcohol, marihuana, methaqualone and cocaine. Traffic in the latter substance has recently increased whereas the use of basic coca paste is limited.

Colombia

General population surveys of drug abuse in Colombia are few and very recent, such as the ones carried out in Medellín. Most published studies are of student populations (high school and graduate groups). Some show a fairly clear sampling methodology, while others have aggregated data from several cities (Bogotá, Barranquilla and Bucaramanga). There are also certain studies describing groups of hospital patients such as those treated in the Drug Addiction Unit of the Hospital Mental de Antioquia in Medellín.

Patterns emerging from the isolated data available show heavy use of alcohol (4.7% of the population over 15 years of age drink more than one bottle of distilled spirits one to three times a week) and tobacco (43.2% of adults smoke). Even if there are no national data on drug consumption, the studies based on large
city populations (especially Bogotá and Medellín) show that marihuana and coca paste or basuco (mixture of cocaine sulfate, alcohol and other chemicals, used in cigarette form) are the most frequently abused substances.Marihuana use increased during the 1960s and 1970s, and coca paste smoking has become a health concern in the 1980s. According to one study, hospitalizations due to basuco in Medellín have increased threefold from 1981 to 1983. The situation seems to be similar in Bogotá and Cali.

**Ecuador**

In Ecuador there is no published information regarding drug abuse. A recent report from a PAHO consultant states that Ecuador does not have the minimum amount of information in the field of mental health and drug addiction to allow a diagnosis to be made which would enable the designing of adequate programs. However, the recently created National Directorate of Mental Health seems to have the technical expertise required to gather the necessary information in the future.

**Peru**

It has been noted that the most important drug dependence problems in Peru are related to the use of alcohol and coca. In 1979 a household interview survey of the city of Lima was jointly sponsored by the United Nations Fund for Drug Abuse Control (UNFDAC) and PAHO. The study covered the 12-45 age group in a probability sample of 2,167 households. The investigators had access to sound information and trained sampling statisticians from the Ministry of Labor; the response rate was quite high (94%). Although the idea was to cover the younger population, thinking that the prevalence of coca paste use would be high in that group, contrary to expectations inhalants turned out to be the most used compounds, and tobacco, alcohol, and tranquilizers, the preferred drugs among adults.

Other Peruvian studies have centered on special populations. One carried out in northern Peru documents the frequency of coca leaf chewing, or coqueo, especially among indigenous Andean immigrants. Studies of student groups tended to show again that alcohol and tobacco are the drugs of choice, with marihuana and amphetamines next in line. Cocaine and coca paste are used far more frequently than in non-Andean countries.

**Bolivia**

There are only a few studies that provide statistically reliable data on Bolivia. The main drug problems in this Andean country are the growth, production, and consumption of coca (in the form of coca leaf chewing and coca paste smoking), and the use of marihuana. The situation is similar in its ethnic and cultural features to that of Peru, since coca bush cultivation is also traditional in Bolivia. Most of the research done on coca refers to legal and illegal plantations, procedures, confiscation of drugs, and arrests, and the figures are now outdated.

**Chile**

There have been no general population surveys of Chile, and only a few studies of high school populations. The method usually relied on has been self-administered questionnaires, applied either to the total or to a random stratified sample of the population under study. The overall rates of consumption are high for legal substances (alcohol and tobacco) and much lower for illegal ones. Of these, marihuana is the most common. From 4 to 7% of the population admits to having used it, and 1.0 to 3.5% are frequent users. Tranquilizers and stimulants are much less widespread. Use of inhalants has been on the rise for the last five years, especially among children of lower socioeconomic strata. The documentation reviewed does not refer to the use of coca and its derivatives, although there are frequent reports of cocaine confiscation, usually from traffickers.

Another area of concern in Chile is the control of medically prescribed drugs. The Ministry of Health and the Institute of Public Health have recently organized a completely computerized drug monitoring system for that purpose.

**Paraguay**

According to a recent PAHO report, there is no centralized system for collecting information on the use and abuse of drugs in Paraguay. However, a well-designed study of a representative sample of students from the Paraguayan National University and Asunción high schools showed that alcohol and tobacco are the most frequently used legal drugs. The students polled said that marihuana, stimulants, and cocaine are the most frequently abused illegal substances. Recently, the inhalation of volatile solvents has become an upsurging issue. Secondary data from clinical and police sources confirm that the availability of alcohol and marihuana constitutes the main problem.

**Argentina**

Reports of data from Argentina are very scanty. There are a few descriptions of groups treated for drug dependence, especially at CENARESO (Centro Na-
Uruguay

No published epidemiological studies on drug abuse in Uruguay were found. Reportedly, the problem of coca and its derivatives is practically nonexistent in this country. Cocaine in the form of salts is in circulation in very small quantities and the number of users is small.

Brazil

The only published studies are two student population surveys in Belo Horizonte, which show an overall drug consumption rate of 16% for high school students and 24.1% for university students. Drugs most often used by these two groups were amphetamines (37% and 39.6%, respectively) and marihuana (29% and 30.6%, respectively). No reported data are available on the general population.

Large coca plantations have been found in the area of Alto Rio Negro, in the countryside surrounding Manaus, along the banks of the Solimães, Wampes, and Papuri rivers, and in dozens of other towns bordering those rivers. Although the *epodú* (of the Erythroxylaceae family) was traditionally grown from earliest times by Tucano and Macú-speaking natives, new and large-scale cultivation has been introduced recently for illicit commercial purposes.

Cannabis seeds were brought to Brazil by African slaves, mainly from Angola, in the first half of the 17th century. As a result, nearly all the traditional synonyms for marihuana in Brazil (*maconha, doamba, liamba, moconha*) originate from the Angolan language. During the colonial period, it was common for plantation owners to allow their slaves to plant cannabis amid the sugar cane, especially in the Northeast. A proclamation dating from the 19th century forbade the use of marihuana in urban areas, including the capital city of Rio de Janeiro, where imprisonment was the penalty for offenders. At present, according to the police, the chronic use of marihuana is rare and imprisoned offenders are nearly always multiple drug users.

**Drugs Subject to Abuse**

**Cocaine**

In South America, coca leaf chewing is a cultural tradition long accepted in the Andean highlands, very much like alcohol or tobacco elsewhere. However, this traditional custom has given way to cocaine use in urban settings. Peru and Bolivia are the main growers of the coca bush (*Erythroxylon coca*), whose leaves are processed to yield cocaine hydrochloride. The product is sold in those countries or, more often, smuggled to North America and Europe.

A different variety of coca is grown in Colombia where it is most commonly prepared, as mentioned earlier, in the form of *basuco*. The much greater absorption rate (90-95%) of the sulfate makes it a more dangerous substance than the hydrochloride, which when sniffed is absorbed to a lesser extent. There have been several recent reports indicating the adverse health consequences not only of cocaine hydrochloride, but of coca paste and even of coca leaf chewing. Evidence summarized in one of those reports points to this very traditional and accepted habit as the cause of lasting brain function changes which can result in a cognitive deficit.

A fair amount of research has been devoted to the subject in countries such as Peru and Bolivia, in an effort to distinguish the direct damaging effects of coca paste from the effects of malnutrition, a consequence of the overuse of this substance. The use of cocaine sulfate and its consequences have been studied in Bolivia. There is a clear-cut anorectic effect that seems to mediate the extreme degree of malnutrition apparent among chronic users of this drug. The reinforcing effect of cocaine leads its abusers to continue using it in spite of their physical emaciation, and also to procure it through illegal means. Death can ensue due to accidental overdoses, or to *empacados* (body packing, that is, the transportation of drugs packed inside the body), a fact reported more or less frequently. Intravenous administration can trigger the usual complications associated with that practice, such as hepatitis, thrombophlebitis, and a variety of infections. Cocaine abuse is frequently combined with that of alcohol and other drugs, with the consequent health hazards common to polydrug abuse.

In spite of frequent reports from several South American countries about increased use of coca and its derivatives, there are no general population surveys documenting this fact. Most of the studies undertaken have been directed at special groups, usually of high school and university students. Cocaine consumption among them is high in Andean countries such as Colombia and Bolivia. There are few data for Ecuador, where coca chewing has been reportedly suppressed since
1938. Cocaine sniffing seems to be an elitist practice of the upper middle and upper class groups, which very rarely get into trouble with the police. Most of the data available come from treatment centers reporting on the relative frequency of drug use among patients, and from police statistics concerning drug offenders, or drug raids. Cocaine abuse seems to be concentrated in the aforementioned Andean countries. The rest of Latin American and Caribbean countries have not reported an abuse problem, although there is drug traffic in many countries.

Cannabis

The illicit drug most commonly used in Latin America is cannabis, usually smoked as marihuana (or marijuana). Cannabis sativa as a botanical species originates in Central Asia, but it has been grown in Spanish America since the early XVII century. It was also introduced in Brazil from Africa under the name maconha, a term coined in Angola. Another variety, Cannabis indica, was introduced in Jamaica by Hindustani immigrants in the XIX century. The use of cannabis as an intoxicant was uncommon until the 1950s, but it had reached epidemic proportions by the 1960s, when it was adopted as a symbol or rebellion against the Establishment by the hippie counterculture. Rates of increase in Latin America and the Caribbean are not as high as those shown in the United States and Canada, but they are important enough to be of concern in almost all countries in those areas.

It is now clear that chronic heavy use provokes both psychological dependence and tolerance, but this condition reverts rapidly back to normal after drug use is discontinued. There have been reports of withdrawal symptoms and reversed tolerance, as well as flashback reactions. The leathargic or motivational syndrome manifested as a withdrawal from school or work activities is characteristic of chronic cannabis intoxication. There have been reports of brain damage, and a residual deficit in cognitive intellectual functions has also been documented. Cannabis can also trigger different kinds of psychiatric disorders, some of a psychotic nature. The available evidence, therefore, substantiates the fact that marihuana is a dangerous substance, and not as innocuous as heralded in the heyday of its popularity.

The picture of marihuana use in Latin America and the Caribbean is as incomplete as that of other psychotropic substances. There are no general population studies, except those of Mexico and Peru, and most available data are based on youth (mainly student) surveys. These show that marihuana is the most frequently used illicit chemical in countries such as Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, Peru, Venezuela, and in Central America. This fact is further substantiated by studies of the relative distribution of the use of chemicals by patients treated in drug dependence units in Chile, Colombia, and Paraguay.

The problem is related to the relative difficulty of controlling the production and traffic of cannabis. Colombia still seems to be the main supplier in the Region. Although the full extent of cannabis cultivation is unknown, there are indications of new plantations in the northwestern part of that country. Jamaica has also become an important production center of high-potency cannabis, illicitly cultivated on a commercial basis. There is no firm epidemiological evidence as to the extent and trend of marihuana use in Latin America and the Caribbean. Most of the studies are single ones, and no trend studies have been carried out in any of the countries. Nevertheless, most of the nations have launched primary prevention campaigns, some of them on a national level, as in Mexico and Venezuela. Systematic evaluation of the impact of these efforts is necessary, and good epidemiological data bases are sorely needed in order to control marihuana use.

Tranquilizers

The nonmedical use of psychotropic substances is less widely publicized than that of illicit narcotics and other drugs, but this does not make it any less of an issue. In most Latin American countries benzodiazepine and its derivatives are among the leading profit-making compounds prepared by the pharmaceutical industries. However, no solid data are available on national patterns of nonmedical use of psychopharmacological drugs. Youth surveys show it is lower than that of marihuana, but on a par with the use of stimulants. At least two countries (Colombia and Chile) have recently designed drug control monitoring systems that will become operative shortly. Useful data should soon be forthcoming from these systems.

Clinical experience and anecdotal data show different patterns of abuse between tranquilizers and other psychotropic drugs. They seem to be predominantly abused by adults rather than young people, and by women rather than by men.

Stimulants

Cocaine use has been already described as an emerging trend in the Region. In addition, there are other kinds of stimulants—mostly amphetamines and their derivatives—commonly abused by two different groups: students, who use them occasionally to reduce fatigue during examinations, or for other reasons; and women, who take them to lose weight (amphetamines are medically used as an appetite suppressant). Polydrug users...
also take stimulants as part of their mixed consumption of drugs. The use of these drugs is as difficult to assess as the use of tranquilizers, and it is hoped that the drug control and surveillance systems now in preparation in Colombia and Chile will shed light on the subject.

The use of amphetamines seems to be more extensive in large towns with sizable high school and university student populations. Argentina, Brazil, Mexico and Peru have communicated high rates of consumption among such groups. During the early 1970s there was an upsurge in the use of methyl-dextro-amphetamines (MDA) and other very potent substances, in North America. Its present decrease is perhaps due to the realization of the high toxicity of such chemicals, especially when used intravenously.

Solvent Inhalation

In the last decade, the sniffing of glue and other volatile solvents has increased throughout large cities in Latin America, especially among younger children in the lower socioeconomic strata. A group from the University of Chile studied the clinical background and psychopathology of solvent abusers in Santiago, finding a high percentage of social problems and family disfunction among them. Of the 33 children studied, most were slum dwellers, had sociopathic tendencies, and responded well to social rehabilitation techniques. Some had severe psychopathologies requiring specialized treatment. Systematic collection of data on solvent inhalation is very difficult because most of the consumers are outside the formal education system. However, it has been estimated that 7 to 10% of Santiago slum children abuse solvents occasionally and 1% use them frequently.

Comments and Conclusions

In the face of general concern about increased drug abuse in Latin America and the Caribbean, the present review highlights the lack of systematic evidence available to either substantiate or disprove that assumption. No general population surveys have been made except in two countries, and even those do not encompass representative population samples, since they focus in two countries, and even those do not encompass representative population samples, in particular cities or geographic locations. There are minimal, if any, data on drug consumption among adolescents outside the formal educational system.

Surveys of other special groups include patients treated for drug abuse, psychiatric populations, and children or young persons who have gotten into trouble with the law. The main problem with these group studies is the difficulty of generalizing their findings to more extensive populations. Often, however, they seem to be the only available source of data. In-depth descriptive studies on specific substances (coca paste abuse in Peru, Bolivia and Colombia, and solvent abuse in Chile) have provided useful information about clinical and anthropological aspects of emergent forms of drug abuse.

Cross-cultural studies are especially valuable because they facilitate comparative estimates of drug consumption between countries or subregions. Unfortunately, there are very few cross-cultural studies using common frameworks and data collection systems, and the majority are limited to Mexico and the United States, or Canada. These have shown that Mexico has a much lower consumption level of most chemicals than the rest of North America. It would be most valuable to have more comparisons of this kind, including other countries.

In spite of the different data-collection schedules, most results tend to cluster, showing that alcohol and tobacco are the most ordinarily used (and abused) legal and culturally accepted chemicals. The nonmedical use of psychotropic substances such as tranquilizers and stimulants appears to be next in frequency. The use of these drugs seems to concentrate in large metropolitan areas. The four aforementioned substances are consumed mainly by adults, but their use is increasing among younger age groups. Marihuana is the most frequently abused illegal substance throughout the region. Its use is typical of urban middle-class youth, except in countries such as Brazil and Jamaica, where it has a long tradition of use among the peasants and is therefore culturally accepted. In most countries, however, its use spread in the 1960s, becoming a worldwide epidemic.

Cocaine consumption is also very familiar within the confines of the Andean Subregion (Bolivia, Peru, northern Argentina and Chile, Ecuador, parts of Brazil and Colombia). Traditional coca growers and producers have attempted to discourage that practice; however, coca leaf chewing endures as a traditionally accepted habit and coca paste smoking has become an increasingly troublesome issue for them.

Polydrug, or multiple drug abuse is another poorly researched subject. Anecdotal reports point to the concentration of that habit in small, well-identified groups with clearly distinguishable social and psychological characteristics. Such reports have been ascertained in regard to heavy alcohol and solvent use in Chile and this knowledge may lead to the development of ap-
approaches for the identification of high risk individuals in different populations.

The literature reviewed has permitted a clear differentiation of the following subgroups among drug users:

- Traditional drug users in rural areas, who consume coca leaf, maconha and hallucinogenic fungi for culturally accepted reasons. Nutritional and native religious practices have been important factors reinforcing these habits.
- Middle and upper-class individuals, usually young adults, of large metropolitan areas, who follow international trends and fashions in drug use. These were the typical users of LSD in the 1960s, MDA in the 1970s, and cocaine in the 1980s.
- Poorly educated slum dwellers, for whom chemical stimulants are part of their "poverty life-style." They inhale solvents as children and drink alcohol heavily later in life.

The technology needed to conduct methodologically adequate studies, which can further illuminate some of these areas, is available and has been systematically disseminated by the World Health Organization. The United States National Institute on Drug Abuse (NIDA) has also devoted several publications to the methodology of international drug abuse and trend studies. There are several research groups in Latin America and the Caribbean that could collaborate in a joint effort to study this area. WHO has outlined projects and activities on prevention and other drug dependence aspects. However, their effectiveness depends on an accurate assessment of the extent of specific drug consumption in each country and a realistic awareness of the local situation.

Some research groups have published adequately designed studies in Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru. There may be others, not mentioned in this review, that could participate in the challenge of improving the amount and quality of information on drug use in the countries of the Americas.

Bibliographic references on this topic may be requested from the Health of Adults Program (HPA), PAHO.

(Source: Abstracted from: Epidemiology of Drug Use in Central and South America, by Ramon U. Florenzano, School of Medicine, University of Chile, Santiago, Chile.)

AIDS Surveillance in the Americas: Report through 31 December 1985

Overview

Acquired immune deficiency syndrome (AIDS) cases in the Region of the Americas continue to increase, with the vast majority of cases (93.1%) reported from North America. Excluding the United States of America and Canada, 1,250 cases have been notified from all other countries combined. The Caribbean Area (Latin American and non-Latin American) has confirmed a total of 538 cases or 17.5 cases per million population. Latin American countries, including the Central American Isthmus, Brazil, and Mexico have reported a total of 685 cases, or 2.1 cases per million population. The countries with the greatest number of cases include the United States (16,130), Brazil (540), Canada (435), and Haiti (377), which together account for 17,482 cases or 98.1%, of the Region's total. Table 1 shows the number of AIDS cases and deaths reported in the Region through 31 December 1985.

For the first time since 1983, when PAHO initiated its current surveillance system, many countries failed to report the new cases diagnosed during the second semester (1 July through 31 December 1985) in time for inclusion in the year's report. These countries include Anguilla, Argentina, Cayman Islands, Costa Rica, Grenada, Haiti, Jamaica, Trinidad and Tobago, Saint Vincent and the Grenadines, and Turks and Caicos Islands. Thus this report may underestimate the actual total of AIDS cases in the Region.

As of 31 December 1985, no AIDS cases had been diagnosed in the following countries: Antigua, Belize, British Virgin Islands, Cuba, Dominica, Guyana, Montserrat, Nicaragua, and Paraguay.