RESEARCH REPORT

Drug use pathways among high school students of Mexico

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Abstract

Objective. *This study surveyed high school student drug users in urban areas of Mexico to describe use patterns and drug-related behaviors among adolescents and to develop predictor models of pathways to underage drug use.* **Subject/design.** *A National School Survey was conducted among high school students where data are provided by the State. Only urban sites were considered for this study (n = 40 521). Stratified two-stage cluster sampling was used; schools and groups within the schools were the sampling units.* **Conclusions.** *Male adolescents who have worked the previous year, have high exposure within the family and are affiliated with drug using peers are at increased risk of becoming drug users and subject to depression and suicidal ideation as well as drug-related social problems.*

Introduction

Substance abuse in Mexico is not a uniform problem; alcohol, for example, is more integrated into the culture, while misuse of other substances is less extensive. Alcohol-related problems are frequent, and are mainly associated with acute intoxication resulting from infrequent but heavy drinking episodes. This drinking pattern is sustained by cultural values that make intoxication acceptable for males but unacceptable for females. Until recently, when cocaine appeared on the domestic scene, use of substances other than alcohol was rare, and public tolerance for other drug use was low (Medina-Mora *et al.*, 1988, 1995; Ortiz *et al.*, 1994). Undoubtedly, these cultural attitudes influence adolescent substance misuse, but it is also this group that introduces changes in society's behavior. Consequently, it is worth asking: what makes an adolescent experiment or use substances? Are there any differences between the adolescents who follow cultural values by not using drugs and those who challenge society by using illicit substances?

This paper addresses these questions using the data from the National School Survey conducted by Medina-Mora in 1993. Its objective is to describe patterns and problems related to drug use among Mexican adolescents, as well as the predictors of drug use.

General patterns of drug use in Mexican students
In Mexico a significant proportion of students

drop out of school after the sixth grade (54%), and drug use among non-students is higher (Smart *et al.*, 1981, Medina-Mora *et al.*, 1982) than among students.

The problem of drug use among high school students has been documented in Mexico for the past 20 years, alcohol and tobacco being the drugs more often consumed, with some recent trends towards increasing use. Cocaine shows a slow but steady increase, from 0.9% ever users in 1976 (Castro & Valencia, 1978), to 1.66% in 1993 (Medina-Mora *et al.*, 1993). The number of current active users of solvents, hallucinogens and cocaine is increasing, with variations that ranged between 0.04% and 0.61% in 1989 to 0.23 and 1.2% in 1993.

Compared to the rates reported by Johnston (IRT, 1992) for 8th, 10th and 12th grades in the United States, rates in Mexico are lower. Prevalence of ever use of solvents, the drug more often reported, varied between 3% and 4%, while in the United States it was four times higher. Nevertheless, when only daily use was considered, the rates of solvent use reported in Mexico for the last two grades were slightly higher (0.26% compared to 0.1% in the United States). Current use (drug consumption during the previous 30 days) of other drugs is higher in the United States.

Recent domestic data from the United States (Institute of Social Research, 1992) and Mexico (Medina-Mora *et al.*, 1993) suggest that while tolerance of drug use is lower in Mexico, perception of the risk associated with various forms of drug use is higher in the United States and seems to be diminishing in Mexico, opening important avenues for research on the role of socio-cultural factors and individual vulnerability to drug use.

Method

Sample design

The source of data for this report is the 1991 National School Survey conducted among Mexican high school students. It is the first time that rural areas were included in this type of survey and the data are provided by the State. For the purpose of this paper only urban students, defined as those who reported having spent most of their lives in metropolitan areas, large cities and small cities, were taken into consideration. All schools, public and private, were considered except military and art institutions which represent less than 1% of this universe. The sample was selected from the 1991–92 official record of the Ministry of Public Education for this school level. This sampling frame registers schools, size of the student population and groups within each level.

A total national sample of 79 220 students was selected within 2330 groups. The sample design was stratified, with two stages of selection and by clusters, and self-weighted for groups and students. The stratification variables were secondary (7th–9th grade) and preparatory schools (10th–12th grade). Schools and groups within the selected schools were the sampling units for both stages. A uniform interval of selection was determined for each of the domains of interest (secondary and preparatory schools); schools were grouped by each stratum in each of the Mexican States; a cumulus of groups for the schools within each domain and state was formed; the groups were selected using an initial random number and a predetermined interval.

A total of 61 779 students (78% of the estimated sample) completed the self-administered questionnaire, 65.6% ($n = 40\ 521$) lived in urban areas, and thus were included in the study, 51.5% were males and 48.5% were females; 42% were younger than 14 years of age and 94% were 18 years of age or less.

Questionnaire

The information was gathered through a standardized questionnaire which lasted 40 min on average. Validity and reliability of the instrument had been previously evaluated (Medina-Mora *et al.*, 1981; Castro, 1987). The survey included the core items suggested by the World Health Organization (WHO) for self-administered questionnaires (Smart *et al.*, 1980), and has been used in most student surveys conducted in Mexico for the past 20 years. For this study, age was classified into two categories: 15 years of age or less and 16 or more; educational status of the head of the family was dichotomized into 6 years or less school, or 7 or more years.

Measures of perceived availability, social tolerance and perception of risk were taken from "Monitoring the Future Survey" (ISR, 1987). Students were asked to report how difficult it would be to obtain marihuana, cocaine and heroin if they wanted it. Each item had five

response options ranging from "probably impossible" to "probably very easy".

Perceived risk was assessed by asking the students if they considered it "very dangerous", "somewhat dangerous" or "not dangerous" to smoke marihuana once or twice, occasionally or regularly; try cocaine, heroin and amphetamines once or twice, or use each of these substances on a regular basis.

Social tolerance was assessed by asking how their friends would react if they knew the respondent was experimenting or using drugs, at different frequency levels. These were rated in a three-point scale: "approval", "neither approval nor disapproval" and "strong disapproval".

Depression was studied through the CES–D version for adolescents that includes four items on suicidal ideation proposed by Roberts (1980) and tested in Mexico in previous studies (Mariño *et al.*, 1993). Antisocial behavior was assessed by using the United States National Youth Survey Delinquency Scale. Other measures dealt with circumstances of first use, as well as use by siblings, parent and peers.

The questionnaire gathered information on tobacco, alcohol, marihuana, inhalants, cocaine, crack, heroin, hallucinogens and use by prescription of amphetamines and other stimulants, tranquilizers and sedatives. Tobacco and alcohol were analyzed separately and these results are not included in this paper.

Predictor models compared the following use categories: *non-users* were defined as those subjects who reported never having experimented with any drugs, excluding tobacco and alcohol (90%); *experimenters*, who reported having experienced the effects of one or more substances other than tobacco and alcohol from 1 to 5 times (7.66%); *users*, those who had used one or more drugs more than 5 times (2.33%); *polydrug users*, who reported having used more than one substance (2.8%, compared to 7.2% who reported having used only one substance).

As mentioned previously, risk was assessed by analyzing variables corresponding to the individual and to the environment. Environmental risk was assessed through variables such as perceived availability and social tolerance. Interpersonal influences were assessed according to reported use by parents, siblings and peers and by association with students that became intoxicated at school. Individual risk

was assessed through the perceived risk associated with different drugs and patterns of use, and by measures of depression and suicidal ideation.

It has been suggested that alcohol and drug use and abuse do not occur as isolated events, nor as distinct aspects of individual behavior, but as components of a cluster of behaviors and attitudes that form a syndrome or life-style of problem behavior (Newcomb, 1994). This paper also analyzes the relation between drug use and antisocial behavior.

Previous studies (Medina-Mora *et al.*, 1995) have demonstrated that among adolescents the selection drug type is determined by demographic variables, and is not affected by the interpersonal and contextual variables included here. Thus, for this paper, drug use was considered a unique category, and due to the different status and cultural role of alcohol, this substance was analyzed separately.

Association between variables was tested by means of univariate (χ^2 test and analysis of variance) and multivariate statistics (multiple logistic regression analysis and odds ratios), using SPSS 6.1.3 for Windows. Four models were tested and compared: (1) non-users vs. experimenters; (2) non-users vs. users; (3) experimenters vs. users; and (4) users of only one substance vs. users of more than one drug excluding tobacco and alcohol.

Data collection procedures

Information was gathered by trained fieldworkers, who were teachers, students in the last semesters of their professional training or recent graduate students coming from the social and health sciences. They were coordinated by a supervisor in each of the 32 states of the republic and Mexico City. They received a 2-day training that focused on the procedure to identify the groups in the sample, the instructions to be provided to students and the way to handle questions and refusals. The principals of the sampled schools certified the distribution of questionnaires. The questionnaire was answered by the students in their classroom, after teachers were asked to leave. Students were informed about the purpose of the study, and they received instructions on the way to answer the questionnaire. Participation was voluntary. Anonymity and informed consent were ensured.

Table 1. *Prevalence (percentages) of use in the last 12 months by age and gender*

Age	Males							Females						
	−13	14	15	16	17	18	+18	−13	14	15	16	17	18	+18
Marihuana	0.3	0.9	1.7	2.4	2.9	4.0	2.2	0.1	0.2	0.3	0.6	0.5	0.4	1.2
Inhalants	2.2	2.4	2.6	2.4	2.5	1.8	1.0	1.2	1.0	1.1	1.0	0.7	0.6	0.2
Hallucinogens	0.3	0.3	0.3	0.6	1.0	0.7	0.6	0.1	0.2	0.1	0.2	0.3	0.2	0.2
Cocaine	0.3	0.4	0.3	0.8	1.3	2.8	2.1	0.1	0.3	0.3	0.3	0.2	0.9	0.5
Heroin	0.1	0.3	0.4	0.2	0.2	0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0
Stimulants	1.2	2.0	1.8	3.1	2.6	3.1	3.6	1.5	2.7	2.5	3.0	3.5	3.0	2.5
Tranquilizers	1.0	1.3	1.5	1.5	2.0	2.4	2.2	1.1	1.7	2.4	2.8	3.4	3.0	4.2
Sedatives	0.4	0.7	0.8	1.2	1.3	0.6	0.8	0.5	1.0	1.2	1.3	1.3	2.4	1.2
Tobacco	12.2	23.1	34.8	43.5	48.0	50.0	50.2	5.9	10.6	17.9	23.9	29.3	32.1	26.0

Table 2. *Relation between alcohol, tobacco and drug use*

	Females			Males		
	%	Odds ratio	CI 95%	%	Odds ratio	CI 95%
Marihuana						
Alcohol						
Not drinking	0.1	1.0		0.5	1.0	
Less than 5 drinks per sitting	0.6	5.9	3.0–11.7	2	4.1	2.9–5.8
5 drinks or more per sitting in a month	5	51.2	26.0–100.6	12	28.0	20.2–38.9
Cigarettes						
Not smoking	0.1	1.0		0.3	1.0	
Smoke less than 20 days in a month	1.7	21.2	11.5–39.1	4.5	14.8	10.6–20.7
Smoke 20 days or more in a month	11.61	160.3	81.4–315.7	20.2	79.2	55.6–112.8
Inhalants						
Alcohol						
Not drinking	0.9	1.0		1.5	1.0	
Less than 5 drinks per sitting	3.1	3.5	2.7–4.4	5.7	4.1	3.4–5.1
5 drinks or more per sitting in a month	8.5	10.1	7.5–13.6	12.1	9.4	7.6–11.6
Cigarettes						
Not smoking	1.3	1.0		2.2	1.0	
Smoke less than 20 days in a month	5.4	4.3	3.5–5.2	7.9	3.8	3.3–4.4
Smoke 20 days or more in a month	6.6	5.4	3.3–8.8	14.8	7.8	6.3–9.6
Hallucinogens						
Alcohol						
Not drinking	0.2	1.0		0.2	1.0	
Less than 5 drinks per sitting	0.4	2.3	1.3–4.2	0.6	3.3	1.9–5.7
5 drinks or more per sitting in a month	1.6	9.9	5.0–19.5	2.6	13.7	8.1–23.8
Cigarettes						
Not smoking	0.2	1.0		0.3	1.0	
Smoke less than 20 days in a month	0.8	4.8	2.7–8.0	1.0	4.2	2.8–6.5
Smoke 20 days or more in a month	2.3	13.5	5.5–33.1	4.6	19.7	12.3–31.5
Cocaine						
Alcohol						
Not drinking	0.1	1.0		0.3	1.0	
Less than 5 drinks per sitting	0.4	3.1	1.6–6.0	1.9	3.5	2.2–5.6
5 drinks or more per sitting in a month	26.7	22.3	11.4–43.8	6.0	19.9	12.7–31.1
Cigarettes						
Not smoking	0.1	1.0		0.3	1.0	
Smoke less than 20 days in a month	1.0	9.8	5.5–17.7	1.9	7.3	5.0–10.7
Smoke 20 days or more in a month	6.0	61.9	30.3–126.4	8.2	32.9	21.7–49.8
Tranquilizers						
Alcohol						
Not drinking	0.7	1.0		0.8	1.0	
Less than 5 drinks per sitting	3.1	4.7	3.6–6.2	1.7	2.1	1.6–2.8
5 drinks or more per sitting in a month	10.0	16.3	11.9–22.3	4.6	5.9	4.4–8.0
Cigarettes						
Not smoking	1.2	1.0		0.9	1.0	
Smoke less than 20 days in a month	5.3	4.5	3.7–5.5	2.5	2.8	2.2–3.5
Smoke 20 days or more in a month	11.2	10.2	6.8–15.4	6.3	7.4	5.3–10.1

Results

Extent of substance use

Inhalants are the drugs most often used by students and use increases with age. Marihuana is the second preferred drug, followed by amphetamines and other stimulants, which are preferred by females. Higher rates of stimulant use are reported by females between 13 and 17 years of age. After this age, the male–female ratio is inverted and the rates of use among males surpass those observed in females. Also, the use of alcohol and tobacco is high in these urban students (Table 1). Polydrug use is common among students; 2.45% of users reported the use

Table 3. *People who provided the drug for the first time (percentages)*

	Males	Females	Total
Friend	5	4	4
Acquaintance	48	22	38
Pusher	8	2	6
Other	5	3	4

more than one substance other than tobacco and alcohol.

Relation between the use of alcohol and tobacco with drug experimentation

Exposure to cigarettes and alcohol was associated (odds ratio) with experimentation with other substances. The association was stronger with heavier patterns of use: frequent cigarette smoking (more than 20 days during the last month) and heavy alcohol intake (drank more than five drinks per sitting, at least once a month) were strongly related to drug experimentation. This association is particularly strong between excessive alcohol use, cigarette smoking and marihuana use (and cocaine in both males and females whose odds ratios varied between 20 and 160). Table 2 shows that alcohol and tobacco consumption are consistently associated with a greater risk of drug consumption.

Circumstances associated with first use

Drug of first use. Inhalants are the drugs associated with earlier initiation (peak between 11 and 12 years of age), followed by tobacco, amphetamines and tranquilizers, with a peak between 13 and 14 years of age; marihuana shows the higher rate between 15 and 16 years of age and cocaine between 15 and 18 years of age. The data also show a trend towards an earlier initiation with younger students reporting first use at an earlier age than older students.

Thirty-eight per cent of the students who ever used drugs reported having obtained them for the first time from an acquaintance; pushers (6%) and friends (4%) were mentioned less frequently (Table 3).

Places where drugs were obtained. Parties, and bars or discos were the most frequent places reported by males as first sources of cocaine (16% and 13%, respectively), while females reported a private home as the most frequent place (27%). Parks and private homes were the locations of first use for males (31% and 25%, respectively), for females, the first place was parties (16%). Private homes are mentioned for all drug types but they are especially important as a source of solvents (40% males and 65% females). School was an important place for drugs to be more often consumed, especially marihuana, inhalants and cocaine (Table 4).

Several states in Mexico were more likely to be reported as the place where heroin and cocaine were used for the first time: Baja California, Sonora, Sinaloa and Jalisco. These are also places where drug cultivation and trafficking represent an important problem. Approximately one-fourth of the users reported having had their first experience with cocaine (17%) and heroin (23%) in the United States.

The most frequent motives endorsed for first use of marihuana were curiosity, ("to see if you liked it", 32%) and to escape from problems (13%). This last motive was especially important for females. Concerns about health and not being interested were the most important reasons given by students for not experimenting with marihuana. Concern over its illegal status or reasons related to its availability were endorsed by only a small proportion of students (Table 5).

Factors associated with experimentation, continuous use and use of more than one substance

Descriptive data and univariate statistics of personal, interpersonal and contextual variables in relation to drug use are shown in Table 6. Their predictive value was assessed through the logistic regression analysis. These results are shown in Table 7.

Demographics characteristics. Students who have used drugs differ from those who reported never having tried substances (other than tobacco and alcohol). They are older (43% vs. 23%), have more often worked (30% vs. 20%) and the educational status of the head of the family is higher. Also, the decision to try drugs was related to gender, and to having been a full-time student in the year previous to the survey (Table 6).

Table 4. *Place where drugs were obtained the first time (percentages)*

	Marihuana		Inhalants		Hallucinogens		Cocaine	
	Males	Females	Males	Females	Males	Females	Males	Females
House	25	10	40	65	21	42	14	27
School	15	14	13	14	10	7	9	13
Work	5	0	12	2	3	0	5	0
Club	3	5	1	1	3	0	6	6
Parties	16	20	6	4	18	10	21	16
Bar/disco	9	13	2	1	4	17	17	13
Street/park	31	9	17	7	18	14	14	10
Other	11	14	10	6	23	10	15	16

Table 5. *Reasons for use or non-use of marihuana*

	% Males	% Females	% Total
Reasons for use			
To see if liked it	34	21	32
Friends use it	13	7	12
For fun	9	8	9
Calm myself	6	3	6
Escape from problems	11	24	13
Old enough	2	3	3
Feel good	5	9	6
Bored	3	9	4
Reasons for non-use			
Bad for health	32	28	30
Produces addiction	4	2	3
Illegal	1	1	1
Problems with parents	4	2	3
Could not get it	*	*	*
Not enough money to buy	*	*	*
Not interested	19	25	22
Afraid	2	2	2
Other reasons	2	2	2

*Indicates percentages lower than 0.5%.

Relation between substance misuse and problem behavior. This association was assessed analyzing the answers to the antisocial behavior scale. A score was obtained by adding the number of items endorsed by the students, independent of the number of times reported for each behavior. Two subscales were considered; one included items on violent behavior and drug selling and the second included different forms of robbery or assault. These subscales resulted from a previous factor analysis, with alpha coefficients above 0.80 (Juárez *et al.*, 1994). The answers to these two subscales were re-coded as dichotomies that reflect the presence or absence of one or more such behaviors. As expected, both variables were strongly related to drug use, with only 3% of the non-users endorsing violent behavior or drug selling compared to 19% of the users, and 27% compared to 59% when robbery or assault without violence were considered. The same trend was observed when other groups were compared (Table 6).

Contextual variables. Perceived availability was analyzed as a dichotomy: "non-available" when students considered it "impossible" to obtain any of the three drugs included in the questionnaire (marihuana, cocaine and heroin) and "available" (any other response). This variable was significantly associated with drug use. Only 26% of non-users perceived any availability of these substances as compared to 66% of the

Table 6. *Univariate comparison between drug users in demographic, contextual and interpersonal variables (percentages)*

Variables	Non-users	Experimenters	Users	Users of one drug	Polydrug users
Demographics					
Gender[1]					
% Males	51	58	61	56	67
% Females	49	41	39^2	44	33^2
Age[1]					
% 16	77	67	57	68	56
% +16	23	33	43^2	32	44^2
Student status[a]					
% Full time	72	65	62	66	61
% Part time	28	35	38^2	34	39^2
Working status[a]					
% Did not work	80	70	68	72	62
% Worked	20	30	32^2	28	38^2
School level of the head of the family[a]					
% 0–6	47	44	44	44	42
% 7+	53	56	56^1	56	58
Problem behavior					
% Violence/drug selling[a]	3	12	19	9	24
% Robbery/assault[a]	27	57	59	53	70
Contextual					
Perceived availability[a]					
% Not available	74	46	33	50	24
% Available	26	54	66^2	50	76^2
Social tolerance[a]					
% No tolerance	78	59	49	61	45
% Some tolerance	22	41	51^2	39	55^2
Interpersonal					
% Father uses drugs[a]	2	7	10^2	6	12^2
% Mother uses drugs[a]	1	3	5^2	3	5^1
% Brothers use drugs[a]	3	12	16^2	10	21^2
% Friends use drugs in School[a]	20	49	66^2	46	73^2
Personal					
Perceived risk[b]					
$\bar{x}$	22.61	21.46	20.72^2	21.77	19.97^2
S	4.17	4.17	4.71	4.07	4.07
Depression (present)[a]	36	59	67^2	59	68^2
Suicidal ideation[b]					
$\bar{x}$	0.66	1.11	1.25^2	1.09	1.30^2
S	1.02	1.19	1.22	1.18	1.23

[1] $p < 0.01$; [2] $p < 0.001$. [a] = Comparisons using χ^2 test; [b] = comparisons using analysis of variance.

users. The same trend was observed for the other groups (Table 6).

Social tolerance was analyzed in a similar way, "no tolerance" (when all answers were "my friends would consider it very wrong", independently of the pattern of use and type of substance), and "tolerance" (which included any other answer). This variable was strongly related to drug initiation: 22% of the non-users reported social tolerance from their friends as compared to 51% of users (Table 6).

Interpersonal variables. Data confirm the hypoth-esis that drug use is associated with exposure in the family context: fathers and brothers are important role models for this behavior. Students who use drugs more often reported that their fathers (7–10% compared to 2% among non-users) and that their brothers (12–16% and 3%, respectively) had used drugs. The most important variable was peer use. While 66% of the experimenters reported knowing other students that either arrived intoxicated or used drugs at school, this was only reported by 20% of the non-users (Table 6).

Table 7. *Odds ratio of predictor models for drug use*

Variable	Non users–users	Non-users–experimenters	Users of one drug–polydrug users	Experimenters–users
			Criterion variable	
Demographics				
Gender	0.8222	1.0480	1.0048	0.7769*
Age	1.7000***[1]	1.1461*[1]	0.9553[2]	0.9272**[2]
Student status	1.1051	1.1151	1.1472	1.1768
Working status	1.2659*	1.2673***	1.8233***	1.1703
School level head of family	0.9796	1.0956***	1.3622*	0.9484
Deviance behavior				
Violence/drug selling	1.6677***	1.9319***	1.4113*	0.8718
Robbery/assault	2.8968***	1.8342***	1.7776***	1.5685**
Contextual				
Perceived availability	2.3009***	1.8975***	2.4212***	1.4320**
Social tolerance	2.1705***	1.5683***	1.2085	1.4092**
Interpersonal				
Father uses drugs	1.4797*	1.6190***	1.1802	0.9857
Mother uses drugs	1.2738	1.0985	1.0173	1.0190
Brothers use drugs	1.5337***	1.5101***	1.4471**	1.1701
School friends use drugs	3.4823***	2.3378***	2.5070***	1.4927***
Perceived risk	0.9539***	0.9707***	0.9260***	0.9800
Personal				
Depression	1.3820**	1.3895***	0.9610	1.1140
Suicidal ideation	1.1749***	1.1485***	1.0675	0.9858

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. [1] Age; [2] age of first use.

Personal variables. Two types of personal variables were considered: perceived risk from the cognitive dimension, and depression and suicidal ideation from the affective dimension. Perceived risk was evaluated with a nine-item scale, which ranged between 9 (not dangerous) and 27 (all items scored as very dangerous). Non-users had an average score of 23 compared to 21 among users.

Depression was included in the analysis as a dichotomous variable, above and below the cut-off point of 16, and suicidal ideation was introduced as a continuous variable with scores varying from 0 to 4, indicating the number of symptoms reported by students. Both variables were significantly associated with drug use. While only 36% of the non-users reported symptoms of depression above the cut-off point, this was observed in 67% of users. Suicidal ideation had average scores of 0.66 and 1.26, respectively (Table 6).

Multivariate analysis

Differences between non-users and experimenters. The logistic regression analysis showed that stu-

dents who decided to experiment with drugs were older, were more likely to have worked, and came from families where the educational level of the head was higher. They had shown deviant behavior more often, perceived drugs to be more available and drug use was more tolerated in their immediate environment. This was reflected by the fact that they more often reported that their friends would approve or did not care if they used drugs, compared with the students who had never used drugs, who more often reported that their friends would strongly disapprove any use.

The family milieu of the experimenters was more often linked with drugs: a larger proportion reported that their fathers, brothers or friends used drugs; they also perceived less risk associated with experimenting and using drugs regularly. Finally, they were more often depressed and showed significantly higher scores on suicidal ideation (Table 7).

Difference between non-users and users. The regression model was repeated to test whether the same variables which differentiated non-users from experimenters could differentiate

non-users from users and, thus, also identify factors associated with continuous use after experimenting.

Age and working status were variables related to continuous use. The same personal variables that predicted drug initiation were important for continuous use: perceived risk, depression and suicidal ideation. The data also confirm the hypothesis that continuous drug use would also be associated with a high exposure in the family context (use by fathers and brothers) and peer use. Perceived availability and social tolerance were also related to the student's decision to continue using a drug after having experienced the effects of substances between one and five times. Problem behavior was also part of the users' life-style. In general, the relation between the personal, interpersonal and environmental variables remains significant (Table 7).

Differences between experimenters and users. When the comparison was limited to experimenters and students that had used the substances more than five times, the number of variables in the model was reduced: gender became important, with males being at greater risk. With regard to interpersonal variables, having friends who consume drugs was the only variable significantly associated; none of the variables in the individual cognitive (risk perception) and affective (depression and suicidal ideation) levels made any difference.

Contextual variables seem more important, with a greater risk of continuing use if friends approved or drugs were available. The decision of students not to stop after experimenting was also related to violence/drug selling and anti-social behavior.

For this model, age of first drug use was substituted for actual age of students and this variable predicted continuous use when users had had the first experience of drug use at a younger age (Table 7).

Differences between polydrug users and one-drug users

The final analysis considered differences between polydrug users and those who tried only one substance other than tobacco and alcohol. The importance of the variables varied in the later group. Age of first use made no difference

in this case, nor did other variables such as gender and student status, which did not predict use in any of the previous models. Having worked the previous year maintained its importance. Other variables which were significant included educational status of the head of the family, with greater risk associated with higher level of education. Affective states, such as depression and suicidal ideation made no difference; perception of risk was negatively associated, and peer use and both forms of problem behavior were positively associated (Table 7).

Discussion

Data from this study show a lower rate of drug use among Mexican students as compared to that observed in the United States. In making this comparison, one must take into account the higher rate of drop-outs after elementary level in Mexico. In spite of this important difference, in both countries drug use seems to be increasing among the young.

Solvents were the drugs most frequently used, followed by marihuana and stimulants, with important differences among males and females, the former using more frequently illegal substances while the latter preferred drugs of medical use. When both types of substances were considered together, differences between both groups were reduced. Females use drugs more frequently at home or in private houses, while males use them more often in public places, reflecting perhaps more cultural restrictions for females.

Use of tobacco and alcohol was high, with an important risk of experimenting with other substances when tobacco was used on more than 20 days in 1 month or alcohol consumed in high quantities (five or more drinks per sitting) at least once a month, indicating an important avenue for prevention if a delay in the use of alcohol is accomplished.

The great majority of factors investigated differentiate between students who have decided to experiment with drugs (other than tobacco and alcohol) and those who have not done so. This is due partly to the choice of variables introduced in this study. Future studies should introduce other variables that could help to identify factors related to further drug involvement.

Several circumstances surrounding drug initiation are important. One is related to places

where drugs are used and are available, places that are in fact associated with drug trafficking. As we mentioned previously, variations among the states in this country are important. The rates of cocaine use in the north-occidental, occidental and central regions are higher than those observed in the rest of the country, and inhalants seem to be more prevalent in the southern states.

Present results confirm previous observations (Robins & Rutter, 1990) in relation to the importance of the environment where individuals are born and develop. In this case perceived availability, social tolerance, as well as friends and family members using drugs were all associated with greater drug use.

Perceived availability was related to the use of drugs among these urban students. Surveys conducted before 1990 had not been able to predict individual use through this variable. Currently, perceived availability has increased and is linked to the probability of experimenting with drugs or continuing use after first use. This change is accompanied by an increased perception of use among friends, siblings or fathers, thus indicating that drugs have become more available, at least in the perception of the students. This is different from what is apparently observed in the United States, where perceived availability of marihuana has not changed greatly.

There is low tolerance associated with drug use, which acts as an important protective factor. The illegal status of drugs seems to be no constraint in the perception of Mexican students, but concern with health was an important barrier, and perhaps an important tool to be considered in prevention programs. Other variables such as having worked or having a father with higher education are associated with an increased risk. Perhaps the availability of pocket money explains this increased vulnerability, an important factor to be considered in family orientation programs.

Another interesting feature is the role of the affective variables in predicting drug initiation but not continuous use or use of more than one substance. This suggests the need to implement early detection and intervention with this population group, which is at special risk.

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