

# Use of psychotropic drugs among students: prevalence and associated social factors

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## Keywords

Substance-related disorders.  
Alcoholism. Students. Adolescent.  
Prevalence. Socioeconomic factors.  
Cross-sectional studies.

## Abstract

### Objective

To determine the prevalence of the heavy use of drugs among elementary and high school students in a sample of public and private schools, and to identify associated demographic, psychological, cultural and social factors.

### Methods

This report describes a cross-sectional study using an intention-type sampling technique that compared public schools in central and peripheral areas and private schools. An anonymous self-administered questionnaire was applied. The sample consisted of 2,287 elementary and high school students in the city of Campinas in 1998. Heavy use of drugs was defined as the use of drugs on 20 or more days during the 30 days preceding the survey (WHO, 1981). For the statistical analysis, polytomic logistic regression analysis (logit model) was utilized to identify factors that influenced this manner of using drugs.

### Results

Heavy use of legal and illegal drugs was found as follows: alcohol (11.9%), tobacco (11.7%), marijuana (4.4%), solvents (1.8%), cocaine (1.4%), medications (1.1%) and ecstasy (0.7%). The heavy use of drugs was greatest among students at the city-center public school who had daytime jobs and studied in the evenings. These students were in the A and B socioeconomic classes and had had little religious education during childhood.

### Conclusions

Greater availability of cash and specific socialization patterns were identified as factors associated with the heavy use of drugs among students.

## INTRODUCTION

An individual's first experiences with drugs often take place during adolescence. During this phase, the individual is particularly vulnerable from a psychological and social point of view. Thus, it is particularly important to study this age group in detail, especially in relation to frequent and heavy use of legal and illegal drugs, and to identify the psychologi-

cal and sociocultural factors that are associated with such use.<sup>10</sup>

At the request of the Ministry of Health, a group of researchers made four extensive surveys on drug use, covering ten Brazilian state capitals, in the years 1987, 1989, 1993 and 1997.<sup>4</sup> Comparison of these four surveys showed that the drugs that were most utilized were alcohol, tobacco and solvents. The surveys also

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revealed that heavy use of marijuana was increasing in these ten state capitals, as was the use of alcohol in eight of them.

Several national and international studies have analyzed the associations of psychological and socio-cultural factors with drug use among students. They have, for example, identified that variables like male gender,<sup>3</sup> age,<sup>10,16</sup> work,<sup>17</sup> family breakup<sup>9</sup> and absence of religion<sup>8</sup> are associated with greater use of drugs among students, in a diversity of sociocultural contexts.

In view of this, accurate knowledge of the factors associated with drug use among young people in Brazil has great relevance, since it would allow interventions to be undertaken in relation to behavior and risk factors, with the aim of inhibiting the possible progression to heavy use of legal and illegal drugs, which are progressively addictive and deleterious for the individual.

Previous Brazilian studies on drug use among students have generally been conducted in the state capitals. The present study has also compared different types of schools: central and peripheral public schools, and private schools. It is very plausible that the reality of drug use in different areas of a city may vary, thus revealing epidemiological unevenness within the urban environment.

It might therefore be presupposed that, in the peripheral regions of the large Brazilian cities, where there is a higher death rate due to violence and drug trafficking, would also have higher drug consumption. The present work had the objective of determining the prevalence of heavy drug use among elementary and high school students in central and peripheral public schools and private schools, and the sociodemographic, cultural and psychopathological factors that are associated with such use

## METHODS

This was a cross-sectional study using an intention-type sampling technique that focused on studying three distinct types of school in the city of Campinas, State of São Paulo: city-center public schools, peripheral public schools and private schools. The objective of this was to identify differences in the pattern of alcohol and drug use in distinct areas of the city. The general methodological lines followed were those proposed by the Brazilian Center for Information on Psychotropic Drugs (*Centro Brasileiro de Informações sobre Drogas Psicotrópicas* – CEBRID), with the adaptations needed because of the objectives and size of the study.<sup>2</sup>

An anonymous self-administered questionnaire based on the CEBRID questionnaire was utilized. In accordance with the procedure standardized and recommended by CEBRID, it was applied collectively, in the classroom, without the presence of the teacher. A clear and detailed explanation of the research objectives was given to the students, with an emphatic guarantee of the anonymous and confidential nature of the questionnaire. Doubts regarding the questions were clarified and the questionnaires were gathered in after around 50 minutes. The sample size was calculated using the Epi Info software, from a pilot study. This sample size calculation was done by estimating 5% of the type I (alpha) error with a finite population estimated to be 100,000 students in the city, at the schooling levels being studied, without replacement; drug user prevalence of 1%; and design errors of no more than 1%, with delta precision of 1%.

Since the objective was to compare substantial differences in behavior between public schools in central and peripheral locations and private schools, for each schooling level, a minimum sample of 367 elementary and 367 high school students for each of the three intended school types became necessary. Thus six sets of 400 students were formed, totaling 2,400 students. The elementary school students were drawn from the sixth and eighth grades, and the high school students from the first and third years of high school.

From the school lists supplied by the education authorities, an intentional choice of participants was made. Two city-center public schools, two peripheral public schools and three private schools were selected that all catered for elementary and high school education. From the lists of students and classes of 35 students, six classes were drawn by lots from each school year, per school. All the students present were invited to fill out the questionnaires. During the survey, no irregularity in student attendance was noted in the classrooms visited. All students who answered the questionnaire were included, and 86 students aged over 26 years were then excluded, since they were over the age limit for the study.

A total of 2,375 questionnaires were applied. No student refused to answer it. Two questionnaires were rejected because they were incompletely filled in or the questions had not been understood.

Consequently, the sample consisted of 2,287 students from the elementary and high school levels of central and peripheral public schools and private schools in the city of Campinas, State of São Paulo, in the year 1998. The official estimates for the number of students enrolled in the city at that time indicated

**Table 1** - Sociodemographic characteristics of 2,287 elementary and high school students in Campinas, State of São Paulo.

Variable	N	%
Gender		
Male	1,188	52.0
Female	1,096	48.0
Age		
Mean	16	
Minimum	11	
Maximum	26	
Type of school		
Peripheral public	763	33.6
Central public	781	34.1
Private	738	32.3
Schooling level		
Elementary	1,159	50.8
High school	1,122	49.2
Period of study		
Morning	686	30.1
Afternoon	772	33.8
Evening	803	35.1
Full day	21	0.9
Work		
Working	758	33.3
Not working	1,518	66.7
Socioeconomic class		
A and B	1,564	68.4
C	565	24.7
D and E	158	6.9
Religious affiliation		
With religious affiliation	1,921	84.6
Without religious affiliation	351	15.4
Religion		
Catholic	1,387	75.1
Pentecostal protestant	294	15.9
Spiritual	103	5.6
Historical protestant	33	1.8
Other religions	29	1.6
Religious education during childhood		
Very religious	640	28.3
Religious	950	42.0
Little religion	529	23.4
Non-religious	142	6.3

that there were around 56,000 students in the sixth to eight grades of elementary school and 52,000 in high school. Thus, the sample studied represented approximately 2% of the student total.

Heavy use of drugs was defined in accordance with the World Health Organization (1981) definition,<sup>18</sup> as the use of drugs on 20 or more days during the 30 days preceding the survey.

To identify the factors that influenced the use of drugs, logistic regression analysis (logit model) was utilized.

The drugs studied were alcohol, tobacco, non-prescription psychotropic medications, marijuana, cocaine and ecstasy. The regressive variables were the type of school (peripheral public, central public or private); level of schooling; period of the day when students studied; gender; socioeconomic class; work; preferred type of leisure activities; parents' marital situation; who students lived with; who students had been brought up by over the last two years; whether stu-

dents felt supported and understood by their parents; whether they felt supported and understood by their friends and/or girlfriend/boyfriend; whether they had a religion; religious affiliation; religious education during childhood; and the GHQ12 (*General Health Questionnaire 12*), which assesses minor psychiatric symptoms like anxiety, depression and insomnia and was validated in Brazil by Mari & Willians,<sup>7</sup> 1985.

Since the use of several drugs (multiuse) is known to be frequent and, with the aim of comparing students who did not use any drug during that month with those who made heavy use, a variable called DRUG was created for the present study, which assumes a value of 0 if the student *did not make use of any of the drugs cited in the study during the past month*, and 1 if he or she *makes use of at least one drug on 20 days or more of the past month (heavy use of at least one of the drugs cited in the study)*. Heavy use of legal and illegal drugs is generally the type of use that precedes chemical dependence and all its medical, psychological and social-familial consequences.<sup>13</sup>

## RESULTS

### Prevalence

The heavy use of drugs occurred in the following manner: alcohol (11.9%; N=269), tobacco (11.7%; N=265), marijuana (4.4%; N=101), solvents (1.8%; N=40), cocaine (1.4%; N=32), psychotropic medications (1.1%; N=24) and ecstasy (0.7%; N=17).

### Multivariate analysis

The multivariate logistic regression estimates for heavy use of drugs are presented in Table 2.

The probability of heavy use of drugs was greater among the students of the city-center public schools who had daytime jobs and studied in the evenings. These students were in socioeconomic classes A and B and had had little religious education during childhood.

The probability that students at the city-center public schools would make heavy use of drugs was 4.0 times greater than for those in the peripheral schools. For students who worked, it was 2.5 times greater than for those who did not work. For students who studied in the evenings, it was 2.2 times greater than for those who studied in the mornings. For socioeconomic classes A and B, it was 2.0 times greater than for those in classes D and E. For those who had had little religious education during childhood, it was 1.7 times

greater than for those who had had a very religious education. For those who felt they had little support and understanding from their families, it was 1.2 times greater than for those who felt they had a lot of support and understanding from their families. Every additional point on the GHQ-12 scale increased the chance of the student making heavy use of drugs by 1.2 times.

## DISCUSSION

Several authors have reported that, for research that has the aim of identifying the prevalence of drug use among students, the method most commonly utilized is the self-administered questionnaire applied collectively in the classroom.<sup>11</sup> This choice is justified by its relative cheapness and high acceptance among the individuals surveyed, since that the refusal rate is less than 1%. This is considered to be a good procedure for obtaining information regarding private behavior, because anonymity is explicitly guaranteed.<sup>12</sup>

However, it must be stressed that the type of questionnaire utilized in the present work measures reports of drug consumption and not the consumption in itself. Caution is therefore needed in the interpretation of the data.<sup>2</sup>

Another limitation of this research design is that, because it is a survey done in the classroom, the young people with more serious involvement with drugs may have already been excluded from the school system, or they may be very frequently absent, and thus may not have been picked out by this study. Studies designed specifically to evaluate the subpopulation that has abandoned or has been expelled from elementary and high schools will be needed to verify this hypothesis.

The sample was not representative of the public and private schools of Campinas, which impedes the extrapolation of the data.

## The different drugs utilized

The single drug most utilized heavily in the present study was alcohol (11.9%), closely followed by tobacco (11.7%). Their high prevalence of around 12% indicates that such use is relevant and preoccupying, and must be taken into account in relation to possible educational, preventive and therapeutic actions aimed at young people at school.

The illegal drug most utilized in the present study was marijuana (4.4% made heavy use of marijuana). Swadi<sup>16</sup> (1988), in London, and also Stevens et al<sup>15</sup> (1995), in New Hampshire (USA), also detected that the illegal drug most utilized in these contexts was marijuana. In the 1997 survey performed by CEBRID in ten Brazilian state capitals, marijuana use only exceeded solvent use as the drug of greatest lifetime use in the city of Porto Alegre. In the other state capitals, it appeared in second or third position (after solvents and ansiolitics). Comparison of the four CEBRID surveys has shown that frequent and heavy use of marijuana presented statistically significant growth.<sup>4</sup> Marijuana is considered by many young people (and sometimes their families) to be a soft drug, and perhaps for this reason more acceptable. There is evidence, however, that heavy use of the drug has serious implications for the physical and mental health of its users.<sup>14</sup>

Solvents appear just behind marijuana. It is important to remember that these are drugs with great potential for harm to health, due principally to their neurotoxicity.<sup>4</sup>

Differing from the research by Muza<sup>10</sup> (1997), cocaine appeared in the present study ahead of psychotropic medications, occupying the third place among the illegal drugs. Data from the four surveys by CEBRID show that frequent use of cocaine has increased in the state capitals surveyed. Statistical indicators such as hospital internments and seizures of cocaine by the Federal Police also show the growth in the use of this drug.<sup>4</sup> Particularly worrying is the grow-

**Table 2** - Multivariate logistic regression estimates for heavy use of drugs (final model).

Variable	Estimate	Standard error	p-value	Odds ratio	95% CI
Intercept	-1.9246	0.3722	0.0001	-	-
Type of school (private)	-0.0822	0.1858	0.6580	0.921	0.640 ; 1.326
Type of school (peripheral)	-1.3748	0.1734	0.0001	0.253	0.180 ; 0.355
Socioeconomic level (C)	0.0654	0.3246	0.8404	1.068	0.565 ; 2.017
Socioeconomic level (A+B)	0.7366	0.3078	0.0167	2.089	1.143 ; 3.818
Period of study (afternoon)	0.3325	0.2069	0.2610	1.262	0.841 ; 1.893
Period of study (evening)	0.7930	0.2238	0.0004	2.210	1.425 ; 3.427
Work - yes (not working)	0.9291	0.1675	0.0001	2.532	1.824 ; 3.516
Education during childhood (religious)	0.0650	0.1599	0.6843	1.067	0.780 ; 1.460
Education during childhood (little religion)	0.5168	0.1813	0.0044	1.677	1.175 ; 2.392
Education during childhood (non-religious)	0.3374	0.2707	0.2127	1.401	0.824 ; 2.382
Support and understanding from the family (felt partially)	0.2910	0.1512	0.0543	1.338	0.995 ; 1.799
Support and understanding from the family (felt little)	0.9786	0.2277	0.0001	2.661	1.703 ; 4.157
GHQ12	0.1407	0.0450	0.0018	1.151	1.054 ; 1.257

ing use of cocaine in the form of crack, because such use implies the rapid development of dependence,<sup>5,6</sup> involvement in criminal activities<sup>6</sup> and triggering of serious psychiatric conditions.<sup>5</sup>

Ecstasy was the least-used drug, perhaps because it is expensive and still not widely disseminated in the city of the present study, as well as being strictly linked to a specific subculture (dance) and its rituals, such as rave parties.<sup>1</sup>

### **Sociocultural variables associated with the heavy use of drugs**

At present, most researchers consider that the use of drugs among students is not caused by a single factor, but by a combination of several of them, such as genetic, psychological, familial, socioeconomic and cultural factors. Thus, it is understood that the use of and dependence on drugs are very complex phenomena that cannot be reduced to one facet of a biological, psychological or social nature.

In the present study, through the multivariate analysis of the data, it was observed that, contrary to what was expected, the use of drugs was lower among students in the peripheral public schools. These are areas of the city where it is thought that there is more drug trafficking, which is supposed because of the higher death rate from violent causes and the seizures of drugs made by the police. Despite the supposed greater drug trafficking in these neighborhoods, the consumption of drugs among the students who attend the schools of the periphery is significantly lower than for those in the central neighborhoods.

In this sense, it is plausible that financial wherewithal may exercise a significant influence, since in the present study it was found that, in addition to being associated with working, the heavy use of drugs was associated with belonging to socioeconomic classes A and B. Thus, the students at peripheral public schools, despite living in areas of the city where drug trafficking is supposedly more intense, have less purchasing power for buying such drugs. Another possibility is that the young people of these neighborhoods who are involved with the heavy use of drugs end up being expelled from the school system with a certain frequency, and perhaps get involved in small-scale drug trafficking, including for enabling their own consumption.

The data from the present research also corroborates other studies that show the relationship between greater use of drugs and students who work.<sup>16</sup> The results obtained in relation to work, and those in the

literature, give pause for thought regarding some relatively well established beliefs within Brazilian society, such as the idea that free time is a factor that favors the use of drugs. Such a concept would imply the identification of a supposed poor student who would spend most of his free time on the streets and thus would be vulnerable to the use of drugs. For this reason, reflection in relation to working adolescents needs to be refocused from doing work versus not doing work, to how the work is done, or in other words, there needs to be analysis of the quality of the impact of different types of work on young people.

It is possible to raise a hypothesis that the association between heavy use of drugs and work found in the present study may have occurred because of at least three factors: the stress consequent to taking on an adult function at an early age that is full of obligations; the financial wherewithal resulting from receiving a salary; and also socialization patterns associated with the "world of work" (for example, drinking at the end of the working day).

A significant religious dimension was also revealed in the present study. Students who had greater religious education during childhood were shown through the multivariate analysis to have significantly less heavy use of drugs. The literature generally shows that young people with some sort of connection to religion make less use of drugs.<sup>8,11</sup>

Such an association may be related to the moral codes implicit in religions, in which the use of drugs is frequently condemned. In following a religion, a set of values and behavioral patterns is adhered to, among which a prohibition on the use of drugs is included.

The question of family structure is traditionally emphasized when studying the use of drugs among adolescents. In the present study, the importance of the family environment and structure was identified as a possible protective factor against the use of drugs. Less heavy use of drugs was found among students who in some way felt they were supported and understood by their families.

Several authors have identified risky levels of drug use among young people belonging to families with separated parents or families in which the relationships have degenerated.<sup>8</sup> Thus, the present study corroborates previous research that identified an association between the use of drugs at risky levels and worsened family environments.

Finally, it was seen that increased scores on the GHQ-12 scale were associated with a risk of heavy

use of drugs. These data are relevant, since they show a relationship between heavy use of drugs and psychological suffering. These young people have probably found themselves in a situation of serious psychosocial risk, since such clusters of psychological suffering, worsened family environment and heavy use of drugs must facilitate evolution towards chemical dependence, personality disorders and even psychiatric conditions that are more serious.

In conclusion, the present study has identified that the heavy use of drugs is related to sociodemographic, cultural and psychopathological factors that can be grouped as "protectors" and "facilitators". The protective factor identified was a markedly re-

ligious education during childhood, which perhaps indicates a more controlled or structured family environment. The facilitating factors for heavy use of legal and illegal drugs that were identified were greater financial wherewithal (socioeconomic class and work), socialization patterns that shape adult-style behavior (work and evening study) and a possibly worsened family environment (feeling less supported and understood by the family). The empirical findings reported have helped in reaching a better comprehension regarding the heavy use of drugs among young people in Brazil's sociocultural environment, and these findings should be taken into account in future research and educational and preventive interventions.

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