

Heavy alcohol use among elementary and high-school students in downtown and outskirts of Campinas City – São Paulo: prevalence and related factors

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Original version accepted in Portuguese

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Abstract

It is important to identify factors related to heavy alcohol use among adolescents, as this allows interventions aimed at reducing risk behavior and possible increasing harmful use of alcohol.

Objectives: *To determine the prevalence of heavy alcohol use and investigate the influence of sociodemographic, cultural and psychopathological variables on alcohol use among elementary and high-school students of public and private schools in Campinas, Brazil.*

Methods: *This is a cross-sectional study using an intentional sampling technique. The questionnaire used was based on the CEBRID (Brazilian Information Center on Psychotropic Drugs) questionnaire and filled out anonymously by the subjects. The sample consisted of 2,287 elementary and high-school students from public and private schools in Campinas, Brazil, during the year of 1998. According World Health Organization criteria (WHO, 1981), alcohol use for 20 days or more in the 30 days prior to the study was considered heavy alcohol use. The "Polytomic Logistic Regression – Generalized Logits Model" was applied to identify the factors that influenced heavy alcohol use.*

Results: *Heavy alcohol use was seen in 11.9% of the sample, being more frequent among students at the inner-city public school belonging to socioeconomic classes A and B, who held down jobs and attended school in the afternoons. These students felt that their families did not understand or support them and also showed lower academic performance at school.*

Conclusions: *The present study indicates that factors such as availability of funds, work, delayed schooling performance and unfavorable personal and family situations were related to heavy alcohol use among adolescents.*

Keywords: *Alcoholism; Students; Cross-sectional studies; Morbidity surveys*

Introduction

Alcohol use starts early in life, between the beginning and the middle of adolescence, with peers or even at home.^{1,2} This use has medical, psychological and social implications, and can be, for many people, the beginning of a course that leads to alcohol dependence.² Therefore, the knowledge of factors associated with alcohol in adolescence is highly relevant, as it would allow interventions to reduce risk behaviors.

In Brazil, the estimated prevalence of alcohol dependence varies from 7.6% in São Paulo to 9.2% in Porto Alegre for the general population (adolescents, adults and elderly).³ Alcohol is responsible for nearly 90% of hospitalizations due to dependence and appears in 70% of forensic reports due to violent deaths.⁴

Since 1997, the Brazilian Information Center on Psychotropic Drugs (CEBRID) has been performing surveys on drug use among elementary and high-school students in ten Brazilian state capitals. These surveys are very important, as, besides their adequate methodology, they encompass very large samples (15,503 students). Heavy alcohol use (20 times or more per month) in these surveys (1987, 1989, 1993 and 1997) was significant (from 3.3% to 10.1%). Besides, they indicated that heavy alcohol use has increased in 8 out of 10 studied state capitals in the period between 1987 and 1997.²

The fourth study (1997) showed that heavy alcohol use was higher among male (5.2%) than female students (4.8%); among social class A (10.7%) than among social classes B (9.1%), C (7.6%), D (6.8%), and E (4.9%);^(NT)¹ among those who had school delay (of students with heavy alcohol use, 96.1% had school delay). Fermented beverages were the most consumed beverages and bars were the preferred sites among those who had heavy use. This study has also revealed that 68.4% of fathers drank excessively, compared to 6.2% of mothers.²

Several international studies have also showed an association of students' heavy alcohol use with demographic and psychosocial variables. Therefore, heavy alcohol use was associated with higher socioeconomic level,⁵ school delay⁶⁻⁷ and to the drinking of the father.⁸

The objective of this study was to determine the prevalence of alcohol use among elementary and high-school students of central (2 schools) and peripheral (2 schools) public schools and private ones (3 schools) in Campinas-SP. Moreover, we aimed to determine the socio-demographic, cultural and psychopathological factors associated with this use.

Method

This is a cross-sectional study with an intentional sampling technique. We aimed to represent the contrast between the city's students of central and peripheral, public and private schools in the considered schooling level. With the necessary adaptations to the objectives and dimensions of the research, the general guidelines developed in this study follow the method proposed by CEBRID in 1993.⁹

An anonymous self-reported questionnaire based on that of CEBRID was used. It was collectively applied, schoolroom after schoolroom, without the presence of the teacher. This method was chosen as it is a method which assures the anonymity of the provided information, what is essential when dealing with a private or

illegal subject. Being this the case of drugs, it increased, thus, the chance of obtaining valid information. The use of the same method also enables the standardization of the studies and a comparison of the obtained results.

At first, a pilot study was performed, when 607 questionnaires about drug use were applied to high-school students in two public schools, using the same questionnaire used in this study.

From this pilot study we have calculated the sample size using the software EPIINFO. This sampling calculation was performed using 5% of type I error (alpha) in a finite population estimated in 100,000 students for the city in the studied grade without reposition; 1% of users prevalence; design errors of at most 1% with 1% delta precision.

As we aimed to compare the substantial difference of behavior between public and private schools considering their peripheral and central localization at each schooling level, it was necessary a minimal sample of 367 elementary and high-school students, at each of the intended strata, namely: peripheral and central public schools, and private schools. Six strata of 400 students were then composed totaling 2,400 students, distributed among grades sixth to eighth of elementary schools and first to third of high schools.

From the lists provided by the State and Municipal Education Agencies an intentional choice of schools was performed. Two central public schools, two peripheral public schools and 3 private schools who had elementary and high-school divisions were chosen. From the list of students and divisions with 35 students, six divisions from each grade of the school were allotted. All students present were invited to fill in the questionnaires and it was noted the regular presence of students during the survey without records on any irregularity in the presence of the students in the visited schoolrooms. All respondents were included and subjects above 26 years of age were excluded.

There were no refusals to answer the 2,375 questionnaires applied. Two questionnaires were discarded due to incomplete filling or incomprehension of some questions. Eighty-six questionnaires were abandoned as subjects were above 26 years of age, maximum age limit of the study.

Therefore, the sample was composed by 2,287 elementary and high-school students of central public schools, peripheral public schools and private schools at Campinas-SP in 1998. Official estimations of the total of students enrolled in the city at the study's time were 56,000 students enrolled in grades sixth to eighth of elementary schools and 52,000 enrolled in high schools. Therefore, our sample contains approximately 2% of the students' total.

The use of alcohol in 20 or more days in the 30 or days prior to the study was considered as heavy use.¹⁰ In order to identify the factors influencing the use of alcohol it was used the 'Politicomic Logistic Regression Analysis -Generalized Logits Model'. This model was chosen due to its propriety of adjusting multiple determinants according to a hierarchical order adopted from clinical referentials and significances found in multivariate analysis. This technique is applied when there is a variable nominal response with more than two levels and without an inherent order, or when the Odds Proportional model is rejected. One Logit is formed by the probability of each successive category over the last category of response.¹¹ Independent variables were: gender, school, school grade; period in which the subject studied, years of school delay,

socio economic level, religion, kind of leisure, parental condition, with whom leaves, family support and understanding, who reared him/her in the last two years, peer and/or girl/boyfriend support and understanding, religious upbringing on childhood, score in the GHQ12 - General Health Questionnaire 12 - (which assesses minor psychiatric symptoms, such as anxiety, depression and insomnia - validated in Brazil by Mari & Williams, 1985).¹²

The choice of significant variables was performed in previous bivariate analyses. Politomic answers considered that alcohol use has gradients and yes-or-no answers are not acceptable. The emphasis given to heavy use cannot exclude intermediate levels, implying that a dicotomic analysis would be deceiving.

The organization of the independent variables sought to explain only the relationships of occurrence without the implicit development of a causal model which would be also compromised as this is a cross-sectional study. Previously, we excluded confounding factors (gender and age and their associations with the other studied variables, such as school delay and work) as we verified that these factors were highly correlated with other risk factors which remained in the model. Interactions regarding the search for the main effects were not studied. The socio-economic level remained the same in the model even being supposed as a confounding factor as it has not lost significance after the adjustments according to the school type (central public, peripheral public and private).

Results

General aspects of the sample

We studied 2,287 students, of which 1,188 (52.0%) were males and 1,096 (48.0%) were females. Mean age was 15.8 ± 2.7 (minimum of 11 years and maximum of 26); 781 (34.1%) studied at central public schools, 763 (33.6%) at peripheral public schools and 738 (32.3%) studied at private schools; 1,159 (50.8%) were at elementary schools and 1,122 (49.2%) were at high schools.

Prevalence of heavy alcohol use

In this sample, considering heavy use (twenty times or more per month), alcohol was used by 269 students (11.9%); 186 boys (15.9%) and 83 (7.7%) girls; there was heavy alcohol use among 114 (14.8%) central public school students, 65 (8.6%) peripheral public school students and 90 (12.3%) private school students.

Mean age of the first experimentation was 12.4 ± 2.9 (minimum of two years and maximum of 21 years).

Multivariate analysis

Age was tested as a continuous variable and it had no significance to remain in the model. Tested confusions with the variable age excluded it for being collinear with other social variables that remained. The effects of schooling according to grade and period of study (morning, afternoon and evening) were equally tested without significance in the multivariate model.

Gender and age were considered as confounding factors and were excluded from the analysis to give room to the other studied variables due to the phenomenon of collinearity. Rather than highlighting the exposure of older boys to the use of drugs it is more interesting to verify that work is more likely to be considered as a social marker. Work is susceptible of observation and social

action, but age progression or pertaining to the male gender are not, and the latter, besides representing a common sense in the interpretation of the phenomenon, has an obvious implication on the social condition of access to drug use. In fact, there is an association between gender, age and work. The withdrawal of gender and age factors represents highlighting the work factor.

The chance of heavy alcohol use among working students was 2.2-fold than non-working ones; of those who felt scarcely supported and understood by their family was 1.9-fold (1/0.533) than those who felt supported and understood; of those who studied in the morning it was 1.8-fold (1/0.528) than those who studied in the evening; of those who studied in the afternoon it was 1.62-fold than those studying in the morning; of those of classes A and B it was 1.7-fold than those from class C; of those of private schools it was 1.5-fold (1/0.658) than those from peripheral public schools; of those from central public schools it was 1.5-fold than those from private schools; each year of school delay increased 1.16-fold the chance of a student heavily using alcohol (Table 1).

Discussion

The prevalence rate of heavy alcohol use found in this study is clearly higher than those found in the surveys at 10 Brazilian state capitals, performed by CEBRID (11.9% in this study against figures of around 7.0% in state capitals). As our data were collected in 1998 (and CEBRID's surveys referred to 1987, 1989, 1993 and 1997), this may reflect an increase of heavy alcohol use among Brazilian students, which may be verified by the researches of CEBRID.²

This high frequency of heavy alcohol use may also indicate a higher use in middle-size country towns, in a relatively rich Brazilian region, compared to the studied capitals.

Alcohol generally emerges as the most commonly used drug by adolescents in Brazilian and international surveys.^{4,13,21} Besides, it is important to highlight that one study showed that alcohol, as well as cannabis, were the substances with higher association with more frequent risk sexual behavior.²²

Studies showed that alcohol use, in general, starts in childhood and consolidates in adolescence^{23,24}. The results of this study showed that the mean age of the first alcohol experimentation was very early (12 years of age), what is worrying as the earlier starts the contact with alcohol the higher the probability of developing dependence on this drug.²⁵

Regarding the studied socio-demographic variables, work was one of the most important; working students had significantly higher heavy alcohol use. Other studies have already consistently shown higher drug use among working students.^{13,26-28}

We may hypothesize that the association between heavy alcohol use and work occurs for different factors: the stress as a result of the early assumption of a labor function, the financial availability stemming from being working or the socializing patterns linked to the labor world.

The result of this study, regarding to work led us to reflect on well-established beliefs in Brazilian society, such as that free time is a risk factor for drug use. This conception implies the identification of a stereotype: that of poor students, spending their free time on the streets, being subjects potentially prone to the use of drugs.²⁷ According to Carvalho & Carlini-Cotrim,²⁷ the discussion

Table 1 – Estimations of multivariate politomic logistic regression – generalized model for intensity of alcohol use compared to no alcohol use

	Variable								
	Heavy use			Frequent use			Use in the month		
	p-value	or*	CI** (95%)	p-value	or	CI (95%)	p-value	or	CI (95%)
Type of school									
Peripheral	0.0024	0.658	(0.387; 1.119)	0.0000	0.333	(0.195; 0.569)	0.0066	0.874	(0.604; 1.265)
Central	0.0001	1.515	(0.968; 2.370)	0.1752	0.737	(0.464; 0.569)	0.0000	1.651	(1.200; 2.272)
Socioeconomic level									
A+B	0.0172	1.689	(1.144; 2.491)	0.0032	1.954	(1.270; 3.004)	0.0008	1.422	(1.099; 1.839)
D+E	0.4692	1.18	(0.503; 2.057)	0.1993	0.785	(0.312; 1.976)	0.0431	1.494	(0.466; 1.202)
Period of study									
Afternoon	0.0008	1.620	(0.972; 2.702)	0.0582	2.011	(1.156; 3.497)	0.2633	1.103	(0.777; 1.566)
Evening	0.0012	0.528	(0.294; 0.950)	0.8638	1.491	(0.801; 2.774)	0.2764	0.847	(0.548; 1.308)
Job (worded)	0.0000	2.215	(1.526; 3.210)	0.0006	2.014	(1.348; 3.008)	0.5825	1.079	(0.823; 1.414)
Leisure									
Sports	0.3994	1.283	(0.831; 1.980)	0.0036	1.690	(1.051; 2.718)	0.0002	1.583	(1.169; 2.143)
Did not have leisure + family leisure	0.7750	1.111	(0.645; 1.913)	0.0048	0.604	(0.300; 1.222)	0.0038	0.828	(0.556; 1.231)
Leisure with friends + evening leisure	0.4949	1.292	(0.773; 2.159)	0.0123	1.741	(1.007; 3.013)	0.0277	1.489	(1.043; 2.126)
Support									
Felt very supported	0.0359	0.533	(0.329; 0.862)	0.0000	0.259	(0.161; 0.415)	0.0001	0.603	(0.417; 0.871)
Felt partially supported	0.2216	0.572	(0.333; 0.982)	0.4852	0.444	(0.265; 0.744)	0.1906	0.929	(0.625; 1.380)
School delay	0.0000	1.155	(1.100; 1.214)	0.0016	1.092	(1.034; 1.154)	0.0000	1.099	(1.060; 1.139)

* Odds Ratio
 ** Confidence Interval

regarding adolescents' work should move from the simpleness of doing versus not doing to how doing it. Therefore, they claim that a youngster who has accomplished his/her potentialities, and is not just occupied, should be the adequate goal of programs to promote the adolescents' mental health and to inhibit heavy alcohol use.

In this study, it was found that heavy alcohol use, besides being associated with work, was associated with pertaining to social classes A and B. These data corroborate other studies which show the relation between alcohol use and higher socio-economic level^{2,5} and work.

A possible interpretation would be that the financial availability could represent a significant risk factor, as those students would more easily purchase alcohol and attend to consumption places, such as bars, parties and nightclubs.

Regarding the different studied schools (private and central and peripheral public schools), we could identify that, curiously, central public schools have patterns more similar to private than to peripheral public ones. In central public and private schools it was verified heavy alcohol use among 14.8% and 12.3% of students,

respectively. As to peripheral public schools, it was noted lower heavy alcohol use (8.6%). These results may be indicating that students of peripheral schools, for having less money, consume less alcohol. We may raise the hypothesis that having less money may be only a marker of a situation of social challenge and not the cause of a lower alcohol use. Besides, it is possible that students more impaired by alcohol and drugs in peripheral poor neighborhoods had already been expelled from the educational system.

The most significant period of school attendance (morning, afternoon or evening) was the afternoon. This information is difficult to interpret, although it might be supposed that students who studied in the afternoon went out of school and went more frequently to consumption sites than students of other periods.

In this study it was also verified the importance of family environment and structure as a possible protecting factor against heavy alcohol use. It was identified lower use among students who, in a way, *feel supported and understood by their family*.

Some studies revealed risk drug use for youngsters from families with separated parents or families with much deteriorated rela-

tionships.^{29,33} One study shows that the mood in the family environment is more important than the parental marital status. Therefore, in families without violence, in which problems are discussed, parents live together and care about their children, there would be less probability of alcohol and drug abuse.³⁰

It is very noteworthy the result found in this study linking higher heavy alcohol use to *school delay*. Other studies had already identified an association between drug use and lower school performance.^{2,6-7,20,34} We may raise some hypotheses: first, that neuropsychological alterations originated in drug use would be hampering the school learning, second, that school delay would reveal some kind of social maladjustment, conduct problems or difficulty to be disciplined. Other hypothesis would be that heavy alcohol use would interfere in school performance. Finally, it may be hypothesized that low school performance may affect the self-esteem and induce to alcohol use. These various hypotheses, are not, theoretically, excluding.

Conclusion

This study indicated that heavy alcohol use is associated with greater financial availability (social class, work and central public and private schools), more '*adulthood*' socializing patterns (work), worse family relationship (feeling less supported and understood) and worse school performance, perhaps revealing that the relationship between psychosocial suffering and easier access to alcohol use be key dimensions in the understanding of the involvement of students with alcohol.

Study performed at the Department of Medical Psychology and Psychiatry/FCM/UNICAMP

Article based on the Doctorate Thesis 'Drug use among elementary and high-school students in the city of Campinas – São Paulo: prevalence and socio-demographic, cultural and psychopathological associated factors'.

Presented in 2001 at the State University of Campinas/UNICAMP

Sponsored by The State of São Paulo Research Foundation/FAPESP

Received in 07/929/2002

Accepted in 11/14/2003

NOTE

1 NT- In Brazil the socioeconomic classes use to be divided into:

A – upper

B – upper-middle

C – middle

D – poor

E – extremely poor

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