

Epidemiology of alcohol use in Brazil

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Abstract

The authors describe the most recent and significant epidemiological studies on alcohol conducted in Brazil in the last years. The aim was to outline the pattern of alcohol consumption in the country through the analysis of population surveys (household surveys, drug abuse among students, homeless children) and statistical indicators (hospital admissions for addictions, data from the Institute of Forensic Medicine, related traffic accidents and information on sales of alcoholic beverages).

The analysis of the data presented in this article suggests two basic points: greater emphasis should be laid on epidemiological studies in Brazil, through increasing the scope of research, as well as its systematic updating. Alcohol certainly has a strong influence in the etiology and maintenance of several social, economic and health problems faced in our country.

Keywords: *Epidemiology. Surveys. Statistical & numerical data. Alcoholic beverages. Brazil.*

INTRODUCTION

Epidemiology is the 'study of the distribution of states or events related to the health of a determined population.¹ In the specific issue of alcohol, epidemiology regards the study of the number of cases of users and/or dependent subjects, besides problems related to its use. This article outlines the general situation of alcohol and alcoholism in Brazil, comprising: surveys in the general population, among students, street children and statistical indicators.

I. A – Surveys in the General Population

The most comprehensive epidemiological studies on alcohol use in the general population were those performed by CEBRID – Brazilian Information Center on Psychotropic Drugs. Galduróz et al. (2000)² surveyed the 24 largest cities of the state of São Paulo, totaling 2,411 interviews, and found that 6.6% of the population was alcohol-dependent. Two years later, the same population was surveyed again and there was a statistically significant increase towards 9.4% of dependent subjects³. Other comprehensive study on households encompassed 107 Brazilian cities with more than 200,000 inhabitants, corresponding to 47,045,907 inhabitants, i.e., 27.7% of the total population. The sample had 8,589 interviewees.⁴ The main results on alcohol can be seen in Tables 1 and 2. *Lifetime use of alcohol in the total population*

was 68.7%. This proportion remains relatively stable in the different age ranges, reminding that between 12 and 17 years of age 48.3% of interviewees had already used alcoholic beverages.

There was 11.2% prevalence of alcohol dependence, being 17.1% for males and 5.7% for females. The prevalence of dependent subjects was higher on regions North and Northeast, with percentages above 16%. Of greater concern is the fact that in Brazil 5.2% of adolescents were alcohol-dependent (12 to 17 years of age). In the North and Northeast these percentages were near to 9%.

Other data from this household survey were: the use of 1 or 2 doses of alcoholic beverages per week was considered as a severe risk to the health by 26.7% of respondents. The percentages of people who had already received treatment for alcohol use reached 4.0% of the total, being 5.6% for males and 2.5% for females. The age range in which there were the highest percentages was that of people above 18 years of age. Regarding the percentages of complications stemming from the use of alcohol, they were higher for arguing after drinking, with 5.0% of the total - 7.9% of men and 2.1% of women had already argued under the effect of alcohol. Falls as a consequence of alcohol use came second (3.3%) and the other complications reached nearly 2%.

Table 1 – Lifetime use of alcohol, distributed according to gender and age ranges of 8,589 interviewees, in 107 Brazilian cities with more than 200,000 inhabitants – 2001

AGE RANGE (YEARS)/GENDER	OBSERVED %	95% CONFIDENCE INTERVAL
12 to 17	48.3	(43.0 – 53.7)
M	52.2	(47.9 – 56.5)
F	44.7	(40.2 – 49.1)
18 to 24	73.2	(68.4 – 78.1)
M	78.3	(75.2 – 81.4)
F	68.2	(65.1 – 71.3)
25 to 34	76.5	(72.0 – 81.0)
M	85.6	(83.1 – 88.0)
F	67.6	(64.7 – 70.5)
≥ 35	70.1	(67.2 – 73.1)
M	82.1	(80.3 – 83.9)
F	59.5	(57.6 – 61.4)
TOTAL	68.7	(63.8 – 73.6)
M	77.3	(72.2 – 82.4)
F	60.6	(56.4 – 64.8)
	Estimated Population (in thousands)	95% Confidence Interval
12 to 17	3,628	(3,229 – 4,026)
M	1,920	(1,761 – 2,080)
F	1,708	(1,539 – 1,876)
18 to 24	6,767	(6,322 – 7,212)
M	3,610	(3,468 – 3,752)
F	3,157	(3,014 – 3,300)
25 to 34	8,150	(7,672 – 8,629)
M	4,537	(4,409 – 4,665)
F	3,613	(3,458 – 3,768)
≥ 35	13,779	(13,200 – 14,358)
M	7,585	(7,415 – 7,754)
F	6,195	(5,995 – 6,394)
TOTAL	32,324	(30,015 – 34,633)
M	17,651	(16,490 – 18,812)
F	14,673	(13,648 – 15,697)

I. B – Specific population surveys

1 – Elementary and high-school students

The most comprehensive, nation-wide, steadily-performed surveys were those accomplished by CEBRID. Four studies were performed (1987, 1989, 1993, 1997)⁵ in the same 10 cities, using the same methodology, all with elementary and high-school students. In these four surveys, beer was the most consumed beverage, having 70% of the students reported its use, followed by wine with 27% and distilled beverages with nearly 3%. It may be highlighted that *lifetime use* of alcohol remained stable along the years, increasing significantly only in Fortaleza between 1987 and 1997 (Table 2). Regarding *heavy use* (at least 20 times in the month prior to the survey), there was a significant increase in most of the studied cities, showing a trend of youngsters to drink more frequently in the last years (Table 3). *Heavy use* of alcohol was higher among the highest social classes: 10.7% of heavy users pertained to class A; 9.1%, to class B; 7.6%, to class C; in class D; it was 6.8% and, finally, among class E, the poorest, it was 4.9%¹. Heavy users of alcohol reported also having used other drugs. Therefore, 26.5% of them had already used inhalants; cannabis had been already used by 17.3%; tobacco, by 14.2%; anxiolytics, by 10.5%; amphetamines, by 8.1%; cocaine, by 7.2%, among the most cited drugs.⁶

2 – College students

In 1994, it was published a study about the use of alcoholic beverages among medical students of two medical schools: one in Marília, a city in the state of São Paulo, and other in São Paulo.⁷ It was observed that 11.8% of male students and 1.3% of female students were classified as

problem-drinkers; 4.2% of males and 0.8% of females were alcohol-dependent. In that same year, 922 students of the Federal University of Santa Maria (RS) were interviewed, of which 10% were CAGE-positive.⁸ Other study was published in 1996 by Andrade et al.⁹, who applied questionnaires about the use of drugs in the University of São Paulo – USP. The results were divided by study fields. Therefore, alcohol had *lifetime use* of 88.6% in the field of Humanities; 93.3% in the Biological field and 92.6 in the area of Exact Sciences. As in the other studies, men drank more than women, although only in the field of Humanities that difference was statistically significant (94.0% and 84.0%, respectively).

3 – Street children

CEBRID performed the most constant of these studies, having surveyed this population in 1987, 1989, 1993 and 1997.¹⁰ In 1987 it was observed that *lifetime use* of alcohol in São Paulo and Porto Alegre was respectively, 83.0% and 71.0%. In the second survey performed in 1989 it was obtained a discrete increase in *lifetime use* - 86.0% in São Paulo and 74.5% in Porto Alegre.¹¹

In CEBRID's third and fourth surveys the number of cities increased, encompassing six state capitals, São Paulo, Porto Alegre, Fortaleza, Rio de Janeiro, Recife and Brasília. *Daily use* of alcoholic beverages varied from 7.0% among street children in São Paulo to no interviewee in Fortaleza who drank daily. On the other hand, in the six capitals the use of inhalants was the first in all prevalences. For example, in Recife, 45.1% of these children used some kind of inhalant daily.¹⁰

II – Epidemiological indicators

1 – Hospital admissions by drug dependence

The most recent and comprehensive of these studies was Noto et al.'s (2002).¹² These authors obtained data from psychiatric hospitals and clinics all over Brazil, from 1988 to 1999, being alcohol responsible for 90% of all hospital admissions due to dependence, ranging from 95.3% in 1988 - totaling 62,242 hospitalizations, compared to 4.7% (3,062) of all other diagnoses of hospitalizations by psychoactive substances - to 84.4% in 1999. The decrease in the hospitalizations due to alcoholism may reflect only the increasing emphasis in outpatient treatment, although, unfortunately Brazil does not have these statistics.

2 – Data from the Institute of Forensic Medicine (IML)/ Criminality

Nappo et al., 1996¹³, assessed corpse reports of IML - São Paulo, from 1987 up to 1992, totaling 120,111 reports. A number of 18,263 reports were positive for alcohol blood levels, a mean of 2,605 positive cases/year. Duarte and Carlini-Cotrim (2000)¹⁴, analyzed 130 homicide cases between 1990 and 1995 in the city of Curitiba. The results showed that 53.6% of the victims and 58.9% of the authors of the crimes were under the effects of alcohol at the moment of the crime.

5 – Alcohol and traffic accidents

The most comprehensive study on traffic accidents was performed in 1997 by AB DETRAN – Brazilian Association of Traffic Departments – in four state capitals, Brasília, Curitiba, Recife and Salvador, in which of the 865 victims, 27.2% had alcohol blood levels higher than 0.6g/l, which is currently the limit allowed by Brazil's Traffic Act of 1997¹⁵.

Another important study performed in 1995 by the Center of Studies on Drug Abuse- Federal University of Bahia (Cetad/UFBA)¹⁶, has correlated the use of alcohol in leisure situations, i.e., people in bars and at the shore were interviewed in Salvador, where it was found that, of those who had already had accidents driving vehicles, 37.7% had ingested alcoholic beverages at the moment of the episode.¹⁶ In 1997, the Institute of Integral Attention to Dependences of Recife (RAID)¹⁷ performed a study similar to that of Salvador and found that 23% of respondents had 0.8g/l of alcohol blood levels. As a rule, traffic accidents are related to high alcohol concentration in the blood, occur more frequently at evenings and weekends, and, besides that, in their majority the authors are young and single men.¹⁸

Table 2 – Prevalence of alcohol-dependent people, distributed according to gender and age ranges of the 8,589 interviewees, in 107 Brazilian cities with more than 200,000 inhabitants – 2001

AGE RANGE (YEARS)/GENDER	OBSERVED %	95% CONFIDENCE INTERVAL
12 to 17	5.2	(3.2 – 7.1)
M	6.9	(4.7 – 9.1)
F	3.5	(1.9 – 5.1)
18 to 24	15.5	(12.8 – 18.2)
M	23.7	(20.5 – 26.8)
F	7.4	(5.6 – 9.1)
25 to 34	13.5	(11.2 – 15.9)
M	20.0	(17.3 – 22.8)
F	7.1	(5.5 – 8.7)
≥ 35	10.3	(8.9 – 11.7)
M	16.1	(14.4 – 17.9)
F	5.1	(4.3 – 6.0)
TOTAL	11.2	(9.1 – 13.3)
M	17.1	(14.4 – 19.7)
F	5.7	(4.3 – 7.1)
	Estimated population (in thousands)	95% Confidence Interval
12 to 17	387	(240 – 533)
M	253	(172 – 334)
F	133	(71 – 196)
18 to 24	1,432	(1,180 – 1,683)
M	1,091	(944 – 1,237)
F	341	(260 – 421)
25 to 34	1,441	(1,190 – 1,693)
M	1,061	(915 – 1,207)
F	380	(295 – 465)
≥ 35	2,024	(1,746 – 2,301)
M	1,491	(1,328 – 1,653)
F	533	(444 – 623)
TOTAL	5,283	(4,293 – 6,273)
M	3,896	(3,298 – 4,494)
F	1,387	(1,048 – 1,726)

6 – Market indicators of alcohol consumption

The famous Brazilian legal counselor, Sobral Pinto, said, 'When Brazil turns into a judicious country and becomes a world power, the planet's beverage will be *cachaça* (Brazilian firewater) and not whisky', although *cachaça* is not the beverage with the highest per capita consumption in Brazil. Beer appears first with 54 liters per capita/year, followed by *cachaça*, with 12 liters per capita/year and wine, with 1.8 liters per capita/year. According to the study of WHO (OMS, 1999)¹⁹, Brazil was 63th among 153 countries, regarding per capita use of al-

cohol in the age range of 15 years, a quite mild consumption. However, when WHO compares the evolution of consumption between the '70s and the '90s, in 137 countries, Brazil shows a growth of 74.5% in the consumption of alcoholic beverages.

It is noteworthy the increasing and undisturbed rising in the consumption of beers in Brazil, at a yearly rate between 3 and 5%, with a yearly production estimated for 2005 of 9,884 million liters.²⁰ In turn, 1.3 billion liters of *cachaça* were produced in 2002, of which 14.8 millions were exported. As to the consumption of wine, it had a production of 2.3 million liters in 2000.

It should not be forgotten the illegal production of alcoholic beverages in Brazil. The Brazilian Association of Beverages (ABRABE), in 1984, estimated that almost half of the consumption of distilled beverages in Brazil came from illegal production.²¹ Nowadays these figures are not known.

Final considerations

The data of this article suggest two fundamental issues: there is the need to emphasize epidemiological studies in Brazil, not only widening, but also systematically renewing these surveys; alcohol surely contributes strongly to the etiology and maintenance of several social, economic and health problems in our country.

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Table 3 – Percentage of interviewees reporting lifetime use of alcohol in the four surveys of CEBRID, among elementary and high-school students from ten Brazilian state capitals (1987, 1989, 1993 and 1997)

CAPITAL	1987 %	1989 %	1993 %	1997 %	χ ² FOR TREND
Belém	71.0	72.9	78.7	65.0	NS
Belo Horizonte	79.8	81.9	85.4	76.7	NS
Brasília	76.4	77.7	79.9	77.4	NS
Curitiba	78.1	80.3	83.8	79.6	NS
Fortaleza	68.4	73.5	74.9	80.8	P<.05
Porto Alegre	73.3	77.5	81.9	77.0	NS
Recife	71.6	73.1	75.7	75.8	NS
Rio de Janeiro	78.5	78.8	80.5	79.9	NS
Salvador	79.9	80.0	77.7	79.5	NS
São Paulo	77.4	79.2	82.3	74.1	NS

NS = Non-significant
Statistical test = χ² for TREND

Table 4 – Percentage of interviewees reporting heavy use of alcohol (20 times or more in the month) in the four surveys of CEBRID, among elementary and high-school students from ten Brazilian state capitals (1987, 1989, 1993 and 1997)

CAPITAL	1987 %	1989 %	1993 %	1997 %	χ ² FOR TREND
Belém	3.9	4.6	4.1	5.1	
Belo Horizonte	6.8	7.2	6.9	7.0	NS
Brasília	5.0	6.3	6.4	8.7	p<.05
Curitiba	5.6	6.9	7.4	9.4	p<.05
Fortaleza	3.3	4.8	5.0	7.6	p<.05
Porto Alegre	5.2	5.7	5.1	7.7	p<.05
Recife	6.0	7.0	7.4	9.0	p<.05
Rio de Janeiro	4.5	6.2	6.8	7.2	p<.05
Salvador	9.0	8.2	9.8	10.1	NS
São Paulo	5.3	5.7	5.1	7.3	p<.05

NS = Non-significant
 Statistical test = χ² for TREND

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¹ NT – In Brazil, social classes are generally classified as : A – upper class, B – upper-middle class, C – lower-middle class, D – poor, E – very poor

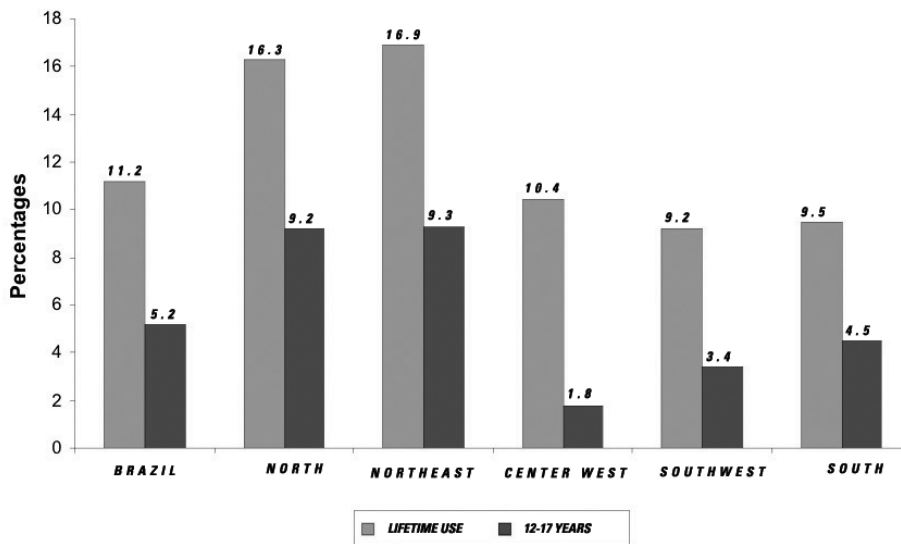


Figure 1 – Comparison of percentages of alcohol-dependent subjects in the general sample and among those in age ranges between 12 to 17 years, in Brazil and in the five Brazilian regions, from the 107 largest cities of the country – 2001