

Exposure of adolescents and young adults to alcohol advertising in Brazil

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- *With the objective of examining adolescents' and young adults' exposure to alcohol advertising in Brazil as well as the relationship between exposure and heavy alcohol consumption, 3007 subjects were selected through a multistage cluster sample procedure from households in 143 municipalities in all Brazilian states and interviewed between November 2005 and April 2006. Data presented here come from a subsample of 1091 interviews with adolescents (661 with 14–17 years old) and young adults (430 with 18–25 years old), and were collected on sociodemographic characteristics, alcohol consumption, alcohol advertising exposure and exposure to prevention messages. The authors observed that 61% of the sample reported exposure to alcohol advertising in different media, from 'almost every day' to 'more than once a day' in the previous month. 12% reported seeing an alcohol prevention message. Participating in alcohol promotions in pubs, restaurants or the internet was reported by 10.7% of the adolescents and was significantly associated with patterns of high intensity drinking. Adolescents were as exposed as, and sometimes more, than young adults, leading the authors to conclude that youngsters were heavily exposed to alcohol marketing messages.*

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Introduction

Several studies have investigated the consumption of alcoholic beverages and its health

consequences in Brazil. Since 1980s, surveys have been carried out among elementary school and high school students and a set of studies have focused on homeless children. There have also been two household surveys and several studies in clinical samples of alcohol dependent subjects (Silva *et al.*,

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1981; Galduroz and Masur, 1990; Galduroz and Caetano, 2004; Pinsky and Laranjeira, 2004; Galduroz and Carlini, 2007; Romano *et al.*, 2007). These studies show that subjects initiate alcohol consumption around age 12, while the legal age for alcohol consumption in Brazil is 18.

An important factor influencing alcohol consumption is the promotion and advertising of alcoholic beverages (Babor *et al.*, 2003). Interest in the effects of alcohol advertising is growing and research tools have become more sophisticated over the last few years, with more consistent use of advanced statistical models and more rigorous methodology and integrated designs (Hastings *et al.*, 2005). Econometric studies, especially in the United States, have shown a modest relationship between industry expenditures on alcohol advertising and alcohol consumption (Saffer and Dave, 2006).

Research on consumers reflects similar tendencies, and two recent longitudinal studies show that alcohol advertising exposure predicts teenagers drinking (Ellickson *et al.*, 2005; Snyder *et al.*, 2006). Recent systematic reviews have reported associations between exposure to alcohol advertising and subsequent alcohol consumption in young people (Anderson *et al.*, 2009; Smith and Foxcroft, 2009). Adolescent drinking has also been associated with ownership of promotional items (Hurtz *et al.*, 2007) and adolescent 'liking and remembrance' of alcohol advertising (Collins *et al.*, 2007).

Previous published research in the field has been solely focused on developed countries, where the alcohol market is well regulated. This paper examines adolescents and young adults' exposure to alcohol advertising in Brazil, a country with an emergent economy where alcohol advertising is not yet well regulated. We used a representative sample of the Brazilian population to test the hypotheses that (a) there is a positive relationship between exposure to publicity and consumption of alcohol, and (b) adolescents and young adults (14–25

years old) are heavily exposed to alcohol advertising.

Method

Sample

The study sample is part of the first Brazilian National Alcohol Survey (BNAS), conducted by the Federal University of São Paulo's 'Unidade de Estudos de Alcool e Outras Drogas - UNIAD', between November 2005 and April 2006. A multistage cluster sampling procedure was used to select 3007 individuals 14 years of age and older from the Brazilian household population. The sampling involved three stages: Stage 1 - selection of 143 counties using probability proportional to size methods (PPS); Stage 2 - selection of 02 census sectors for each county, with the exception of the 14 biggest selected counties, totalling 325 census sectors, also using PPS; Stage 3 - within each census sector 08 households were selected by simple random sampling, followed by the selection of a household member to be interviewed using the 'closest future birthday' technique. One hour face-to-face interviews were conducted in the respondents home by trained interviewers using a standardized closed questionnaire. The survey response rate was 66.4%.

Data presented here come from a subsample of 1091 interviews with adolescents (661 with 14–17 years old) and young adults (430 with 18–25 years old). Data were weighted to correct for differences in probability of selection and non-response. Post-stratification weights were calculated to adjust the sample to known census population distributions on certain demographic variables (e.g. sex, age). In order to correct for clustering effects resulting from the sample design, all analyses were conducted with the 'Complex Samples' module in SPSS v13.

All respondents granted their informed consent and the Institutional Review Board of the Federal University of São Paulo (UNIFESP) approved the study.

Measurements

Demographics

The following nine sociodemographic variables were included:

1. Age: 14–25 years old.
2. Gender: Male and female.
3. Ethnicity: Caucasian, black, mulatto and other.
4. Marital status: Single, married or living with a companion, and other (divorced, separated or widow).
5. Monthly household income: This was represented in six categories, from less than R\$ 450 to more than R\$ 2500. At the time the interviews were conducted, the real/dollar exchange rate was 2:1.
6. Education: Four levels, from illiterate or less than 5 years of formal education to more than 12 years of education (college or more).
7. Work status: active (regularly employed or not), unemployed, homemaker and student.

Alcohol consumption

Respondents' pattern of alcohol consumption was first classified in five composite categories of severity, according to a modified version of the Volume-Variability (V-V) Index (Cahalan and Cisin, 1968; Cisin and Cahalan, 1968), and grouped in two main categories, as follows:

- (1) High intensity drinkers (HID) – drink at least once a week or more and reports at least one episode of binge drinking/year. This group represented 22.1% of the sample.
- (2) Low intensity drinkers (LID) – drink less than once a week. This group comprised 77.9% of the total sample.

Exposure to alcohol advertising, promotion and prevention

We evaluated the respondents' perceived exposure to alcohol advertising, promotion and prevention through five questions:

- In the last 30 days, how many times have you seen or watched *alcohol advertising* in

billboards, magazines, newspapers, TV or heard it on the radio? Responses were grouped in six categories (from never to more than once a day).

- In the last 30 days, how many times have you seen or watched *alcohol prevention messages* on billboards, in magazines or newspapers, on TV or heard them on the radio? Responses were grouped in six categories (from never to more than once a day).
- In the last 30 days, how many times have you seen *alcohol advertising* on the internet, or visited a website related to alcohol beverages? Responses were grouped in six categories (from never to more than once a day).
- In the last 30 days, have you *seen or participated in alcohol promotions* in pubs, restaurants or in the internet? (Coded categorically as 'yes' or 'no').
- In the last 30 days, how many times have you seen or watched *beer advertising* at points of sale (POS) such as pubs, bakeries, supermarkets, restaurants, music shows or sports events? Responses were grouped in four categories (from never to many times).

Statistical analysis

As a first step in the analysis we examined subjects' sociodemographic characteristics as well as their drinking status. Next we examined the proportion of respondents exposed to each of the publicity variables. Finally we conducted a series of multiple logistic regressions to examine the association of exposure to alcohol advertising and promotion controlling for the effects of intensity of alcohol consumption and sociodemographic factors.

Results

Sample characteristics

Nearly 60% of adolescents and more than half of young adults reported a household monthly income up to R\$ 750 (about US\$ 375). Most of the sample was single and nearly equally

divided by gender. In relation to ethnicity, the sample was mainly divided between whites and mulattos. Blacks represented about 11% of the sample and other ethnic groups (including Asians and Indigenous people) were less than 3% of the youngsters. Not surprisingly, young adults reported a higher educational level than adolescents. In relation to patterns of alcohol consumption, more than one-fourth of the young adults self-reported as High Intensity Drinkers (HID) compared to about 12% of the adolescents (Table 1).

Alcohol advertising, promotion and prevention exposure

Both adolescents and young adults reported high exposure to alcohol advertising and promotion. About 60% of the sample reported having seen or heard alcohol advertising almost every day or

more than once a day in the last 30 days. On the other hand, more than half of the sample declared they had never been exposed to an alcohol prevention message.

Participation (e.g. have been offered products) in alcohol promotions in pubs and restaurants was true for almost 11% of the subjects and having visited alcohol industry sites on the internet was reported by about 8% of the sample. After all, almost 61% of the whole sample reported exposure to advertising in various venues every day or more than once a day (Table 2).

Multivariate results

Overall, the populations of adolescents and young adults seem to be exposed to the media variables in a similar way. This means that adolescents were equally and sometimes more exposed to alcohol advertising and promotion

Table 1. Demographic profile for adolescents and young adults (%)

Demographics		Age		
		14-17	18-25	Total
Work status ¹	Active	30.0	68.2	55.2
	Unemployed	4.7	8.3	7.1
	Homemaker	3.8	10.4	8.1
	Student	61.4	13.2	29.6
Ethnicity	Caucasian	43.3	49.6	47.5
	Black	12.6	10.8	11.4
	Mulatto	41.9	36.4	38.3
	Other	2.2	3.2	2.8
Education ¹	Less than 5 years	10.0	8.2	8.8
	School (5-8 years)	62.8	31.3	42.0
	High school (9-12 years)	27.0	48.5	41.2
	College or greater than 12 years	0.2	12.1	8.0
Marital status ¹	Single	95.2	67.8	77.1
	Married	4.8	29.2	20.9
	Other	0.0	3.0	2.0
Gender	Male	50.8	48.4	49.2
	Female	49.2	51.6	50.8
Monthly household income ¹	R\$ 450 or less	42.0	36.0	38.1
	From R\$ 451 to 750	17.4	17.3	17.4
	From R\$ 751 to 1200	11.6	20.2	17.2
	R\$ 1201 or more	8.3	20.1	16.1
	Unknown/no answer	20.7	6.4	11.3
HID ¹	No	87.6	73.0	78.0
	Yes	12.4	27.0	22.0

¹The Chi-square test of independence is significant at the 95% level.

Table 2. Advertising exposure profile for adolescents and young adults (%)

Demographics		Age		
		14-17	18-25	Total
In the last 30 days, how many times have you seen or watched alcohol advertising in billboards, magazines, newspapers, TV or heard on the radio?	None	11.3	13.0	12.4
	Less than once a month	2.1	2.9	2.6
	One to three times a month	7.6	9.5	8.9
	One to three times a week	16.4	13.4	14.5
	Every day or almost every day	50.0	46.3	47.6
	More than once a day	11.7	14.0	13.2
In the last 30 days, how many times have you seen or watched alcohol prevention messages in billboards, magazines, newspapers, TV or heard on the radio? ¹	Doñt know	0.9	0.9	0.9
	None	51.4	57.8	55.6
	Less than once a month	8.1	8.9	8.6
	One to three times a month	12.3	13.8	13.3
	One to three times a week	12.0	8.3	9.6
	Every day or almost every day	12.3	6.7	8.6
In the last 30 days, how many times have you seen alcohol advertising in the internet, or visited a website related to alcohol beverages?	More than once a day	3.0	3.5	3.3
	Doñt know	0.8	1.1	1.0
	None	93.9	90.4	91.6
	Less than once a month	1.3	1.5	1.4
	One to three times a month	1.6	1.9	1.8
	One to three times a week	1.7	2.1	2.0
In the last 30 days, have you seen or participated in alcohol promotions in pubs, restaurants or in the internet? ¹	Every day or almost every day	0.9	1.9	1.6
	More than once a day	0.3	1.3	0.9
	Doñt know	0.3	1.0	0.7
	Yes	7.5	12.3	10.7
	No	92.1	87.7	89.2
	Doñt know	0.4		0.1
In the last 30 days, how many times have you seen or watched beer advertising in points of sale (POS), such as pubs, bakeries, supermarkets, restaurants, music shows or sports events?	Never	8.1	8.5	8.4
	A few	17.9	15.1	16.0
	Many	25.5	24.6	24.9
	A lot	48.0	51.7	50.4
	Doñt know	0.5	0.2	0.3

¹The Chi-square test of independence is significant at the 95% level.

than their older counterparts. For instance, in the case of alcohol advertising on TV, radio and magazines, older teenagers and young adults 18-21 years old reported more exposure, despite not statistically significant, than the group 22-25 years old (17.3% vs. 10.5%, $p = 0.072$). In the case of all the other variables, we did not find differences in the level of exposure of minors and young adults.

Lower educational level was a protective factor (OR = 0.2, p -value = 0.016 and 0.003 for both lowest education level, **Table 3**) for exposure to alcohol advertising in the media and subjects with lower household incomes reported less exposure to alcohol promotion (OR ≤ 0.5 , p -value < 0.05 for income ranges up to \$70 000, **Table 3**). All ethnicities reported high

exposure to alcohol advertising and promotion, but Asians and indigenous people reported higher exposure to point of sale advertising (OR = 0.2, p -value < 0.01 for other ethnicities, relative to Asians and indigenous people, **Table 3**).

Being married was a protective factor in relation to exposure to alcohol promotion in bars (OR = 0.5, p -value = 0.041 for married, **Table 3**). On the other hand, married individuals reported higher exposure to alcohol advertising in the media (OR = 2.5, p -value = 0.021 for married) and less exposure to prevention campaigns (OR = 0.3, p -value = 0.019 for married).

Concerning alcohol consumption, there was a significant association between alcohol promotion and HID (OR = 2.8, p -value = 0.004 for HID,

Table 3. Odds ratios and 95% confidence intervals for the models for exposure to advertising

Independent variables	Saw/watched ads more than once a day ¹	Saw/watched prevention messages every day or almost every day ²	Saw/participated in alcohol promotions ³	Saw/watched a lot of beer advertising in points of sale (POS) ⁴
Work status ref: student				
Active	0.8 (0.4-1.6)	1.2 (0.7-2.1)	1.3 (0.6-2.6)	1.2 (0.8-1.9)
Unemployed	0.7 (0.2-2.7)	1.9 (0.6-6)	0.6 (0.1-2.6)	0.9 (0.4-2.1)
Homemaker	0.4 (0.1-1.2)	1.5 (0.6-3.8)	2.6 (0.5-14)	0.6 (0.2-1.3)
Age categories ref: 22-25 years old				
14-15 years old	2.1 (0.9-4.7)	1.4 (0.6-3.4)	0.8 (0.3-1.8)	1.1 (0.6-1.9)
16-17 years old	2.5 (1.2-5)	0.9 (0.4-2)	1 (0.4-2.1)	1.2 (0.8-2)
18-21 years old	2.1 (1-4.2)	0.6 (0.3-1.4)	1.3 (0.6-2.9)	1.3 (0.8-2.1)
Ethnicity ref: other				
Caucasian	1.1 (0.3-3.8)	0.8 (0.2-2.9)	2 (0.4-11.6)	0.2 (0.1-0.7)
Black	0.5 (0.1-2.1)	0.4 (0.1-1.9)	1.3 (0.2-8.8)	0.2 (0.1-0.6)
Mulatto	0.9 (0.3-3.3)	0.7 (0.2-2.4)	1.3 (0.2-7.4)	0.2 (0.1-0.7)
Education level ref: college or greater than than 12 years				
Less than 5 years of education	0.2 (0.1-0.8)	0.5 (0.1-3.7)	0.4 (0.1-2.8)	0.7 (0.2-2.2)
School (5-8 years)	0.2 (0.1-0.6)	1 (0.2-4.7)	1.2 (0.4-3.7)	0.6 (0.2-1.7)
High school (9-12 years)	0.4 (0.2-1.2)	1.1 (0.3-4.6)	0.9 (0.3-2.4)	0.9 (0.4-2.2)
Marital status ref: single				
Married	2.5 (1.1-5.6)	0.3 (0.1-0.8)	0.5 (0.2-1)	1.1 (0.7-1.7)
Others (Divorced - separated)	3.9 (0.6-23.4)	1 (0.1-11.3)	0.4 (0-3.5)	2 (0.5-8.9)
Gender ref: female				
Male	1 (0.6-1.6)	1.1 (0.6-2.1)	0.6 (0.3-1.3)	0.8 (0.6-1.1)
Household income ref: more than R\$ 120 000				
Less than R\$ 45 000	0.9 (0.4-2.3)	1.4 (0.5-3.7)	0.5 (0.2-1)	0.9 (0.5-1.6)
From R\$ 45 100 to 75 000	0.9 (0.4-2.2)	0.7 (0.2-1.9)	0.3 (0.1-0.7)	1.4 (0.7-2.5)
From R\$ 75 100 to 120 000	1.7 (0.7-3.9)	0.7 (0.2-2.2)	1 (0.4-2.4)	0.9 (0.5-1.6)
Unknown/no answer	0.6 (0.2-1.4)	1.2 (0.4-3.1)	0.4 (0.1-1)	1.5 (0.8-2.9)
Drinking pattern ref: LID				
HID	0.8 (0.4-1.6)	1 (0.6-1.9)	2.8 (1.4-5.7)	1 (0.6-1.6)

The table presents the exponential of the logistic regression coefficient which is the odds ratio and its 95% confidence interval is between brackets. Bold font represents odds ratios that are significant at the 95% level.

¹Goodness of fit: $F_{[20;137]} = 2486$, $p = 0.001$, Nagelkerke's $R^2 = 0.111$.

²Goodness of fit: $F_{[20;136]} = 2028$, $p = 0.008$, Nagelkerke's $R^2 = 0.065$.

³Goodness of fit: $F_{[20;137]} = 2491$, $p = 0.001$, Nagelkerke's $R^2 = 0.134$.

⁴Goodness of fit: $F_{[20;137]} = 1971$, $p = 0.012$, Nagelkerke's $R^2 = 0.065$.

Table 3). The other media variables did not show significant associations with alcohol consumption.

Exposure to alcohol internet sites was not analysed because the reported incidence of exposed adolescents and young adults was low and the small number of those exposed caused problems when conducting the multivariate analysis.

Discussion

This paper shows that in Brazil, exposure to alcohol advertising among adolescents and

young adults is much more prevalent than exposure to any kind of prevention message. In fact, most of this age group is exposed to alcohol advertising at least daily. The logistic models examining the profile of those exposed to alcohol advertising and alcohol promotion show that adolescents are at least as exposed to promotion as young adults.

The logistic models also show that young subjects who drink more and those individuals who are single are more exposed to alcohol promotion. The finding that heavier drinkers were more exposed to alcohol promotion could be interpreted in two ways: (a) alcohol

promotion influences heavier alcohol consumption among the young or, (b) those drinking more tend to visit more frequently bars and other places where alcohol promotion is done. Possibly these two factors are at play. However, the finding that adolescents are less likely to be heavy drinkers (still) than young adults and are as exposed to alcohol promotion, suggests a temporal relationship of promotion leading to heavier drinking in future years and not the other way around. In fact, a recent systematic review of longitudinal studies suggests a relationship between exposure to alcohol advertising and alcohol promotion, with increased exposure increasing the likelihood of adolescents starting to drink alcohol, and drinking more (Anderson *et al.*, 2009). Thus it appears that youth exposure to alcohol promotion is an important factor in young people's drinking, and should be monitored in relation to youth exposure (Hurtz *et al.*, 2007; Henriksen *et al.*, 2008).

This heavy exposure to alcohol marketing by youngsters is of special concern in Brazil, a large country with an emergent economy, where 66% of the teenagers and 38% of the young population is still abstinent (Laranjeira *et al.*, 2007). This relatively large proportion of non-drinkers makes it an attractive target for market growth by the alcohol industry. The country already presents several signs of the impact of alcohol misuse. For instance, the burden of disease associated with alcohol in Brazil is above 8% (WHO, 2002). In fact, recent national reports of Brazilian adolescents' drinking patterns point out that among those who drink, about half are binge drinkers (Laranjeira *et al.*, 2007). The industry knows that possibilities for growth in the alcohol market are real, especially if the country's recent stable economy and lack of generally effective alcohol abuse countermeasures are taken into account.

The advertising industry in Brazil operates under a self-regulatory mechanism (CONAR, 2009). This kind of 'code of conduct', similar to those of many other countries, has a set of rules outlining some suggested restrictions for alcohol advertising content and, in the case of alcoholic

beverages above 13 GL, indicates a daytime restriction for TV and radio ads. However, this self-regulatory code hardly considers exposure, and except for the time restriction mentioned above (that does not include beer and wines, below 13 GL), presents only vague specifications with regards to other media or other kinds of marketing resources (e.g. promotion at points-of-sale or shows). Specifications are more concerned about label warnings and only recommend that media messages should not present any direct appeal to consumption, not excluding institutional or brand promotion. In 2007, the Brazilian Ministry of Health launched a campaign to restrict alcohol advertising, including, for instance, time restrictions on television, with no clear consequences until now. The results found in the present analysis suggest that self-regulation has not been effective in restricting alcohol marketing strategies focused on young subjects and indicate that Brazil warrants a clear public policy on this issue.

This research has its own limitations. It is always a challenging task to accurately measure media exposure (Gunter, 2000) and there are no consensual standards on what could be an 'appropriate exposure' for certain age groups. In the present case, in the context of dealing with an almost ubiquitous event such as alcohol publicity and promotion, our measures probably underestimates adolescents' and young adults' exposure. Cross-sectional studies cannot infer causality, and must be confirmed by longitudinal ones.

Despite those limitations, the results presented here come from the first national probability sample survey in Brazil, and may be generalized to the whole Brazilian population of adolescents and young people (about 40 million people). From the results obtained, it is clear that current policies have not been able to protect Brazilian teenagers and young adults from alcohol advertising exposure. Additional toughen of federal legislation is warranted, particularly the extension of time restrictions and the inclusion of beverages under 13 GL, especially beer. Further research should focus on measuring the impact of alcohol advertising using longitudinal designs

and investigating exposure to alternative types of alcohol marketing strategies (e.g. social networking and internet alcohol ads).

Biographical notes

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