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Alcohol purchase survey by adolescents in two cities of State of São Paulo, Southeastern Brazil

ABSTRACT

OBJECTIVE: Alcohol use is a public health problem. Commercial availability is an important factor that encourages the use of alcohol by young people. The aim of the study was to assess how often young people under 18 could buy alcohol in shops

METHODS: Adolescents from 13 to 17 attempted to purchase alcoholic beverages at a random sample of shops in the cities of Paulínia (n=108) and Diadema (n=426), Southeastern Brazil. The study was conducted from November to December 2003 in Paulínia, and July 2004 to August 2005 in Diadema. They were told not to lie about their ages when asked and to say that the beverage was for themselves. Statistical tests performed were two-tailed and the significance level considered was $p < 0.05$.

RESULTS: Adolescents, under the minimum legal age, were successful in purchasing alcoholic beverages in the first attempt in 85.2% of the surveyed outlets in Paulínia, and 82.4% in Diadema. The adolescents bought alcoholic beverages just as easy in all shops researched.

CONCLUSIONS: The data showed almost unanimous easiness of teenagers to obtain alcoholic beverages, suggesting the relevance of this problem in these cities (and probably in Brazil). The urge to adopt specific alcohol policies to this age group is highlighted, in order to reduce alcohol consumption.

KEY WORDS: Adolescent behavior. Alcohol drinking, legislation & jurisprudence. Products commerce. Social environment. Social facilitation. Brazil.

INTRODUCTION

Adolescents are a unique risk group among alcohol users in two main aspects: the age of the onset of consumption and the way they drink.

The early age of onset of use is one of the most relevant predictive factors for future problems, and the use before 16 significantly increases significantly the risk of heavy drinking in adult age for both genders.¹⁴ Researches indicate that the younger the minimum legal age for drinking the greater the possibilities of traffic accidents related to alcohol,^{16,18} accidental trauma, homicides, suicidal, and accidents with guns.^{2,9}

Regarding the amount of drinking, studies show that binge drinking occurs in 90% of the alcohol used by adolescents in USA that is, using five or more doses in the same occasion for men or four or more doses for women.² This standard

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of use exposes the young body to toxic doses of alcohol making them more prone to several risk behaviors such as unwanted pregnancy, sexually transmitted diseases, and car accidents.^{11,15}

This is a relevant public health and safety problem in Brazil: a survey conducted in 2004 with 48 thousand students from public schools in elementary and high school, reported that 44.3% had used alcohol in the 30 days previous to the survey, and 11.7% of the adolescents surveyed reported frequent use (six or more times a month).⁷

The World Health Organization (WHO) recommends two policies that have been extremely successful in decreasing the problems related to alcohol use in adolescents: increasing the price of alcohol and implementing a minimum age for drinking with surveillance. This later is more frequently studied and it is a consensus in the literature of its high efficiency, high scientific support, satisfactory cultural transposition and low cost.^{1,13} In this item, availability in the market also plays a relevant role and surveys have been carried out in several countries to assess how easy adolescents purchase alcohol in stores^{5,6,13,23} and how it occurs: directly, with the help of siblings and friends or getting the beverage at home.^{17,20}

In Brazil, selling alcohol for those under 18 is forbidden according to the article 243 of the Statute of Child and Adolescent (Law 8.069/90) and by the “Lei das Contravenções Penais, article 63” (Criminal Law on Misdemeanors). We have conducted a study to check how often underage youngsters buy liquors in stores in the cities of Paulínia and Diadema, thus assessing the obedience to these laws and their effective introduction. We also aimed at assessing the attitudes and characteristics of sellers, how viable the use of an international methodology would be and its use to plan and monitor the impact of prevention strategies.

METHODS

The methodology developed by the Pacific Institute for Research and Evaluation (“purchase surveys”)⁸ was used in this study which was conducted in November and December 2003 in Paulínia and from July 2004 to August 2005 in Diadema, two cities in Southeastern Brazil. Survey was carried out in these cities due to the interest of the municipalities to reduce the problems related to alcohol use. Additionally, we could compare the behavior of outlet owners of Paulínia – which has not implemented any alcohol policy – and Diadema which has been adopting policies to control alcohol use, such as shutting down bars at 23h (Local Statutory

Law 7/21/2002) and surveillance to avoid drinking and driving.

Paulínia is located in the metropolitan region of Campinas, 118 km away from the city of São Paulo. It has an area of 139km² and a population estimated at 59 thousand people, predominantly urban. It is mainly an industrial based economy, being 20th among the 100 highest towns in GDP according to the Instituto Brasileiro de Geografia e Estatística (IBGE – Brazilian Institute for Geography and Statistics, 2004).^{*} Diadema is located in the metropolitan region of São Paulo, with a population of 384,000 people and an area of 32 km² (second highest demographic density of the country) and it is in the 50th position among the municipal GDPs (IBGE, 2004).^{*}

In Paulínia, 108 points of sale were surveyed, 18% were in the center of the city and the others were in 18 districts, representing 40% of the mapped establishments (95% confidence level, 6.0% relative error). In Diadema a random sample was selected proportional to the 426 establishments, using the map-info 2.0 application, representing 14.9% of the 2,875 points of sale officially recorded at city hall (95% confidence level, 3.4% relative error). Both samples were sized using a 0.8 p-value.

All kinds of point of sale for alcohol were surveyed, except for those which sold alcohol on-premises. Beverage purchased varied according to the establishment: in supermarkets and convenience stores spirits were purchased, in all other establishments it was beer (can).

Adolescents, in pairs, were taken to the point of sale by adults that kept the purchased beverage and checked the safety of the place before the test. While one of the adolescents tried to purchase, the other observed the gender, approximate age of the staff member and both paid attention to his/her attitude. Then, a questionnaire was filled in with information on the point of sale, estimated age of the seller, test result, price and amount of liquor purchased.

The survey was not conducted in places with poor lighting, where customers were clearly drunk, or places with high violence rates or difficult to get. Adolescents were told to return without conducting the test if they knew someone or if they felt uncomfortable for any reason. In Paulínia, ten adolescents took part in the study: one was a thirteen-year-old male, three were fourteen-year-old males, two were fifteen-year-old females, and four were seventeen-year-old females. In Diadema, eight adolescents took part in the study; four girls with ages 14, 15, 16 and 17, and four boys

^{*} Instituto Brasileiro de Geografia Estatística. Diretoria de Pesquisas, Coordenação de Contas Nacionais, Available from: <http://www.ibge.gov.br/cidadesat/topwindow.htm?1> [Accessed on 10/25/2006]

with the same age as the girls. The participants looked according to their ages. They were recruited by their parents who helped our team in this and other studies, and those responsible for them gave their written consent.

Adolescents were previously trained with emphasis in giving them information on the prevention regarding early use of alcoholic drinks, and they were told not to lie about their age when questioned and to say the liquor was for their use. Products were purchased closed. There was a purchase attempt per place and those establishments that refused to sell alcohol, there was a re-test in these places with seventeen-year-old females, according to the methodology of the study. The places that were closed in the second attempt were not re-tested.

Initially, variables were descriptively assessed: using summary measures (mean, median, minimum, maximum, standard deviation) for the age of adolescents, and simple frequencies for categorical variables such as age of the staff, gender of adolescents and sellers, place, and others. To compare mean of ages, Student's t-test and variance analysis were used (for more than two groups). To check the associations among categorical variables, Chi-square tests were performed. To assess the process of alcohol sale for youngsters, analyses were performed into two stages. In the first stage, we assessed which characteristics of adolescents and sellers influenced the fact that their ages were or were not asked, and the impact of each city on this event. Then, we assessed which variables influenced sales refusal among establishments whose sellers asked for customers' ages. In both approaches, logistic regression was used. For each variable of in-

terest (asking about the age, or refusal to sell alcoholic drink) explanation variables used were: characteristics of adolescents (gender, age), and of the seller of the establishment and the city. Additionally, aiming at assessing if the variables of interest followed different patterns in these cities; interactions of the local variable and each of the explanatory variables were included in the model. Significant variables at a 5% significance level were considered in the model. To make interpreting the regression models easier, the age of the adolescent was centralized in 15 years old (mean=15.29, SD=1.19). For the seller age, 2 age groups were used: 30 or under and 31 or over. We have used the SPSS 13.0 application, as the data bank and tool for statistical analysis.

The research was approved by the Ethical Committee of Universidade Federal de São Paulo/Escola Paulista de Medicina.

RESULTS

Adolescents were able to buy alcoholic beverages in 85.2% (N=92) of establishments surveyed in Paulínia, and in 82.4% (N=351) in Diadema. Table 1 presents the comparative profile of cities and the respective outcomes. The result of the test did not present significant difference regarding the type of establishment that is; adolescents purchased beverages just as easy in all places. Points of sales are presented in the Figure.

In Paulínia, the age of adolescents was asked in 30.5% (N=33) of establishments, and 51.5% (N=17) of these sold the beverages anyway. In Diadema the same percentage of establishments (30.5%, N=130) asked about the age, and 42.3% of them sold the beverages.

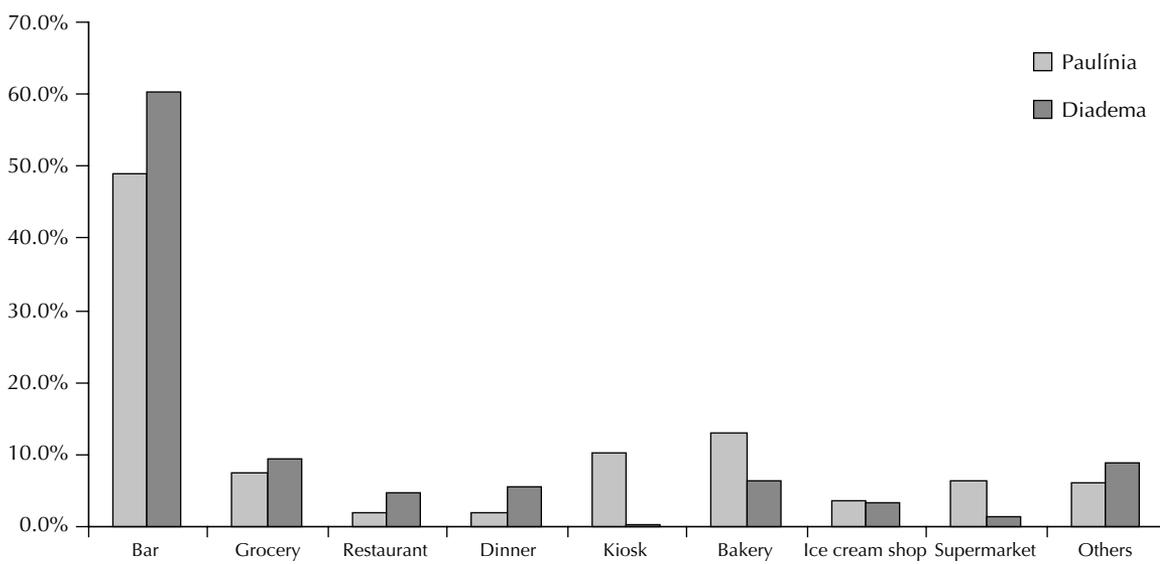


Figure. Types of establishment surveyed. Paulínia e Diadema, Southeastern Brazil, 2005.

Table 1. Comparative profiles of the cities. characteristics of sellers and the respective outcomes of purchase of alcohol by adolescents test in Paulínia and Diadema, Southeastern Brazil, 2005.

Variable	City	
	Paulínia (N=108)	Diadema (N=426)
Age asked		
Yes	30.5%	30.5%
Requested ID		
Yes	0%	14.3%
Test outcome		
Purchase made	85.2%	82.4%
Seller gender		
Male	53.3%	58.9%
Female	46.7%	41.1%
Estimated age of the seller		
Up to 30	42.5%	62.7%
31-45 years	28.3%	19.2%
46-60 years	17.0%	14.8%
over 60 years	12.3%	3.3%

Refusing to sell was always followed by inquiring the age; analysis of refusal factors revealed that the older the adolescents, the smaller the odds of being asked their age. Every increase of one year in the age of adolescents led to a 53.3% decrease in the odds of

inquiring their age. The effect of seller age on inquiring the age is different according to the place: in Diadema, sellers over 30 presented 4.8 times more chance to ask the age than those in Paulínia (Table 2). The variables gender of adolescents, and sellers were not significant in this situation.

The age and the gender of sellers influenced the refusal to sell to adolescents as shown in Table 3. Sellers with ages estimated over 30 presented seven times greater chance of refusing to sell than those who were 30 or younger. Interaction among variables such as gender of the seller and place indicate that the effect of gender in refusing to sell is different according to the city: sellers in Diadema presented 2.6 more chances to refuse selling than those in Paulínia. Age and gender of adolescents were not significant.

Places that refused to sell alcohol underwent a new test, conducted by a pair of 17-year-old female adolescents. In Paulínia, three establishments could not be retested because they were closed. In 84.6% (N=11) of these places purchase was made. Sellers (men between 25 and 30) that asked their ages (N=2) were the same that refused to sell. None of the sellers asked for ID. In Diadema, eight establishments could not be tested for the second time because they were closed; of the 67 points of sale tested for the second time, adolescents were able to purchase alcoholic beverages in 62.7% (N=42) of them.

Table 2. Odds of having the age asked according to sellers' age. Diadema, Southeastern Brazil, 2005.

Variable	Coefficient	SE	Wald	p	Odds ratio	CI 95% for Odds ratio	
						Inferior Limit	Superior Limit
Adolescent's age	-0.762	0.101	56.549	<0.0001	0.467	0.382	0.569
Seller's age	1.562	0.224	48.411	<0.0001	4.768	3.071	7.403
Constant	-1.286	0.136	88.783	<0.0001	0.276	-	-

N=532 (2 invalid cases)

Hosmer and Lemeshow test (goodness of fit) $\chi^2_6 = 2.99$, $p=0.810$

Sensitivity: 78.5%; Specificity: 64.2%; cut off point: 0.30

Percentage of right classification: 68.6%

Table 3. Correlation between sellers' age and gender and refusing or not to sell. Diadema, Southeastern Brazil, 2005.

Variable	Coefficient	SE	Wald	p	Odds ratio	CI 95% for Odds ratio	
						Inferior Limit	Superior Limit
Age of seller	1.977	0.375	27.733	<0.0001	7.221	3.460	15.072
Female sellers	0.966	0.380	6.462	0.011	2.628	1.248	5.537
Constant	-1.345	0.328	16.857	<0.0001	0.260		

N=163

Hosmer and Lemeshow test (goodness of fit) $\chi^2 = 0.51$, $p= 0.776$

Sensitivity: 82.4%; Specificity: 62.5%; cut off point: 0.50

Percentage of right classification: 73.6%

DISCUSSION

Outcomes show that adolescents get alcohol very easily in outlets in both cities. And although we cannot transfer these data, unfortunately we have our reasons to believe that this is a national reality. These findings are much higher than the international outcomes.^{3,6,21}

The present study presents the following limitations: adolescents taking part in the survey in each city were not paired according to gender and age; there was no pairing for city either. Variables that are considered relevant by the literature were not surveyed, such as the presence of a warning informing the prohibition of selling for underage, and the presence of more than one seller at the place, factors that tend to inhibit sale for underage.

Outcomes of sale refusal cannot make us assume that those sellers were following the law, since many of the adolescents taking part in the survey looked very young. Many sellers refused to sell to them without even asking their age; they only mentioned their precocity while refusing to sell. This made us interested in finding out how these establishments would react if the adolescents did not look so young. In fact, many places which had refused to sell alcohol to adolescents in the first test, sold it to adolescents who looked older, demonstrating a lower compliance with the law when buyers were 17.

On the other hand, reports from adolescents enabled us to notice that many sellers sold alcohol even after confirming the age or mentioning it. Some of them made observations when giving the beverage to the underage: "if the police get you with this I'll have problems, you see?"; "put it on the bag and say it's for your father!"; "do you know it is forbidden by law?" "does your mother know that you drink?" or "is it for you?" Some sellers had an attitude of censorship or hesitation but sold the beverage anyway; one of them said at the time he decided to sell: "I don't sell it for underage (sic); however, if you don't buy it here you are going to buy it elsewhere anyway!", expressing that, for him, it was easy for adolescents to buy alcohol in outlets. These reports show that the having the law and being aware of it were not enough to inhibit sale.

It was just as easy for adolescents to buy alcoholic beverage in Diadema, although the town has a law

that shuts down bars at 23h00. These findings suggest that for dealing with the sale of alcohol for underage a specific policy to that end must be implemented.

According to some authors, this type of survey assesses best the availability and the readiness of the surveyed establishments to sell or not alcohol to adolescents.⁵ The reason for this statement is that a single establishment may be enough to supply the demand of a large number of underage in a community, even if all the others refuse to sell.

However, this study does not demonstrate in particular the promptness in selling. This behavior, which is almost unanimous to all sellers of alcohol, is only supported when it is in accordance with the cultural rules of a community. That is, social values that rule are: accepting the use of alcohol by adolescents and tolerance regarding breaking the law that prohibits selling beverage to those under 18. In fact, the magnitude of the outcome obtained would be unlike if there was efficient surveillance and punishment by the authorities.^{4,19} In this context, the rare refusals that occurred to sell to an underage must be seen as a personal position of the seller, rather than any kind of policies that support this action. In this setting the rule is those who should follow the law are actually breaking them, omission of the authorities who should control, and society that should demand compliance with the law remains quiet.

Low prices make alcohol easily accessible to adolescents, who are also the greatest victims of the few restrictions to advertisement of alcoholic beverages in the media. The wide availability of alcohol in several places makes consumption trivial. Bars that have minimal consumption, promotions such as "open bar", the sale of alcohol for in-premise use in gas stations, worsen the risk of problems regarding the use of alcohol in this age group.

Having a minimal age for purchasing already exists as a law, although there are no practical measures to encourage following the law. With this article, we intend to encourage and subsidize discussions on the easy access of underage people to all kinds of alcoholic beverages. Postponing the use of alcohol from the beginning of adolescence to its end must be an important part of the efforts to prevent the problems related to use of alcohol in this age group.^{14,21,22}

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