Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health

Prevalência do consumo de álcool e drogas entre adolescentes: análise dos dados da Pesquisa Nacional de Saúde Escolar

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Abstract

Objective: To describe the prevalence of alcohol and other drugs consumption, among adolescent students. **Methods**: A cross-sectional study with conglomerate samples of 60,973 students at freshman year high school in public and private schools in capitals and the Federal District in Brazil, in 2009. The 95% confidence interval and prevalence of alcohol and drug consumption were analyzed. **Results**: For the set of surveyed students, the following were identified: experimenting alcoholic beverages (71.4%; 95%CI 70.8-72.0); regular alcoholic beverage consumption (27.3%; 95%CI 26.7-28.0); drunkenness in lifetime (22.1%; 95%CI 21.6-22.7); family is worried when the student gets home drunk (93.8%; 95%CI 93.3-94.2); problems with alcohol use (9.0%; 95%CI 8.6-9.4); consumption of other drugs (8.7%; 95%CI 8.3-9.1). **Conclusion**: The study shows the extension of the alcohol and drugs problem among Brazilian adolescents, with special emphasis on the easy access of students to alcoholic beverages at parties, bars, stores, and at homes.

Keywords: adolescence; school health; alcohol; drugs, risk behavior; risk factor; surveillance; chronic disease.

Resumo

Objetivo: Descrever a prevalência do consumo de álcool e outras drogas entre estudantes adolescentes. **Método**: Estudo transversal com amostra de conglomerados de 60.973 estudantes do nono ano do Ensino Fundamental de escolas públicas e privadas das capitais dos estados brasileiros e do Distrito Federal, em 2009. Foram analisadas as prevalências e os intervalos de confiança de 95% (IC95%) do consumo de álcool e drogas. **Resultados**: Para o conjunto dos alunos entrevistados, identificou-se o seguinte: experimentação de bebida alcoólica (71,4%; IC95% 70,8-72,0); consumo regular de álcool (27,3%; IC95% 26,7-28,0); embriaguez na vida (22,1%; IC95% 21,6-22,7); preocupação da família se chegasse bêbado em casa (93,8%; IC95% 93,3-94,2); problemas com uso de álcool (9,0%; IC95% 8,6-9,4) e experimentação de outras drogas (8,7%; IC95% 8,3-9,1). **Conclusão**: O estudo demonstra a extensão do problema do uso de álcool e drogas entre adolescentes brasileiros, destacando a facilidade com que os jovens entrevistados tiveram acesso ao álcool em festas, bares, lojas e até em suas próprias casas.

Palavras-chave: adolescente; saúde escolar; álcool; drogas, comportamento de risco; fatores de risco; vigilância; doenças crônicas.

Introduction

Adolescence is a stage of human development which is characterized by biological, cognitive, emotional and social changes that are important for reassuring and consolidating the habits of adult life. In this phase, it is common to experiment psychoactive substances, such as alcohol and illicit drugs. Alcohol use in adolescence is an exposure factor for health problems in the adult age, and it significantly increases the risk of the individual becoming an excessive consumer throughout life[1].

Alcohol abuse is associated with negative consequences for the health of the population, since it is one of the main risk factors for vascular diseases, car accidents and homicides, which are the leading causes of death among youngsters[2,3]. Each year, approximately 5.2 million deaths are caused by accidents and violence all over the world, out of which around 1.8 million are associated with alcohol consumption[4].

Alcohol use has proved to be a risk factor for the use of other substances, such as tobacco, illegal drugs, and for the manifestation of conditions like depressive disorders, anxiety, school fights, property damage and police-related problems[4]. Other studies reported that alcohol in adolescence is associated with the absence of parental relationship, the fact of studying in public schools, and school failure[1,5].

The constant exposure of adolescents to alcohol advertisement was also related to alcohol consumption in this age group[6,7]. Some studies demonstrate that the lower the socioeconomic status, the higher the risk to consume alcohol in adolescence[1]. Besides alcohol, other drugs are important risk factors in this stage of life, since it is a vulnerable period to acquire the habit to consume psychoactive substances[4].

Considering the importance of adolescence as a vulnerable stage of life

Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*

137

Rev Bras Epidemiol
2011; 14(3): 136-46

to acquire habits that may last for life, the present study has the objective to describe the prevalence of alcohol use, as well as other drugs among adolescent students enrolled in private and public schools in Brazilian state capitals and the Federal District in 2009.

Methods

The results of the National Survey of School Health (*Pesquisa Nacional de Saúde do Escolar – PeNSE)* were analyzed, which was conducted by the Brazilian Institute of Geography and Statistics (IBGE) and the Ministry of Health, regarding students of the ninth grade enrolled in public and private schools of state capitals and the Federal District of Brazil in the first semester of 2009.

The conglomerate sample with two stages used data from the School Census 2007. Schools were selected in the first stage, and groups were divided in the second stage by interviews with students[8]. The sample size was calculated to estimate proportion (or prevalence) of some characteristics of interest in each geographic stratum (the 27 state capitals and the Federal District), with maximum error of 0.03 (3%) and 95% confidence interval (95%CI). Details on the survey may be obtained from specific publications[8,9]. The data collection instrument was elaborated in accordance with models used in previous national and international studies about adolescent behavior after adaptation to the Brazilian reality based on tests performed in schools of Rio de Janeiro, Belém and Recife[9].

For PeNSE, the questionnaire was given to students of the selected groups by means of a portable computer operated by the student in the Personal Digital Assistante (PDA), which automatically registered the information. Data were stored throughout the day, being further transferred to one spreadsheet. The students who did not feel encouraged to participate in the study were considered as losses.

In total, 1,453 schools were selected, with 2,175 groups and 68,735 regular students. On the data collection day, 63,411 students were present; loss rate was 7.7% at this phase. Also, 501 students who refused to participate or did not fill in the variable "sex" were excluded from the sample. Thus, data from 60,973 students were analyzed with a non-response rate of 11.3%.

The statistical package SPSS[10] was used to calculate the prevalence and the 95%CI regarding variables, which were analyzed according to sex and administrative management of the school (public or private) for the total of 26 state capitals and the Federal District, also enabling the identification of statistically significant differences.

The following aspects were analyzed: experimenting alcohol in life; drunkenness episodes in life; regular alcohol consumption or just in the previous 30 days; problems with family or friends due to alcohol use such as missing classes, getting hurt or fighting; family perception regarding drunkenness; and experimenting some other type of drug (marijuana, cocaine, crack, shoe glue, inhalants, ecstasy etc.).

The variables: experimenting alcohol and some other type of drug at least once were described for each capital according to sex and age and 95%CI. The number of alcohol glasses consumed per day in the past 30 days and how to get the alcohol were described, with respective 95%CI.

The study was approved by the National Commission on Ethics in Research (CONEP) of the Ministry of Health, amendment nº 005/2009, related to Register 11,537. The research was preceded by a contact with the State and County Secretaries of Education and the administration of the selected schools.

Results

PeNSE revealed that 71.4% (95%CI=70.8-72.0) of students in the ninth year of elementary school have tried

Rev Bras Epidemiol
2011; 14(3): 136-46   138   Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*

alcohol at least once. This situation was significantly higher among females (73.1%; 95%CI 72.3-73.9) from private schools (75.7%; 95%CI 74.6-76.8) when compared to males (69.5%; 95%CI 68.5-70.5) and students from public schools (70.3%; 95%CI 69.5-71.0), respectively (Table 1).

The prevalence of alcohol consumption also varied according to the city, ranging from 55.1% in Macapá to 80.7% in Curitiba. Among females, the capitals with higher prevalence levels were: Curitiba (82.3%; 95%CI 80.1-84.5), Porto Alegre (81.9%; 95%CI 79.2-84.6), Rio de Janeiro (79.4%; 95%CI 77.1-81.7), Campo Grande (79.3%; 95%CI 76.7-81.8), Florianópolis (78.4%; 95%CI 75.9-80.9), Belo Horizonte (77.6%; 95%CI 75.4-79.9), and São Paulo (77.1%; 95%CI 74.6-79.5). As to males, the highest prevalence was found in the following capitals: Curitiba (78.9%; 95%CI 76.4-81.3), Campo Grande (78.7%; 95%CI 75.9-81.4), Florianópolis (76.5%; 95%CI 73.8-79.1), Salvador

(75.6%; 95%CI 72.6-78.5), Porto Alegre (74.7%; 95%CI 71.5-77.9), Rio de Janeiro (73.9%; 95%CI 71.4-76.4), Aracaju (73.6%; 95%CI 70.6-76.5) and Belo Horizonte (72.9%; 95%CI 70.2-75.6), as demonstrated in Figure 1.

Regular consumption of alcohol among students, based on the past 30 days, was of 27.3% (95%CI 26.7-28.0) for the state capitals and the Federal District. Females consumed more in the past 30 days (28.1%; 95%CI 27.2-29.0) than males (26.5%; 95%CI 25.5-27.5); however, the difference is not statistically significant. Regular consumption of alcohol was significantly higher among students from private schools (29.5%; 95%CI 28.2-30.8) in relation to those enrolled in public schools (26.8%; 95%CI 26.1-27.5), as demonstrated in Table 1.
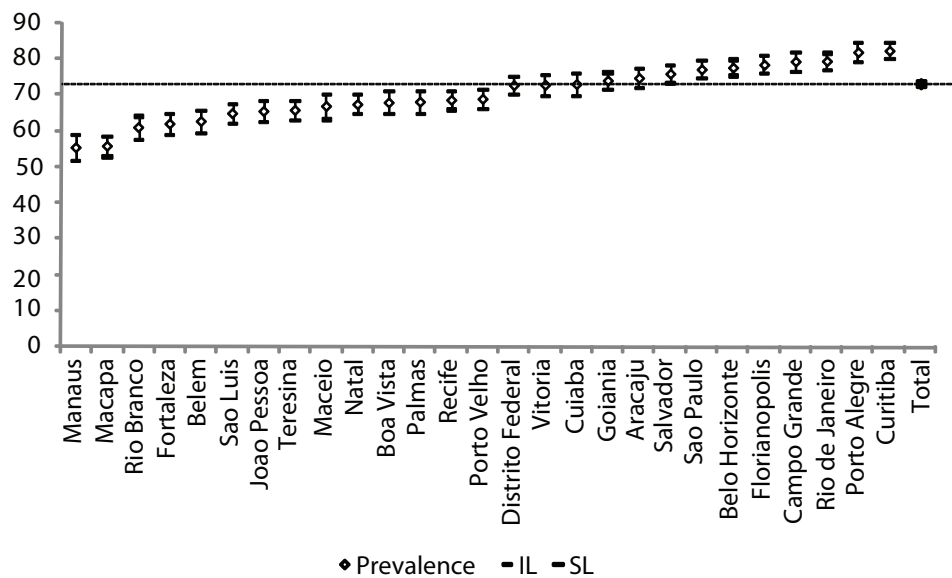
The research showed that approximately one out of five students has already gotten drunk (22.1%; 95%CI 21.6-22.7), and such episodes were significantly

Table 1. Prevalence* and respective 95%CI of situations related to alcohol and drugs consumption referred by students at freshman year high school, according to sex and administrative dependence of the school. Brazilian state capitals and Federal District, 2009
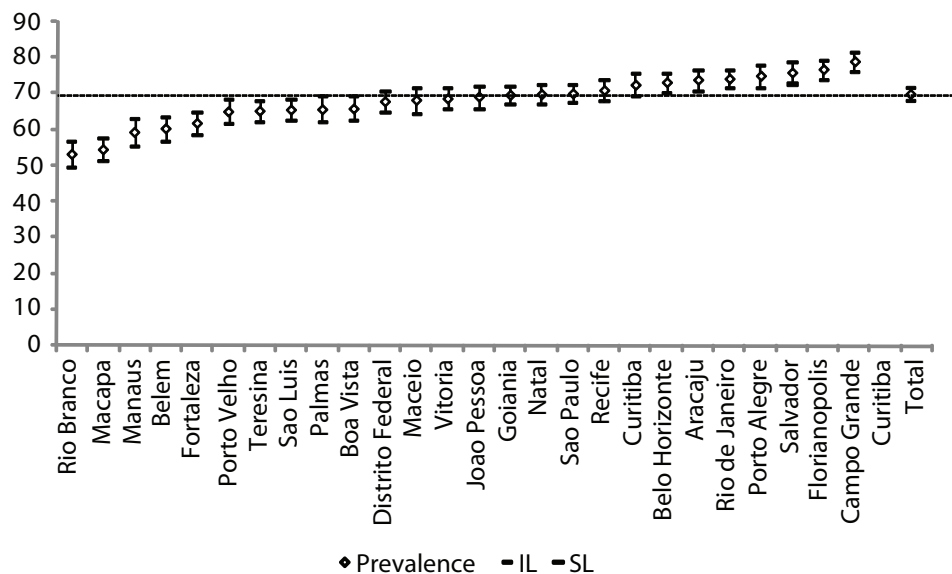
Tabela 1. Prevalência e respectivos IC95% de situações relacionadas ao consumo de álcool e drogas referidas pelos escolares do nono ano do Ensino Fundamental, segundo sexo e dependência administrativa da escola. Capitais brasileiras e Distrito Federal, 2009*

Situations related to the use of alcohol and drugs	Total		Sex				School administration			
			Female		Male		Private		Public	
	%	(95%CI)	%	(95%CI)	%	(95%CI)	%	(95%CI)	%	(95%CI)
Experimenting alcohol in lifetime	71.4	(70.8–72.0)	73.1	(72.3–73.9)	69.5	(68.5–70.5)	75.7	(74.6–76.8)	70.3	(69.5–71.0)
Regular alcohol consumption	27.3	(26.7–28.0)	28.1	(27.2–29.0)	26.5	(25.5–27.5)	29.5	(28.2–30.8)	26.8	(26.1–27.5)
Drunkenness episodes in lifetime	22.1	(21.6–22.7)	21.1	(20.3–21.9)	23.3	(22.4–24.2)	19.4	(18.4–20.5)	22.8	(22.2–23.5)
Would the family mind if the adolescent got home drunk	93.8	(93.3–94.2)	93.2	(92.4–94.0)	92.5	(91.8–93.2)	93.2	(92.4–94.0)	93.9	(93.4–94.4)
Having issues regarding alcohol use	9.0	(8.6–9.4)	8.9	(8.3–9.4)	9.1	(8.5–9.7)	7.6	(6.9–8.3)	9.3	(8.9–9.8)
Experimenting other drugs in lifetime	8.7	(8.3–9.1)	6.9	(6.4–7.4)	10.6	(10.0–11.3)	7.6	(6.9–8.3)	9.0	(8.5–9.5)

Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*

139

Rev Bras Epidemiol
2011; 14(3): 136-46

A) Females

B) Males

Figure 1. Prevalence* and respective 95%CI of experimenting alcohol beverages in life, from students at freshman year high school according to sex. Brazilian State Capitals and Federal District, 2009

Figura 1. *Prevalência* e respectivos IC95% de experimentação de bebida alcoólica na vida entre escolares do nono ano do Ensino Fundamental, segundo sexo. Capitais brasileiras e Distrito Federal, 2009*

Rev Bras Epidemiol
2011; 14(3): 136-46 140 Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*

more frequent among male (23.3%; 95%CI 22.4-24.2) than female adolescents (21.1%; 95%CI 20.3-21.9). The proportion of adolescents who have already gotten drunk was higher in public schools (22.8%; 95%CI 22.2-23.5) than in private institutions (19.4%; 95%CI 18.4-20.5), as demonstrated in Table 1.

When the adolescents were asked about their parents perception of them getting home drunk, most confirmed that the parents would be worried about the situation (93.8%; 95%CI 93.3-94.2). This perception was similar among females (93.2%; 95%CI 92.4-94.0) and males (92.5%; 95%CI 91.8-93.2), as well as among students from private (93.2%; 95%CI 93.4-94.4) and public schools (93.9%; 95%CI 92.4-94.0). Alcohol consumption was the cause of problems such as missing classes, injuries or fights for 9.0% (95%CI 8.6-9.4) of the students, with no differences between females and males, although such problems were more frequent among students from public schools (9.3%; 95%CI 8.5-9.5) in relation to those of private schools (7.6%; 95%CI 6.9-8.3) (Table 1).

Data from PeNSE showed that 8.7% (95%CI 8.3-9.1) of the students had already tried an illicit substance (marijuana, cocaine, crack, shoe glue, inhalants, ecstasy). The use of illicit drugs was significantly higher among male students (10.6%; 95%CI 10.0-11.3) and students from public schools (9.0%; 95%CI 8.5-9.5) (Table 1). In the capitals, the prevalence of illicit drug use ranged from 5.3% in Macapá to 13.2% in Curitiba. Among females, the capitals with the highest prevalence levels were: Curitiba (12.1%; 95%CI 10.2-14.0), Belo Horizonte (9.0%; 95%CI 7.5-10.6) and Natal (8.4%; 95%CI 6.8-10.0). As to males, the highest prevalence levels were observed in Curitiba (14.3%; 95%CI 12.2-16.5), Recife (14.3%; 95%CI 12.1-16.5) and João Pessoa (14.1%; 95%CI 11.7-16.5) (Figure 2).

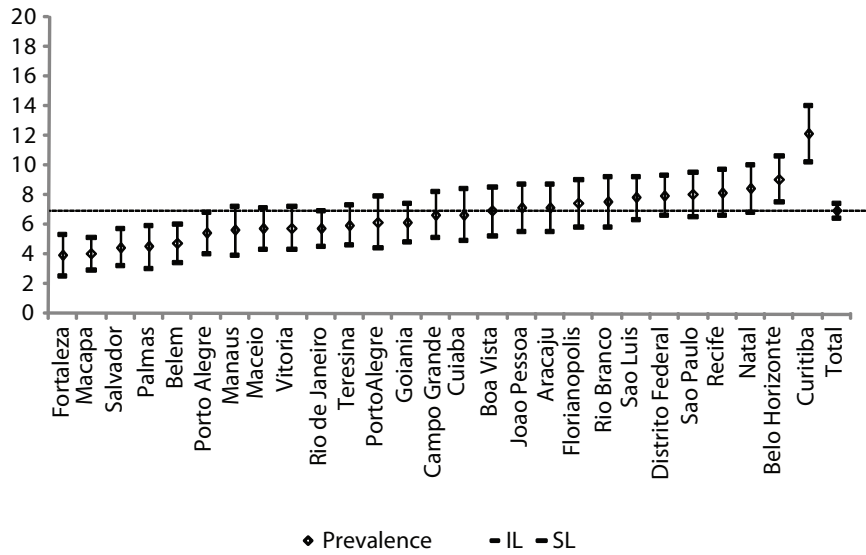Figure 3 shows the prevalence of the use of alcohol and other drugs according to age and sex. Alcohol consumption is more prevalent among individuals at the age of 12 and 13 years, and for females (20.6 *versus* 19.4 and 24.8 *versus* 23.0%, respectively). Males presented higher prevalence of alcohol use starting from the age of 14 (15.1 *versus* 13.0%). As to other illicit drugs, the age of first use varied, being more prevalent from 13 to 14 years old, especially among girls (30.4 *versus* 24.2% and 32.9 *versus* 27.6%, respectively), while for boys the age was 15 or older (15.6 *versus* 13.0%) (Figure 3). The number of alcohol doses had different distributions according to sex in two situations: consumption of less than one dose was higher among girls (29.9 *versus* 25.2%), while the consumption of more than five doses was significantly higher among boys (20.1 *versus* 15.2%) (Figure 4).

Among the adolescents who had drunk alcohol in the past 30 days, the simplest way to acquire alcohol was at parties (39.8%), followed by the purchase in markets, stores, supermarkets or bars (18.4%). Females could obtain alcohol more easily at parties (43.7 *versus* 35.1%) or at home (14.5 *versus* 11.5%). Males could get alcohol more frequently outside the household, by purchasing it in markets, stores, bars and supermarkets (23.0 *versus* 14.6%), or the street (5.0 *versus* 2.1%) (non-presented data).
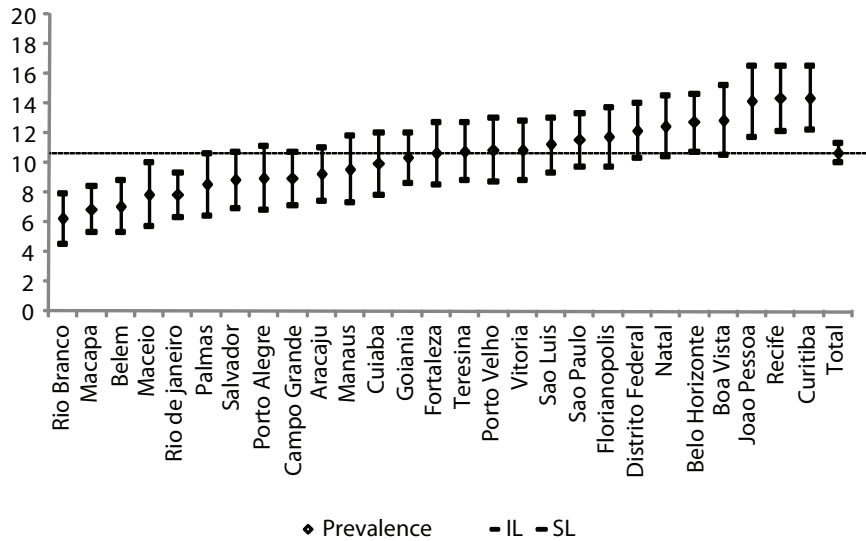
Discussion

PeNSE showed the prevalence of alcohol consumption and other drugs among students in state capitals and the Federal District. About three quarters of 13 to 15-year-old adolescents have already tried alcohol, around one quarter had regularly drunk in the past 30 days with drunkenness episodes, and 9% reported having had problems with alcohol. As to drugs, 8.7% reported having tried these substances at least once, and alcohol and drug use had happened too early. These data show the extension of the problem, which is so delicate, with Brazilian adolescents. There are different ways for

Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*

141

Rev Bras Epidemiol
2011; 14(3): 136-46

A) Sexo feminino

● Prevalence   — IL — SL

B) Sexo masculino

● Prevalence   — IL — SL

*Weighted percentage to represent the population of students enrolled in the ninth year of elementary school, in 2008.
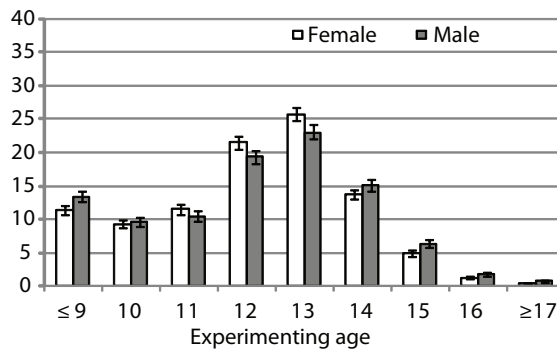**Marijuana, cocaine, crack, shoe glue, inhalants, ecstasy, among others. 95%CI: 95% Confidence Interval; IL: inferior limit; SL: superior limit. Non-informed percentage: 0.7%.
* Percentual ponderado para representar a população de escolares matriculados e frequentando o nono ano do Ensino Fundamental em 2008. ** Maconha, cocaína, crack, cola, loló, lança perfume, ecstasy, dentre outras. IC95%: intervalo de confiança de 95%; LI: limite inferior; LS: limite superior. Percentual de não informado: 0,7%
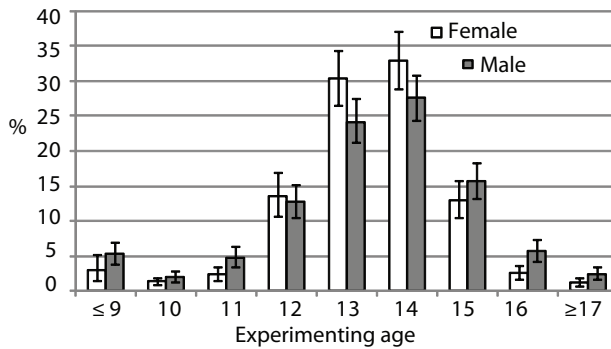
Figure 2. Prevalence* and respective 95%CI of experimenting other drugs in life, students at freshman year high school according to sex. Brazilian State Capitals and Federal District, 2009
Figura 2. Prevalência* e respectivos IC95% de experimentação de outras drogas** na vida entre escolares do nono ano do Ensino Fundamental segundo sexo. Capitais brasileiras e Distrito Federal, 2009

Rev Bras Epidemiol
2011; 14(3): 136-46   142   Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*

A) Alcohol

B) Other drugs**

Figure 3. Prevalence* and respective 95%CI of experimenting alcohol beverages and other drugs**, students at freshman year high school, according to experimenting age and sex. Brazilian State Capitals and Federal District, 2009

Figura 3. Prevalência e respectivos IC95% de consumo de álcool e outras drogas** entre escolares do nono ano do Ensino Fundamental, segundo idade de experimentação e sexo. Capitais brasileiras e Distrito Federal, 2009*

Figure 4. Prevalence* and respective 95%CI of alcohol beverage consumption referred by students at freshman year high school, according to number of glasses/doses consumed within the last 30 days and sex. Brazilian State Capitals and Federal District, 2009

Figura 4. Prevalência e respectivos IC95% de consumo de bebida alcoólica referida pelos escolares do nono ano do Ensino Fundamental, segundo número de copos/doses consumidos nos últimos 30 dias e sexo. Capitais brasileiras e Distrito Federal, 2009*

Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al.*   143   *Rev Bras Epidemiol*
2011; 14(3): 136-46

adolescents to get alcohol, especially at parties, bars, stores and even at home.

Many studies show that alcohol use among adolescents has been very common in Brazil and throughout the world. In the United States, a national study[11] revealed that the consumption of alcohol at least once was cited by 81.6% of the adolescents in 1997, and the frequency was reduced to 75% in 2007. A survey was conducted in Spain[12] and showed that alcohol use among 13 to 14-year-old students was of 35.5% among boys and 27.3% among girls; this frequency increased in the group aged 15 to 16 years to 67.6% among boys and 71.9% among girls.

A study conducted by the Brazilian Center for Drug and Alcohol[13] with 14 to 17-year-old adolescents living in 143 Brazilian cities showed that 75% of them had already consumed alcohol at least once. However, data from PeNSE presented similar prevalence levels to the ones observed in other countries, which demonstrates the extension of the problem in Brazil and throughout the world.

About 50% of the adolescents interviewed for PeNSE reported having consumed alcohol before the age of 12, information that is similar to the results observed in a study[14] with students from the public elementary and high schools of the 27 state capitals in Brazil in 2004, which showed that the average age for initiating alcohol consumption was 12.5 years.

As to current consumption, or regular consumption in the past 30 days, the proportions were also elevated in other studies. In the United States[11], 44.7% of the 14 to 17-year-old adolescents reported having drunk alcohol in the past month. In Pelotas, Rio Grande do Sul[1], a cross-sectional study showed that, in 2005 and 2006, 23% of the adolescents aged 11 to 15 years consumed alcohol in the month prior to the research, 21.7% of men and 24.2% of women. The adolescents interviewed for PeNSE also reported consuming high levels of alcohol in the previous 30 days. Generally, the studies

demonstrated that alcohol consumption has been elevated among youngsters.

A study carried out in 41 countries by the World Health Organization (WHO)[4] showed that 11% of the students (9% of girls and 13% of boys) had drunk excessively or gotten drunk at least twice. About 22% of the adolescents interviewed for PeNSE reported having been drunk at least once. This situation may be considered serious, once it increases the chances that youngsters get involved in risky episodes, such as issues with the family and friends, and also at school; these situations were reported by 9% of the students analyzed by PeNSE.

Since alcohol use is socially acceptable, and even stimulated in most countries[3], the exposure of adolescents to it has been increasing, thus, there are bigger chances of involvement in risky situations. The family is essential for the development of adolescents, thus, parental support in the activities performed by children is very important. Studies[15,16] show that when parents are worried about the activities performed by their children, they show less involvement with alcohol, drugs and tobacco. The fact that adolescents considered that 93% of the parents would be upset in case they got home drunk shows the family as a space of protection, since parents are concerned about their children and discourage risk attitudes.

The increase in drug use among youngster is a serious issue in many countries. The most consumed illicit drug in Europe and the United States is marijuana, and its use among youngsters may be a sign of psychosocial disturbances, which elevates the chances of dependence in adult life. A survey conducted by WHO[4] among adolescents in over 40 countries showed that 18% of 15-year-old adolescents had already tried marijuana during some period of life.

Usually, reports on drug use among students show that drugs such as alcohol, marijuana and tobacco are mostly used by males, while females use amphetamines

Rev Bras Epidemiol
2011; 14(3): 136-46 144 Prevalence of alcohol and drug consumption among adolescents: data analysis of the National Survey of School Health
Malta, D.C. *et al*.

and anxiolytics more frequently. Besides, licit drugs such as alcohol are used earlier when compared to psychotropic drugs[13,14]. A study conducted in 2004 with students from public elementary and high schools in the 27 state capitals showed that mean age to experiment drugs for the first time ranged from 12.5 to 14.4 years; cocaine had the highest mean (14.4 years old)[14].

Conclusions

Data from PeNSE demonstrate the severity of the problem regarding alcohol and drug use among students, showing the early exposure, the dimension of the problem (more than 70% have been exposed to alcohol, and around 8% to drugs), leading to an increasing exposure to risks. It was also observed that adolescents have easy access to alcohol at parties, bars, stores and even at home.

Alcohol and drug advertising, among other problems, causes children and adolescents to develop consumption habits[6]. In order to reduce the prevalence of experimenting and regular use of alcohol in young and vulnerable populations, society must change its passive and stimulating behavior towards the issue, recognizing the risks of early exposure and proposing control measures, such as the prohibition of alcohol advertisement, especially beer. This has been the main tool to reduce tobacco use[9].

Since the use of alcohol and drugs is associated with many other risk factors, leading to problems related to health and life of adolescents, families, schools and the society should take action to propose measures that promote health and prevent the use of such substances.

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Rev Bras Epidemiol
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