

Lifetime use of illicit drugs and associated factors among Brazilian schoolchildren, National Adolescent School-based Health Survey (PeNSE 2012)

Uso na vida de substâncias ilícitas e fatores associados entre escolares brasileiros, Pesquisa Nacional de Saúde do Escolar (PeNSE 2012)

Rogério Lessa Horta^I, Bernardo Lessa Horta^{II}, Andre Wallace Nery da Costa^{III}, Rogério Ruscitto do Prado^{IV}, Maryane Oliveira-Campos^{V,VI}, Deborah Carvalho Malta^{V,VI}

ABSTRACT: *Objective:* This study aimed at describing the prevalence of illicit drug use among 9th grade students in the morning period of public and private schools in Brazil, and assessing associated factors. *Method:* The Brazilian survey PeNSE (National Adolescent School-based Health Survey) 2012 evaluated a representative sample of 9th grade students in the morning period, in Brazil and its five regions. The use of illicit drugs at least once in life was assessed for the most commonly used drugs, such as marijuana, cocaine, crack, solvent-based glue, general ether-based inhalants, ecstasy and oxy. Data were subjected to descriptive analysis, and Pearson's χ^2 test and logistic regression was used in the multivariate analysis. *Results:* The use of illicit drugs at least once in life was reported by 7.3% (95%CI 5.3 – 9.4) of the respondents. Logistic regression was used for multivariate analysis and the evidences suggest that illicit drug use is associated to social conditions of greater consumption power, the use of alcohol and tobacco, behaviors related to socialization, such as having friends or sexual activity, and also the perception of loneliness, loose contact between school and parents and experiences of abuse in the family environment. The outcome was inversely associated with close contact with parents and parental supervision. *Conclusion:* In addition to the association with the processes of socialization and consumption, the influence of family and school is expressed in a particularly protective manner in different records of direct supervision and care.

Keywords: Street drugs. Schools. Prevalence. Adolescent. Surveys. Behavior.

^IPostgraduate Program of Collective Health, *Universidade do Vale do Rio dos Sinos* – São Leopoldo (RS), Brazil.

^{II}Postgraduate Program of Epidemiology at *Universidade Federal de Pelotas* – Pelotas (RS), Brazil.

^{III}Brazilian Institute of Geography and Statistics – Rio de Janeiro (RJ), Brazil.

^{IV}*Universidade de São Paulo* – São Paulo (SP), Brazil.

^VHealth Surveillance Secretariat, Ministry of Health – Brasília (DF), Brazil.

^{VI}*Universidade Federal de Minas Gerais* – Belo Horizonte (MG), Brazil.

Corresponding author: Rogério Lessa Horta. Rua Jari, 671, apartamento 703, Passo D'Areia, CEP: 91350-170, Porto Alegre, RS, Brasil. E-mail: rogeriohortamed@gmail.com

Conflict of interests: nothing to declare – **Financing source:** none.

RESUMO: *Objetivo:* Descrever a prevalência do uso de drogas ilícitas entre estudantes da 9ª série do turno diurno de escolas públicas e privadas do Brasil, identificando os fatores associados. *Método:* Foram analisados dados da PeNSE (Pesquisa Nacional de Saúde do Escolar) 2012, com recorte para os estudantes da 9ª série diurna do Brasil e das cinco Regiões. A experimentação de drogas ilícitas alguma vez na vida foi avaliada para as drogas mais comumente usadas, tais como: maconha, cocaína, crack, cola, loló, lança perfume, ecstasy ou oxy. Os dados foram submetidos a análise descritiva e teste do χ^2 de Pearson e cálculo do *Odds Ratio* (OR) bruto e ajustado, por regressão logística. *Resultados:* O consumo de drogas ilícitas, pelo menos uma vez na vida, foi relatado por 7,3% (IC95% 5,3 – 9,4) dos entrevistados. As evidências sugerem que o uso de drogas ilícitas está relacionado a condições sociais de maior poder de consumo, ao uso de álcool e tabaco, aos comportamentos relativos à socialização, como ter amigos ou atividade sexual, e também à percepção de solidão, contato frouxo entre escola e pais e vivências de agressões no ambiente familiar. O desfecho esteve inversamente associado ao contato próximo e supervisão dos pais. *Conclusão:* Além das evidências de associação com os processos de socialização e consumo, a influência da família e da escola se expressa de modo particularmente protetor em diferentes registros de supervisão e cuidados diretos. *Palavras-chave:* Drogas ilícitas. Escolas. Prevalência. Adolescente. Inquéritos. Comportamento.

INTRODUCTION

Drug use in childhood and adolescence is associated both to conditions of vulnerability during childhood (living in the streets, experiencing abuse and violence), and to the abuse and dependence of substances in adulthood^{1,2}. School and family are emphasized when it comes to the use of substances by adolescents, since the first contacts with drugs usually take place in known environments, with people who are part of relationship circles³. The school environment has the potential for investments in terms of health promotion^{2,4,5}.

Numberless factors illustrate the complexity of the phenomenon and are associated with drug use among students. Characteristics related to families, religion and relationships with friends are some of them^{6,7}. Students who are exposed to social disadvantages or those with family history involving drug use^{8,9} have higher chance of initiating the use of substance at an early age. When consumption begins in early stages of development, it increases the probability of poor school performance, history of impulsive behaviors and affiliation to groups with history of delinquency^{10,11}. Countries with high use of marijuana reported that the temporal order of use initiation is given by alcohol and tobacco, followed by marijuana and, afterwards, other illicit drugs^{12,13}. This sequence is not homogeneous for all countries¹⁰.

Most Brazilian students had never tried illicit drugs in PeNSE 2009¹⁴, but analysis of temporal tendency with students attending public schools in Brazilian capitals show an increasing report of marijuana and cocaine use^{15,16}.

This study aimed at describing the prevalence of illicit drug use among 9th graders from the daytime period of public and private schools in Brazil, and also at verifying the factors that are associated with this behavior.

METHOD

A cross-sectional study (National Adolescent School-Based Health Survey – PeNSE) conducted with 9th graders in elementary school (former 8th grade) in the daytime period of public and private schools. The study was carried out in 2012 by IBGE (Brazilian Institute of Geography and Statistics), together with the Ministry of Health. The sample represented Brazil, its five regions and the 26 Brazilian State capitals, as well as the Federal District, forming 27 geographic strata. Cities that are not capitals were grouped into five strata, corresponding to the five regions in the country. The sample of each stratum was allocated proportionally to the number of schools, according to its administration (public or private). For each stratum, a two-stage cluster sample was selected: in the 1st stage, schools; in the 2nd stage, eligible classrooms in the selected schools. In the stratum formed by non-capitals, it was chosen to group them according to criteria of homogeneity and closeness, therefore obtaining groups of 300 to 600 classrooms, approximately; one sample of these groups was selected in each region. Afterwards, schools were selected. For non-capitals, the primary sampling units were the groups of cities; secondary units were schools; and tertiary units were the classrooms in these schools. Schools with less than 15 students in the analyzed grade (less than 1% of the total of students) and evening classrooms were excluded. Teams from IBGE visited the chosen classrooms in each school, and all of the students in the selected classrooms who were present on the day of data collection were invited to participate in the study. Students answered the questionnaire autonomously, via smartphone, after they were informed that their participation would be voluntary and anonymous, with the possibility of not responding. For this study, the 2012 data base (n = 109,104) was analyzed, focusing on Brazil and its five geographic regions.

The outcome is the lifetime use of illicit drugs, which was obtained by means of a direct question indicating as examples of drugs: marijuana, cocaine, crack, solvent-based glue, general ether-based inhalants, ecstasy, and oxy. The following demographic and socioeconomic variables were assessed: age, sex, ethnicity/color, maternal schooling and insertion of the interviewee in the work market. Factors related to school and family were: type of school (public, private), missing classes without parental permission in the past 30 days, having been bullied, report of family aggression in the past 30 days, living with father and/or mother, perception of the interviewee as to receiving family supervision, the fact that parents would mind if the participant were to drink, and frequency of meals with father and/or mother.

Behavioral and health variables were also assessed: use of tobacco and alcohol in life, use of tobacco and alcohol in the past 30 days, sexual activity; one hour a day or more of physical activity, intake of fruits 3 or more days a week; self-perception of loneliness in the past 12 months, insomnia in the past 12 months, report of having close friends.

The collected data were analyzed with the statistical package SPSS. Pearson χ^2 test was used in the comparison between proportions, with a 5% significance level, and by the crude and adjusted Odds Ratio (OR), by the multivariate analysis, with 95% confidence interval (95%CI). The model included the independent variables that presented association with the outcome ($p < 0.20$).

The age of using the first illicit substance was analyzed separately, only for students aged 14 years old ($n = 50,767$), so that all of them had the same chance of registering the initiation in each age up to 14 years old.

The study was approved by the Ethics Research Council of the Ministry of Health, report n. 192/2012, referring to registration n. 16805 of CONEP/MS, on 27/03/2012.

RESULTS

The prevalence of lifetime use of illicit drugs was of 7.3% (95%CI 5.3 – 9.4). Figure 1 shows that the highest prevalence of lifetime use of illicit drugs was observed in the Center-West region, while the Northeast region had the lowest prevalence.

Table 1 shows that, for Brazil, among the interviewed boys, the prevalence of lifetime use of illicit drugs was of 7.9% (95%CI 7.6 – 8.2) and, among girls,

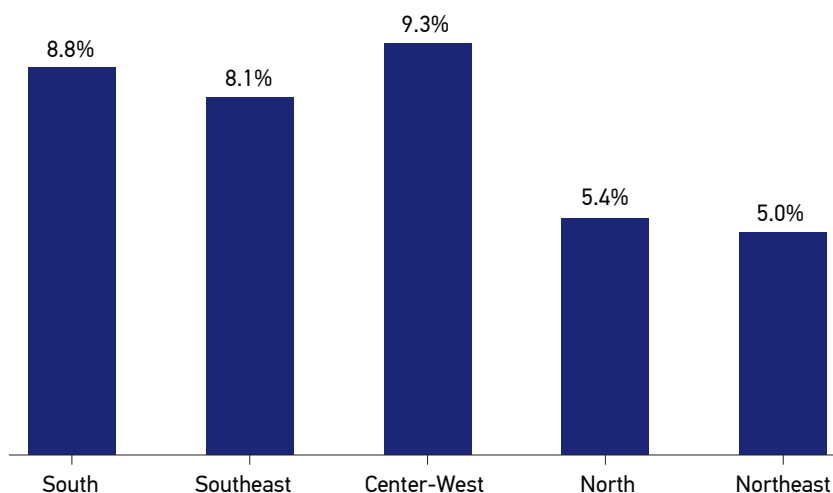


Figure 1. Prevalence of lifetime use of illicit drugs according to country region, Brazil, PeNSE 2012 ($n = 109,104$).

Table 1. Prevalence and Odds Ratio, with respective confidence intervals, for lifetime use of illicit drugs according to socioeconomic, demographic and family-related variables among 9th graders, Brazil, PeNSE 2012 (n = 109,104).

| Variable | Lifetime use of illicit drugs | |
|-------------------------------------|-------------------------------|--------------------|
| | Prevalence (95%CI) | OR (95%CI) |
| Age (years) | p < 0.001 | |
| < 13 | 6.0 (4.5 – 7.8) | 0.54 (0.40 – 0.72) |
| 13 | 4.5 (4.1 – 4.8) | 0.40 (0.37 – 0.43) |
| 14 | 6.2 (5.9 – 6.6) | 0.56 (0.53 – 0.60) |
| 15 | 9.7 (9.1 – 10.4) | 0.91 (0.85 – 0.98) |
| ≥ 16 | 10.6 (10.1 – 11.1) | 1.00 |
| Sex | p < 0.001 | |
| Female | 6.3 (6.1 – 6.5) | 1.00 |
| Male | 7.9 (7.6 – 8.2) | 1.28 (1.22 – 1.34) |
| Race or ethnicity | p < 0.001 | |
| White | 7.2 (7.0 – 7.5) | 1.00 |
| Black | 8.6 (8.0 – 9.1) | 1.20 (1.12 – 1.29) |
| Yellow | 8.6 (7.8 – 9.5) | 1.21 (1.08 – 1.35) |
| Mulatto | 6.1 (5.8 – 6.5) | 0.84 (0.80 – 0.89) |
| Indigenous | 8.6 (7.7 – 9.6) | 1.21 (1.07 – 1.36) |
| Maternal schooling | p = 0.002 | |
| No schooling | 6.4 (5.8 – 7.1) | 1.00 |
| Elementary school (complete or not) | 7.0 (6.5 – 7.6) | 1.10 (1.01 – 1.21) |
| High school (complete or not) | 7.5 (6.9 – 8.1) | 1.19 (1.08 – 1.30) |
| Higher education (complete or not) | 7.3 (6.8 – 7.8) | 1.15 (1.03 – 1.29) |
| Currently working | p < 0.001 | |
| No | 6.2 (6.1 – 6.3) | 1.00 |
| Yes | 12.8 (12.2 – 13.5) | 2.23 (2.11 – 2.36) |
| Living with mother and/or father | p < 0.001 | |
| No | 10.1 (9.4 – 10.9) | 1.00 |
| Yes | 6.9 (6.3 – 7.5) | 0.66 (0.60 – 0.72) |

continue...

Table 1. Continuation.

| Variable | Lifetime use of illicit drugs | |
|---|-------------------------------|--------------------|
| | Prevalence (95%CI) | OR (95%CI) |
| Frequency of meals with people in charge | p < 0.001 | |
| Never | 11.5 (11.0 – 12.1) | 1.00 |
| Up to twice a week | 8.4 (7.9 – 9.0) | 0.71 (0.65 – 0.76) |
| 3 to 4 times a week | 8.7 (7.9 – 9.6) | 0.73 (0.66 – 0.82) |
| 5 or more times a week | 5.7 (5.4 – 6.1) | 0.47 (0.44 – 0.50) |
| Family supervision | p < 0.001 | |
| No | 9.7 (9.4 – 10.0) | 1.00 |
| Yes | 5.2 (4.9 – 5.4) | 0.51 (0.48 – 0.53) |
| Perception of parents' reaction in case of drinking | p < 0.001 | |
| Would mind it a lot | 5.8 (5.3 – 6.2) | 1.00 |
| Would mind it a little | 18.2 (16.8 – 19.7) | 3.64 (3.39 – 3.89) |
| Would not mind | 18.3 (17.2 – 19.4) | 3.66 (3.38 – 3.96) |
| Family aggression | p < 0.001 | |
| No | 6.2 (6.0 – 6.3) | 1.00 |
| Yes | 14.4 (13.7 – 15.2) | 2.57 (2.43 – 2.73) |

of 6.3% (95%CI 6.1 – 6.5). The difference between sexes was statistically significant at crude analysis, but it did not continue after the adjusted analysis.

The use of illicit drugs increases with the age of the interviewee (Table 1). The lifetime use of illicit drugs was also more frequent among adolescents whose mothers had complete or incomplete higher education (Prevalence = 7.3; 95%CI 6.8 – 7.8), and among the participants who were inserted in the work market. Table 3 shows that chance of lifetime use of illicit drugs was lower when students reported the habit of having meals with fathers and/or mothers on five days or more during the week (OR = 0.76; 95%CI 0.69 – 0.84) and when they felt they were being supervised at home (OR = 0.83; 95%CI 0.78 – 0.89). On the other hand, the perception that parents would not mind in case they consumed alcohol (OR = 1.44; 95%CI 1.27 – 1.64) and the report of having experienced family aggression (OR = 1.28; 95%CI 1.17 – 1.41) increased the chances of having tried illicit drugs.

Table 2 shows that missing classes for three or more days without notifying parents, in a 30-day interval, appears as an associated condition to the use of illicit drugs. Participants who have been bullied had more chance of having tried

Table 2. Prevalence and Odds Ratio, with their respective confidence intervals, for lifetime use of illicit drugs according to variables related to school and health among 9th graders, Brazil, PeNSE 2012 (n = 109,104).

| Variable | Lifetime use of illicit drugs | |
|---|-------------------------------|-----------------------|
| | Prevalence (95%CI) | OR (95%CI) |
| School | p = 0.010 | |
| Private | 6.3 (6.0 – 6.7) | 1.00 |
| Public | 7.2 (6.8 – 7.7) | 1.15 (1.08 – 1.23) |
| Missing school without notifying the parents (in 30 days) | p < 0.001 | |
| Never | 5.5 (5.4 – 5.7) | 1.00 |
| One or two days | 9.4 (8.9 – 9.9) | 1.77 (1.67 – 1.88) |
| Three or more days | 15.9 (15.1 – 16.8) | 3.25 (3.05 – 3.46) |
| Victim of bullying | p < 0.001 | |
| Yes | 9.4 (8.8 – 10.1) | 1.42 (1.31 – 1.53) |
| No | 6.9 (6.7 – 7.0) | 1.00 |
| Lifetime use of tobacco | p < 0.001 | |
| Yes | 24.7 (23.8 – 25.7) | 11.50 (10.97 – 12.15) |
| No | 2.8 (2.7 – 2.9) | 1.00 |
| Recent use of tobacco | p < 0.001 | |
| Yes | 44.1 (42.6 – 45.6) | 14.72 (13.86 – 15.63) |
| No | 5.1 (4.9 – 5.2) | 1.00 |
| Lifetime use of alcohol | p < 0.001 | |
| Yes | 9.9 (9.1 – 10.7) | 7.70 (7.03 – 8.43) |
| No | 1.4 (1.3 – 1.5) | 1.00 |
| Recent use of alcohol | p < 0.001 | |
| Yes | 16.7 (16.0 – 17.4) | 5.27 (5.03 – 5.54) |
| No | 3.7 (3.5 – 3.8) | 1.00 |
| Feeling lonely | p < 0.001 | |
| No | 6.6 (6.4 – 6.8) | 1.00 |
| Yes | 9.4 (9.0 – 9.9) | 1.48 (1.40 – 1.56) |

continue...

Table 2. Continuation.

| Variable | Lifetime use of illicit drugs | |
|---------------------------------------|-------------------------------|--------------------|
| | Prevalence (95%CI) | OR (95%CI) |
| Insomnia | p < 0.001 | |
| No | 6.5 (6.4 – 6.7) | 1.00 |
| Yes | 11.7 (11.0 – 12.3) | 1.89 (1.77 – 2.01) |
| Friends | p < 0.001 | |
| 1 or more | 6.9 (6.3 – 7.7) | 1.00 |
| None | 10.3 (9.4 – 11.3) | 1.55 (1.39 – 1.72) |
| Sexual activity | p < 0.001 | |
| No | 3.4 (3.3 – 3.5) | 1.00 |
| Yes | 16.2 (15.5 – 16.9) | 5.53 (5.26 – 5.81) |
| Daily physical activity | p = 0.020 | |
| < 1 hour | 6.7 (6.5 – 7.0) | 1.00 |
| ≥ 1 hour | 7.2 (6.8 – 7.5) | 1.07 (1.01 – 1.13) |
| Intake of fruits 3 or more times/week | p < 0.001 | |
| No | 7.4 (7.2 – 7.7) | 1.00 |
| Yes | 6.7 (6.4 – 7.0) | 0.89 (0.85 – 0.93) |

illicit drugs (Prevalence = 9.4; 95%CI 8.8 – 10.1). The prevalence of lifetime use of illicit drugs among sexually active students was of 16.2% (95%CI 15.5 – 16.9), against 3.4% (95%CI 3.3 – 3.5) for the ones who claimed to have never had sexual intercourse. Addictive behaviors, such as the consumption of alcohol and tobacco, were associated with the experimentation of illicit drugs. Healthy dietary habits, expressed by the regular intake of fruits, is inversely associated with the outcome (OR = 0.88; 95%CI 0.82 – 0.95), while the regular practice of one hour or more of daily physical activity is associated to it (OR = 1.07; 95%CI 1.00 – 1.15).

The following variables did not remain after the adjusted analysis; therefore, they are not demonstrated in Table 3: sex of the participants, living with father and/or mother, use of alcohol in life, use of tobacco in life, insomnia in the past 12 months and report of having been bullied. As to maternal schooling, having meals with father and/or mother, being supervised by the parents, family aggression and other addictive behaviors remained associated with the report of lifetime use of illicit drugs.

Table 3. Odds Ratio (OR), with their respective confidence intervals, for lifetime use of illicit drugs, with adjusted estimates for all variables in the model, among 9th graders, Brazil, PeNSE, 2012 (n = 109,104).

| Variables | OR | 95%CI |
|---|------|-------------|
| Age (years) | | |
| < 13 | 0.96 | 0.59 – 1.57 |
| 13 | 0.92 | 0.81 – 1.05 |
| 14 | 1.14 | 1.03 – 1.26 |
| 15 | 1.19 | 1.07 – 1.32 |
| ≥ 16 | 1.00 | |
| Race or ethnicity | | |
| White | 1.00 | |
| Black | 1.04 | 0.94 – 1.15 |
| Yellow | 1.05 | 0.89 – 1.25 |
| Mulatto | 0.82 | 0.76 – 0.89 |
| Indigenous | 0.94 | 0.79 – 1.13 |
| Maternal schooling | | |
| No schooling | 1.00 | |
| Elementary school (complete or not) | 1.37 | 1.20 – 1.56 |
| High school (complete or not) | 1.50 | 1.31 – 1.72 |
| Higher education (complete or not) | 1.73 | 1.47 – 2.04 |
| Currently working | | |
| No | 1.00 | |
| Yes | 1.23 | 1.13 – 1.34 |
| Frequency of meals with people in charge | | |
| Never | 1.00 | |
| Up to twice a week | 0.92 | 0.82 – 1.04 |
| 3 to 4 times a week | 1.13 | 0.97 – 1.31 |
| 5 or more times a week | 0.76 | 0.69 – 0.84 |
| Family supervision | | |
| No | 1.00 | |
| Yes | 0.83 | 0.78 – 0.89 |
| Perception of parents' reaction in case of drinking | | |
| Would mind it a lot | 1.00 | |
| Would mind it a little | 1.62 | 1.46 – 1.79 |
| Would not mind | 1.44 | 1.27 – 1.64 |

Table 3. Continuation.

| Variables | OR | 95%CI |
|---|------|-------------|
| Family aggression | | |
| No | 1.00 | |
| Yes | 1.28 | 1.17 – 1.41 |
| School | | |
| Private | 1.00 | |
| Public | 0.90 | 0.81 – 0.99 |
| Missing school without notifying the parents (in 30 days) | | |
| Never | 1.00 | |
| Once or twice a month | 1.03 | 0.94 – 1.12 |
| 3 or more days in the month | 1.30 | 1.18 – 1.45 |
| Recent tobacco use | | |
| No | 1.00 | |
| Yes | 5.98 | 5.46 – 6.54 |
| Recent tobacco use | | |
| No | 1.00 | |
| Yes | 2.22 | 2.06 – 2.40 |
| Feeling longely (past 12 months) | | |
| No | 1.00 | |
| Yes | 1.19 | 1.09 – 1.30 |
| Friends | | |
| None | 1.00 | |
| 1 or more | 1.38 | 1.17 – 1.62 |
| Sexual activity | | |
| No | 1.00 | |
| Yes | 2.80 | 2.59 – 3.02 |
| Daily physical activity | | |
| < 1 hour | 1.00 | |
| ≥ 1 hour | 1.07 | 1.00 – 1.15 |
| Eating fruits regularly | | |
| No | 1.00 | |
| Yes (3 or more times a week) | 0.88 | 0.82 – 0.95 |

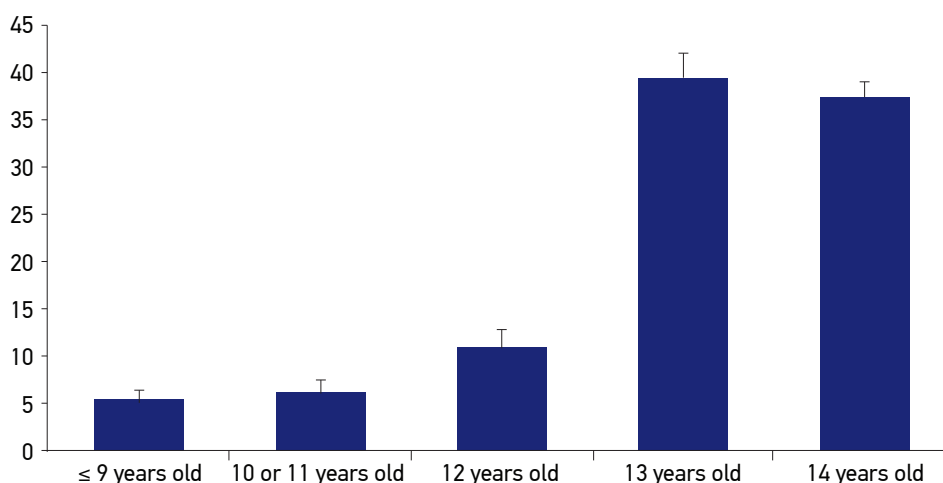


Figure 2. Distribution of 14-year old 9th graders who reported to have used illicit drugs at some point in life, according to the age of first experience, Brazil, PeNSE 2012 (n = 2,335).

Among 14-year old students (n = 50,767), 95.4% (95%CI 94.1 – 96.7) never tried drugs. Among those who reported having tried it (n = 2,335; 4.6%), most of them did it at the age of 13 and 14 years old (Figure 2).

DISCUSSION

In Brazil, concerns about the increasing prevalence of drug use are not new, due to its early initiation and the insufficient resources for the effective control and regulation of the market of these products^{15,17,18}. The effort of market expansion is known to all of the productive sectors, and the publicity of products in each industry usually translates the strategic options of this sector. There is no official market for illicit substances, but by making an analogy with the alcohol and tobacco industries, it is known that younger populations are the preferential audience for the expansion and consolidation of markets¹⁹⁻²¹. The earlier consumption starts, the longer the period of life in which it can be maintained, and the higher the chances of establishing dependence. This evidence and the observation that the first contact of the adolescent with drugs usually occurs in known environments demonstrate the importance of following up the indicators of drug use among students³⁻⁵.

The increasing number of users and the alarm caused by social mobilization, especially about crack, create an expectation regarding the expansion of demands about public services and policies coming from different social sectors²². This reinforces the indication of sectorial

studies by groups of substances, such as the assessment of indicators that are specifically related to the use of illicit drugs.

The fact that the difference between sexes did not remain in the adjusted analysis corroborates the idea of a tendency to homogenization of habits related to the consumption of substances between sexes in younger groups, as presented by some studies^{18,23}. For Austin and Hust²⁴, teenage girls are one of the audiences that are mostly exposed to alcohol publicity, and the herein presented evidence shows strong relationship between the intake of alcohol and illicit drug use at least once in life.

The prevalence of lifetime use of illicit drugs points out to the relevance and the opportunity for schools to establish monitoring and intervention actions in situations in which the occurrence of such behavior is observed. This must include the establishment of effective and affective limits, in the broad meaning of care.

It is also opportune that teachers and school administrators pay attention to the associations between illicit drug use and family variables that have analogue functions at school (presence of a caretaker, supervision of the students and expectation of the reaction facing the use of a substance). Supervision and care ensure the fastest detection of markers, such as the recurring unjustified absence in school without notifying the parents, which is also associated with the use of illicit substances.

Among family variables, the fact of parents and children living together did not remain as an associated condition in the final adjusted analysis model. A previous population-based study²⁵ discussed this subject and showed that the effect of such a condition was not homogeneous for all groups of substances. The data here show that the protective capacity of families was focused on the variables that demonstrated more direct patterns of care. Paiva and Ronzani²⁶ also observed that a negligent behavior from parents is associated to the more frequent consumption of substances by the children, while support, monitoring and involvement were associated to lower prevalence. Parental styles and practices that are considered to be negligent or authoritarian are associated to higher risks of physical abuse against children and adolescents²⁷, and also to higher prevalence rates of substance use^{26,27}. In this analysis, the reference to experiences of aggression in the family environment increased the chances of illicit drug use.

While parental supervision, support and care had an inverse association with the use of illicit drugs by the children, maternal schooling was associated with higher chances for this behavior. Besides, the highest prevalence rates in regions of the country with higher GDP (Gross Domestic Product) and the significant associations of illicit drug use with the private schools indicate that the use of illicit substances is more expanded in places of more purchasing power. On the contrary, the association between drug use and low socioeconomic status was observed among children living in the street²⁸. The combination of these findings may indicate that socioeconomic extremes bring children and adolescents closer to the contact with illicit substances. It is also likely that children living in the street are not inserted in regular educational facilities, therefore they are not represented in PeNSE, but this was not observed in data collection.

The economic indicator should not be overestimated in processes that involve the capacitation of schools and caretakers concerning preventive actions in relation to illicit drugs, because this would determine prejudice and exclusion. The evidence that supervision, closeness with the students, and early intervention can make a difference is more important. The recurring unjustified absence in school can be an example of opportunity to establish care actions at school. The stimulus and the mobilization of the family to the supervision and reaction facing evidence such as recurring absence or indications of social isolation are also essential.

Be it in school or not, the practice of sports and physical activity are usually pointed out as options to engage adolescents in the prevention of drug use. Data from PeNSE 2012 indicate, however, that regular physical activities for more than 1 hour a day has been weak. On the other hand, it has been significantly associated with illicit drug use, even after the adjusted analysis. Literature has been controversial with regard to this relationship²⁹. Athletes gain social prominence and are more easily connected to groups, and this can facilitate invitations to use alcohol and other drugs among peers^{29,30}.

Drug use was mentioned in a data analysis from PeNSE 2009³¹ as a group identifier or as a facilitator facing the anxieties that are inherent to social experiences, which can be expressed, for instance, in sexual behaviors³². In the adjusted analysis of data from 2012, the association between illicit drug use and sexual activity among students reappears.

Since this is a cross-sectional study, it is not possible to determine causality relations, but care actions towards the behaviors analyzed here are considered to be a responsibility of education institutions, due to their relevance in terms of health promotion.

Brazil has public policies addressed to health promotion at school, which are consolidated by the Program Health at School (PSE), with actions that promote healthy dietary habits, peace culture and human rights. It also promotes the prevention and reduction of alcohol and tobacco consumption, as well as other drugs, and the promotion of sexual and reproductive health, including periodic health evaluations of students in the school environment³³.

CONCLUSION

The results of this study show there is no significant difference between sexes and that the use of illicit drugs is strongly associated with higher purchasing power, use of alcohol and tobacco, behaviors related to socialization, such as having friends or sexual activity, and also to the perception of loneliness and experiences of aggression in the family environment.

The influence of family and school is expressed in a particularly protective manner in different registers of supervision and direct care. It is important to follow up the students since elementary school, thus proposing creative and adapted preventive actions for these grades, since they represent a vulnerable population to the experimentation of illicit drugs.

The data in this analysis reinforce the indication that psychoactive substances and their use are cross-sectional themes integrated to priority themes, which are carefully planned in the daily routine of schools. It is essential to sensitize caretakers as to their importance, since they are agents of supervision, regulation of behaviors and source of connection and affective exchange.

REFERENCES

1. Fergusson DM, Boden JM, Horwood LJ. The developmental antecedents of illicit drug use: evidence from a 25-year longitudinal study. *Drug Alcohol Depend* 2008; 96(1-2): 167-77.
2. Lascala E, Friesthler B, Gruenwald PJ. Population ecologies of drug use, drinking and related problems. In: Stockwell T, Gruenwald P, Toumbourou J, Loxley W, editors. *Preventing harmful substance use: the evidence base for policy and practice*. Chichester: John Wiley and Sons; 2005.
3. Faggiano F, Vigna-Taglianti FD, Versino E, Zambon A, Borraccino A, Lemma P. School-based prevention for illicit drugs use: a systematic review. *Prev Med* 2008; 46(5): 385-96.
4. Burrone MS, Bueno SMV, Jr MLd, Enders J, Ruth AF, Vasters GP. Análisis de la frecuencia de experimentación y consumo de drogas de alumnos de escuelas de nivel medio. *Rev Latino-Am Enfermagem* 2010; 18: 648-54.
5. Fothergill KE, Ensminger ME, Green KM, Crum RM, Robertson J, Juon HS. The impact of early school behavior and educational achievement on adult drug use disorders: a prospective study. *Drug Alcohol Depend* 2008; 92(1-3): 191-9.
6. Guimarães JL, Godinho PH, Cruz R, Kappann JI, Tosta Junior LA. Consumo de drogas psicoativas por adolescentes escolares de Assis, SP. *Rev Saúde Pública* 2004; 38: 130-2.
7. Soldera M, Dalgalarondo P, Corrêa Filho HR, Silva CAM. Uso de drogas psicotrópicas por estudantes: prevalência e fatores sociais associados. *Rev Saúde Pública* 2004; 38: 277-83.
8. Cohen DA, Richardson J, LaBree L. Parenting behaviors and the onset of smoking and alcohol use: a longitudinal study. *Pediatrics* 1994; 94(3): 368-75.
9. Cohen J, McCabe L, Michelli NM, Pickeral T. School climate: Research, policy, practice and teacher education. *Teachers College Record* 2009; 111(1): 180-213.
10. Degenhardt L, Dierker L, Chiu WT, Medina-Mora ME, Neumark Y, Sampson N, et al. Evaluating the drug use "gateway" theory using cross-national data: consistency and associations of the order of initiation of drug use among participants in the WHO World Mental Health Surveys. *Drug and Alcohol Depend* 2010; 108(1-2): 84-97.
11. Flewelling RL, Bauman KE. Family structure as a predictor of initial substance use and sexual intercourse during early adolescence. *J Marriage Fam* 1990; 52(1): 171-81.
12. Kandel DB, Yamaguchi K, Klein LC. Testing the gateway hypothesis. *Addiction* 2006; 101(4): 470-72.
13. Hall WD, Lynskey M. Is cannabis a gateway drug? Testing hypotheses about the relationship between cannabis use and the use of other illicit drugs. *Drug Alcohol ver* 2005 24(1): 39-48.
14. Malta DC, Mascarenhas MDM, Porto DL, Duarte EA, Sardinha LM, Barreto SM, et al. Prevalência do consumo de álcool e drogas entre adolescentes: análise dos dados da Pesquisa Nacional de Saúde Escolar. *Rev Bras Epidemiol* 2011; 14(1): 136-46.
15. Galduróz JCF, Noto AR, Fonseca AM, Carlini EA. V Levantamento Nacional Sobre o Consumo de Drogas Psicotrópicas entre Estudantes do Ensino Fundamental e Médio da Rede Pública de Ensino nas 27 Capitais Brasileiras. São Paulo: Centro Brasileiro de Informações Sobre Drogas Psicotrópicas. Universidade Federal de São Paulo; 2004.
16. Carlini ELA, Noto AR, Sanchez ZM, Carlini CMA, Locatelli DP, Abeid LR, et al. VI Levantamento Nacional sobre o Consumo de Drogas Psicotrópicas entre Estudantes do Ensino Fundamental e Médio das Redes Pública e Privada de Ensino nas 27 Capitais Brasileiras. Brasília: Centro Brasileiro de Informações Sobre Drogas Psicotrópicas. Universidade Federal de São Paulo; 2010.
17. Galduróz JCF, Noto AR, Carlini EA. Tendências do uso de drogas no Brasil: síntese dos resultados obtidos sobre o uso de drogas entre estudantes de 1º e 2º graus em 10 capitais brasileiras. São Paulo: Centro Brasileiro de Informações Sobre Drogas Psicotrópicas. Universidade Federal de São Paulo; 1997.
18. Horta RL, Horta BL, Pinheiro RT, Morales B, Strey MN. Tobacco, alcohol, and drug use by teenagers in Pelotas, Rio Grande do Sul State, Brazil: a gender approach. *Cad Saúde Pública* 2007; 23(4): 775-83.
19. Pinsky I, Sanchez M, Zaleski M, Laranjeira R, Caetano R. Exposure to alcohol advertising among youngsters in Brazil: results from the 2006 Brazilian national survey. *Alcohol Clin Exp Res* 2007; 31(6): 245.
20. Pinsky I, Jundi SARJE. O impacto da publicidade de bebidas alcoólicas sobre o consumo entre jovens: revisão da literatura internacional. *Rev Bras Psiquiatr* 2008; 30(4): 362-74.
21. Horta RL, Rodrigues VS, Horta CL. As Drogas Estão na Rede Mundial de Computadores. E as Famílias com isso? In: Munhoz MLP, Vitale MAF, editors. *Terapia Familiar em Pesquisa: Novas Contribuições*. São Paulo: ROCA; 2012. p. 291-301.

22. Seibel S. Equilíbrio precário no uso das pedras. *Scientific American Brasil* 2010; 38: 23-31.
23. Malbergier A, Cardoso LRD, Amaral RAd, Santos VCV. Gender parity and drug use: are girls catching up with boys? *Rev Bras Psiquiatr* 2012; 34: 16-23.
24. Austin EW, Hust SJ. Targeting adolescents? The content and frequency of alcoholic and nonalcoholic beverage ads in magazine and video formats November 1999-April 2000. *J Health Commun* 2005; 10(8): 769-85.
25. Horta RL, Horta BL, Pinheiro RT. Drogas: famílias que protegem e que expõem adolescentes ao risco. *J Bras Psiquiatr* 2006; 55(4): 268-72.
26. Paiva FS, Rozani TM. Estilos parentais e consumo de drogas entre adolescentes: revisão sistemática. *Psicol Estud* 2009; 14(1): 177-83.
27. Cecconello AM, De Antoni C, Koller SH. Práticas educativas, estilos parentais e abuso físico no contexto familiar. *Psicol Estud* 2003; 8(1): 45-54.
28. Noto A, Galduróz J, Nappo SA, Fonseca AM, Carlini CM, Moura YGd, et al. Levantamento Nacional sobre o uso de drogas entre crianças e adolescentes em situação de rua nas 27 capitais brasileiras. São Paulo: Centro Brasileiro de Informações Sobre Drogas Psicotrópicas; 2003.
29. Lisha NE, Sussman S. Relationship of high school and college sports participation with alcohol, tobacco, and illicit drug use: a review. *Addict Behav* 2010; 35(5): 399-407.
30. Mays D, Thompson N, Kushner HI, Mays DF, Farmer D, Windle M. Sports-specific factors, perceived peer drinking, and alcohol-related behaviors among adolescents participating in school-based sports in Southwest Georgia. *Addict Behav* 2010; 35(3): 235-41.
31. Instituto Brasileiro de Geografia e Estatística (Brasil). Pesquisa Nacional de Saúde do Escolar - PENSE 2009. Rio de Janeiro: IBGE; 2010.
32. Oliveira-Campos M, Giatti L, Malta D, Barreto SM. Contextual factors associated with sexual behavior among Brazilian adolescents. *Ann Epidemiol* 2013; 23(10): 629-35.
33. Ministério da Saúde (Brasil). Programa Saúde na Escola. 2010. Disponível em http://dab.saude.gov.br/programa_saude_na_escola.php.

Received on: 11/24/2013

Final version presented on: 04/09/2014

Accepted on: 04/11/2014