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Access to information in school and the use of psychoactive substances in Brazilian students – A multilevel study

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ABSTRACT

Introduction: Use of tobacco, alcohol and other drugs can be considered a global health problem, which typically begins in adolescence. Unsupervised access to information may arouse the adolescent's interest and predispose the use of drugs.

Methodology: This is a cross-sectional study using data from National School-based Health Survey (PeNSE, 2012), with sample of 109,104 Brazilian students in 42.717 schools. Outcomes were: self-reported use of alcohol, tobacco, and other drugs in the past 30 days. Main exposures were contextual and included: library and media resources availability, computer room and internet available at school. Data analysis included multilevel logistic regression.

Results: Prevalence of alcohol use was 25.2% (IC95% 24.7–25.6), tobacco use was 5.3% (IC95% 5.1–5.5) and use of other drugs was 2.6% (IC95% 2.5–2.7). Multilevel analysis showed that recent use of alcohol and tobacco was associated to the presence of computer room and internet, while the use of other drugs presented an association with all media.

Conclusion: Results indicate that supervision in access to information and communication resources may play a role on the prevention of alcohol, tobacco and other drugs use by students.

1. Introduction

The use of tobacco, alcohol and other drugs among students can be considered a global public health with high prevalence worldwide (Carlini et al., 2010; Hibell et al., 2007). The use generally begins in adolescence (Hodder et al., 2011; Lovato et al., 2013), an age group in which the vulnerability to social peer pressure tends to be stronger (Franelić, Kuzman, Šimetin, & Kern, 2011; Scull, Kupersmidt, Parker, Elmore, & Benson, 2010).

School environment can be considered an ideal place to health promotion actions that include the prevention of substance use (Organizacion Panamericana de la Salud, 1995; World Health Organization, 2009) because the wealth of knowledge and both formal (classes and lectures) and informal (daily life) information provided (Hardoff, Stoffman, & Ziv, 2013; Kuntsche & Jordan, 2006; Pavani, Silva, & Moraes, 2009).

On the other hand, being a place of social gatherings and ties, it may also be a conducive environment that may favour the start and maintenance of drug use in adolescents (Backes et al., 2014; World Health Organization, 2009). Access to information may contribute to increase the drug use prevalence (van der Meer, Oliveira, Ribeiro, & Nappo, 2010). Network of peers may propitiate substances consumption by the diffusion of positive experiences, dissemination of means of access and propagation of alcohol and other drugs use (Scull et al., 2010). The inquisitiveness and risk taking behaviour characteristic of school age children (Eisenstein, 2005; van der Meer et al., 2010), together with permissive family factors (Brooks, Magnusson, Spencer, & Morgan, 2012; Calafat, García, Juan, Becoña, & Fernández-Hermida, 2014), and the possible unsupervised information broadcast may, in opposition to whats is desired, arouse adolescent's interest and stimulate the use of alcohol, tobbacco and/or drugs (Kuntsche & Jordan, 2006; van der Meer et al., 2010).

Because the available evidence seems to suggest that information access may both prevent or predispose the use of psychoactive substances by students (Hardoff et al., 2013; van der Meer et al., 2010) the objective of the presente study was to analyze the association between

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the information and communication structure of the school and the use of psychoactive substances in the preceding 30 days by Brazilian students.

2. Methodology

This article uses data from the National School-based Health Survey (PeNSE) 2012 (Instituto Brasileiro de Geografia e Estatística, 2012), a cross-sectional, triennial study, performed for the first time in 2009, carried out by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Ministry of Health, with the support of the Ministry of Education of Brazil.

Sampling plan was comprised of 27 geographic strata corresponding to all capitals and the Federal District. The remaining cities were grouped within each of the five geographic regions of the country (North, Northeast, South, Southeast and Center-West) forming five geographic strata. The sample of each geographic stratum was allocated proportionally to the number of schools according to the administrative dependency. Schools with < 15 students in the desired grade were excluded (9th grade from elementary school). For each stratum, a conglomerate sample was selected in two stages: schools and classrooms. In the strata formed by cities that were not capitals the primary sampling units were the groups of cities, the secondary units were schools and the classrooms of these schools were the tertiary sampling units.

The final sample was representative of the country, the 27 capitals and the Federal District, all these capitals and each of the five major geographic regions.

The IBGE teams visited the selected classes in each school and all the students from these classes present on the day were invited to participate in the research. The students answered an electronic questionnaire through a smartphone, which had the free and informed consent form on the first screen. Managers or school representatives were interviewed about the characteristics of the school.

From the PeNSE-2012 database, individual and contextual variables were selected. The outcomes were: alcohol, tobacco and other drugs use in the preceding 30 days (use of at least one of the following substances: cannabis, cocaine, crack, glue, *loló*, *lança perfume*, ecstasy, oxy, substances currently considered illegal in Brazil).

The main exposures were contextual and corresponded to the information and communication resources including availability of: library, media/communication facilities, computer room and internet access for students in schools. Such information was obtained by the response of the manager or the responsible for the school, in yes/no items.

Individual confounding factors included: age in years (Carlini et al., 2010; Hibell et al., 2007), male or female (Carlini et al., 2010; Hibell et al., 2007), maternal schooling (Malta, Mascarenhas, Porto, Barreto, & Neto, 2014), school's administration (public or private) (Carlini et al., 2010), student engaged in a remunerated activity (Souza & Silveira-Filho, 2007), reported having had sexual relations (Malta et al., 2014), live with parents at the time of the interview (Brooks et al., 2012; Horta, Horta, & Pinheiro, 2006), students' perception of how parents would react if they come home drunk (Brooks et al., 2012; Larrosa & Palomo, 2010), reported having suffered domestic violence in the preceding 30 days (Larrosa & Palomo, 2010), reported having been victim of bullying in the preceding 30 days (Luk, Wang, & Simons-Morton, 2012; Strauch, Pinheiro, Silva, & Horta, 2009), reported missing school without parents' permission in the preceding 30 days (Fraile Duvicq, Pereira, & Carvalho, 2004; Malta et al., 2014), reported having close friends (Fazel, Hoagwood, Stephan, & Ford, 2014a; Fazel, Patel, Thomas, & Tol, 2014b).

Preliminary, descriptive and univariate analyses were performed in the SPSS 22 program using Pearson's Chi-Square (χ^2) or linear trend test. The multivariate analysis used multilevel logistic regression to obtain crude and adjusted odds ratios (OR) through the MLWin program 2.35. The empty model showed significant contextual variance for the three outcomes, justifying the continuation of the analyses by multilevel technique. Considering the large sample size and greater probability of type 1 error, only the individual independent variables associated with outcomes at a significance level of < 1% ($p < 0{,}01$) in the univariate analysis were included in the final model. Similarly to other studies (Agaku, Caixeta, de Souza, Blanco, & Hennis, 2016; Organizacion Panamericana de la Salud, 1995), the race variable was not associated with the outcomes and therefore, was not included in the final model. Age and sex-stratified analyses were also performed for the associations studied, but no important differences were found and thus these data were not reported.

3. Results

In total, the sample consisted of 109,104 morning-class students enrolled in the 9th grade of 42,717 Brazilian schools. Among these, 25.2% (IC95% 24.7–25.6) reported consumption of alcohol in the preceding 30 days, while 5.3% (IC95% 5.1–5.5) smoked and 2.6% (IC95% 2.5–2.7) used other drugs in the same period. Most of the students were female, not white, in the expected age for the grade and studied in public schools. Higher prevalence of the substances (alcohol, tobacco and other drugs) were verified in the interviewees reporting that the family would not care if they came home drunk. Table 1 shows the sample distribution and the behaviour of the outcomes according to individual confounding factors.

Most Brazilian schools had information and communication resources, and the highest prevalence of alcohol, tobacco and other drugs was found where these resources were available (Table 2).

In the multivariate analysis, alcohol and tobacco use were strongly associated to presence of fast media (computer/internet room). On the other hand, other drugs use in the last month was associated to the presence of all types of media (Table 3).

4. Discussion

Results showed that the availability of information and communication resources in schools was associated with higher prevalence of alcohol, tobacco and other drugs use by students. More specifically, the presence of fast media, which include digital technologies such as computer rooms and internet access, was associated with the recent consumption of the psychoactive substances. Moreover, the consumption of drugs considered illicit in Brazil was also associated with the availability of slow media and access to information, such as libraries, but the same did not happen for alcohol and tobacco. Although the presence of communication/information infrastructures can be considered beneficial to prevent these behaviours (Champion, Newton, Barret, & Teesson, 2013; Kuntsche & Jordan, 2006), the current result indicates that the access to information can also be a condition associated with the use of drugs (van der Meer et al., 2010).

Factors associated with use or repeat the use of psychoactive drugs have been well documented. Family conflicts (Brooks et al., 2012; Calafat et al., 2014) and substance availability (Larrosa & Palomo, 2010) have been associated with higher use. Religiosity has also been associated with lower prevalence of use (Tavares, Béria, & Lima, 2004), whereas influence of peers may either favour or prevent the use of psychoactive substances (Fazel, Patel, et al., 2014b; Hardoff et al., 2013). Communication processes have also been related to drug use (Kuntsche & Jordan, 2006; van der Meer et al., 2010). The use of partial or not credible messages based only on negative effects of drugs and with the intention to shock, has not shown to be effective in use prevention. This is because the student is not always able to recognize the broadcasted danger or the loss control he would experience when observing drug users around (Gil, Mello, Ferriani, & Silva, 2008; van der Meer et al., 2010). The network of relationships is an important part of communication and access to information processes (Gil et al., 2008;

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