Factors associated with illicit drugs' lifetime and frequent/heavy use among students results from a population survey

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ABSTRACT

Substance use among teenage students and factors associated were investigated through a survey using a questionnaire adapted from the WHO's Program on Research and Reporting on the Epidemiology of Drug Dependence, additional questions on family factors and personal risks, and the Coopersmith Self-Esteem Inventory, adapted to Brazil. The target population consisted of 3891 10–22-year-old students from the city of Embu das Artes, São Paulo, Brazil. The prevalence of lifetime substance use was 26.7%. Most commonly used substances were energy drinks combined with alcohol (19%), solvents (11.2%) and marijuana (4.8%). Almost 60% of the students had already tried alcohol and 18.2% had tried tobacco. Factors associated to lifetime substance use were: lower self-esteem, going to nightclubs at least twice a week, use of alcohol, trying tobacco, bad relationship with the mother, permissive mothers, practicing sports as an obligation, working, and higher socioeconomic level. Concerning frequent/heavy substance use, chances were found to be higher among students who had use tobacco and alcohol, going to nightclubs at least twice a week, and those with lower self-esteem. Preventive actions concerning drug use should focus on avoiding the first experimentation, approaching family relationships, and improving students' self-esteem.

1. Introduction

Studying the environmental background is essential for health promotion and prevention of mental diseases. Several studies have already described the importance of trauma, neighborhood conditions and maltreatment on the development of mental disorders in general and substance use related problems in particular (Adams et al., 2015; Culpin et al., 2015; Daigre et al., 2015; Chapman et al., 2004). Concerning the use of psychoactive substances among adolescents, epidemiologic researches allow us not only to map the problem, revealing data on the incidence, prevalence, identification of new drugs and consumption trends over time, but also to search for use-associated factors.

Previous trials have identified as risk factors: early use, availability of drugs, violence in the community, anti-social friends, drug use by parents, parents' lenient attitude concerning the child use of drugs, lack of dialog on the matter, and poor family communication (Cava et al., 2008; Hofler et al., 1999; Kaplow et al., 2002; Mares et al., 2011). On the other hand, good relationship with parents, being monitored, religion, awareness of drug effects, and fear of the effects concerning drug use have been considered protective factors (Cleveland et al., 2008; Kliewer and Murrelle, 2007). Studies analyzing cumulative effects among several risk factors and their interrelationship with protective factors have found out that risk factors are more important in predicting the use of drugs than protective factors (i.e., the harm caused by a risk situation outweighs the benefits of the protective factors) (Ostaszewski and Zimmerman, 2006; Zufferey et al., 2007).

In prevalence studies conducted in Brazil with adolescent students, the following were identified as risk factors: low-commitment to school, anti-social behavior, loneliness, suicidal ideas, friends using drugs, bad relationship with or between parents; use of drugs by family members, working over 4 h, and unsatisfactory relationship with coworkers (De Micheli and Formigoni, 2004; Galduróz et al., 2004; de Souza, 2006; Vieira et al., 2008). Among the protective factors, the importance of family, such as good

relationship with and between parents and judicious attitude stand out. Practicing a religion was also observed to be directly associated with lower alcohol and other drugs use (Galduróz et al., 2004).

Regarding personal factors that may influence drug use, there is no study developed in Brazil assessing self-esteem. Self-esteem is considered by many a value judgment, resulting from a self-evaluation that expresses an attitude of approval or disapproval and indicates how much the subject considers himself/herself capable, important and valuable (Coopersmith, 1967; Rosenberg, 1965). It is known that, among those trying some substances, most of them do not become dependent. The theoretical assumption to explain such finding is that dependency occurs more often in weakened adolescents with lower self-esteem.

The main purposes of this study were (i) to assess the prevalence of substance use in a representative sample of adolescent students; and (ii) to assess whether there is an association between self-esteem and substance use. Our hypothesis is that the lower the self-esteem, the higher the substance use.

2. Method

2.1. Sample selection, procedures and sample descriptive characteristics

A cross-sectional, population-based epidemiologic study was conducted. The target population were students in public schools (6–12th grades) of the city of Embu das Artes SP. Located in the Southwest region of Brazil, with a population of 248,722 people and a 0.772 Human Development Index (HDI) (IBGE, 2009), Embu das Artes is part of the third most populated metropolitan region in the world, the so called "Grande São Paulo" [Greater São Paulo].

A two-step probability selection was used. First, 20% of all 793 classes of 6–12th grades of all 35 public schools at Embu das Artes were randomly drawn. Second, the sample was cluster randomized (grades and school term morning, afternoon and evening). All students in sampled classrooms were invited to participate. There was a loss of 12 classes among the 157 selected, resulting in a final sample of 145 classes. These 12 classes were lost due to the refusal of the responsible teacher to allow the research team to assess the students.

2.2. Measures

Questions on substance use were based on the World Health Organization's (WHO's) research instrument adapted to Brazil (Carlini-Cotrim et al., 1989; Smart et al., 1980), which includes questions on the use of alcohol, tobacco, energy drinks in association with alcohol and illicit drugs. This instrument divides substance use indexes into: lifetime use (experimentation), past year use (12 months prior to the research), past month use (30 days prior to the research). Past month use is categorized in 1–5 days (low-use), 6–19 days (frequent use), and 20 days or more (heavy use).

Questions on socioeconomic level adopted the scale of the Brazilian Association of Market Survey Institutes (ABEP[1]), which classifies socioeconomic levels from A (the highest) to E (the lowest). Due to the inequality of distribution of Brazilian income, we defined three ranks of SES: A (A1 and A2), B–C (B1, B2, C1 and

C2), DE (D and E). It was important to analyze classes B and C, and D and E together to have enough cases to run the regressions. Students were also questioned on personal factors (religion; sports, work, and frequency of visits to nightclubs) and their perception on family relationships (good, regular or bad), such as relationship with the father, mother, relationship between parents, and parenting style (authoritarian, moderate or permissive).

The Multidimensional Scale of Self-Esteem adapted to Brazil by Gobita (2004) from Coopersmith "Self-Esteem Inventory (SEI) School Form", was used to assess self-esteem. (Gobita, 2004). This is a 50-item scale, developed to assess students' self-esteem. It comprises questions such as 'I am pretty sure of myself' 'I can make up my mind without too much trouble' and 'I am a lot of fun to be with'. Answers can be: 'like me' or 'unlike me'. The inventory Cronbach's alpha was of 0.88 in the original validation study (Gobita, 2004). In order display data in a more comprehensive way, the scale score, which varies from 56 to 280, was converted into a 0–100 scale, in which 0 indicates the lowest possible self-esteem, and 100 indicates the highest possible self-esteem.

A computer program was developed for this research, using the ASP.NET development platform for acquiring data via web, and data processing and consistency of answers were made using the SQL SERVER 2000.

2.3. Procedures

Data was collected through a classroom survey performed in May/June 2009. All principals of the schools were contacted received a letter explaining research goals and procedures. A consent form, which should be signed. Afterwards, a trained team of field researchers gathered anonymous standardized self-reported questionnaire data. This team explained research objectives for students. Anonymity, confidentiality and volunteering were reassured to the students before distributing questionnaires. The survey was conducted in the teacher's absence. In average, students took 45 min to complete the questionnaire, and 3891 valid questionnaires were collected.

2.4. Data analysis

First, exploratory analyses through basic contingency tables with Chi-square tests ($p < 0,10$) were performed. Analyses were conducted on data weighted to correct for unequal probabilities of selection into the sample. The complex survey design took into account the stratum (schools), primary sampling unit (classes), clusters (school period), the expansion weight, and the probability of drawing the student who answered the questionnaire.

Then, to estimate the association of self-esteem with lifetime and frequent/heavy substance use, logistic regression for complex samples survey design was performed. Two key response variables were used in two different regression models: (i) lifetime illicit substance use and (ii) frequent/heavy illicit substance use. The suspected covariate of central interest was SEI total score. Gender, age, SES, school term, alcohol use (lifetime and frequent/heavy use), tobacco use (lifetime and frequent/heavy use), family relationships and personal factors (religious and leisure's activities, as described above) were included in all models, to control possible influences of these variables in the results.

Analyzes were performed using SPSS 20.0, with the complex sample procedures to address variance estimation under the complex sample design in these regression models and in estimation of all 95% confidence intervals (CI). Results are presented via weighted proportions (wgt%), adjusted Odds Ratios (ORs) and 95% confidence interval ($p < 0.05$).

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[1] ABEP provides eight different social economic strata (A1, A2, B1, B2, C, D and E, where A1 is the highest). When data was collected annual family income ranges were as follows (average income): A1: U$ 3692,00 or higher; A2: U$ 2404,00; B1: U$ 1262,00; B2: 732,00; C1: U$ 440,00; C2: U$ 292,00; D: U$ 203,00; E: U$ 135,00 (quoting rate: U$ 100=R$ 350).