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Gradient of association between parenting styles and patterns of drug use in adolescence: A latent class analysis



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ABSTRACT

Background: To identify different patterns of drug use in adolescence and determine if these are associated with parenting styles and other sociodemographic factors.

Methods: A latent class analysis was conducted using baseline data collected in a sample (n = 6381) from a randomized controlled trial conducted to evaluate the effectiveness of the #Tamojunto drug-use prevention program, carried out with 7th- and 8th-grade public school students in six Brazilian cities.

Results: Three latent classes were identified among the students: 1) abstainers/low users (81.54%), 2) alcohol users/binge drinkers (16.65%), and 3) polydrug users (1.80%). A gradient of inverse association was found between parenting styles (authoritative, authoritarian, and indulgent, with the neglectful style as a reference point) and the classes “alcohol users/binge drinkers” (aOR = 0.36, 95%CI = 0.27–0.47; aOR = 0.56, 95%CI = 0.43–0.72; and aOR = 0.64, 95%CI = 0.51–0.80, respectively) and “polydrug users” (aOR = 0.09, 95%CI = 0.03–0.24; aOR = 0.23, 95%CI = 0.11–0.52; and aOR = 0.24, 95%CI = 0.08–0.74, respectively). Associations were also revealed between the latent classes and the adolescent's age and socioeconomic status.

Conclusion: The results suggest that activities to develop parenting skills should be included in school programs aimed at the prevention of drug use among adolescents in order to reduce neglectful practices and thereby possibly reduce drug use among the children.

1. Introduction

Global concern with the damage caused by drug use among adolescents is visibly growing (Bonomo et al., 2001). In Brazil, teenagers begin by consuming licit drugs; in this country, experimentation with alcohol is most prevalent among 12- to 14-year-olds (Malta et al., 2011). These data are worrisome because the risks of beginning drug consumption at an early age are well known (James et al., 2013).

In low of this situation, it is important to develop preventive campaigns that focus on the most significant risk and protective factors associated with the onset of early consumption of drugs by adolescents (Cleveland et al., 2008). The theory of social development suggests that teenagers learn behavior patterns, such as drug use, through their first models of socialization (Catalano and Hawkins, 1996). Consistent with this hypothesis, the influence of parental attitudes on drug use among adolescents is already well documented in the literature (Becoña et al., 2013).

Maccoby and Martin (1983) proposed a typological model that classifies the styles of relationships among parents and their children,

referred to as “parenting styles.” This theoretical model is based on two fundamental aspects of parents' educational practices: demandingness and responsiveness. Authoritarian parents (high demandingness and low responsiveness) require obedience to rules and offer environments that are not very warm, limited communication, and regular physical punishment. Indulgent parents (low demandingness and high responsiveness) impose few rules, eschew punishment, and adopt extreme tolerance toward their children by avoiding controlling behavior. The authoritative parenting style (high demandingness and high responsiveness) is characterized by reciprocity in family relationships. Children must obey their parents' demands, but parents also accept their obligation to respond, insofar as possible, to the children's points of view and reasonable demands. Parents with a neglectful style (low demandingness and low responsiveness) show little willingness to take on the responsibilities and tasks of parenthood.

Many studies show that the authoritative parenting style is associated with lower consumption of drugs (Berge et al., 2016) by adolescents than other styles. Many studies associate the neglectful parenting style with higher rates of drug use by adolescents (Chassin,

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2005). However, the results for the indulgent parenting style have been mixed, as some findings indicate a positive association with drug use (Calafat et al., 2014), whereas other studies show a negative association with drug use (Cerezo et al., 2013).

It is noteworthy that these studies fail to consider the association that risk and protective factors have with the multiple patterns of drug use among adolescents (Lanza et al., 2010). The studies tend to examine the relationships between parenting styles and a single type of substance (Čablová et al., 2014). However, simple associations between parenting styles and various drugs fail to capture the complexity involved in the pattern of drug use itself, as they overlook the fact that a teenager can be consuming multiple substances simultaneously. Patterns of drug use are features underlying the various types of drugs being used, which most studies treat in a dichotomous manner. Youths with similar patterns of drug use can be grouped together to form what are called latent groups. These underlying *unobserved* groups of adolescents are inferred from a set of measured dichotomous questions about use (or not) of alcohol, tobacco, marijuana, and inhalants and could be treated as homogeneous, and the benefits and drawbacks of various parenting styles could then be tested in a more methodologically robust manner (Percy and Iwaniec, 2007).

Latent class analysis (LCA) is a mixture model (Collins and Lanza, 2009; Lazarsfeld and Henry, 1968) that allows to better understanding profiles of behavior outcomes such as substance use profiles (Anderson et al., 2010; Scheier et al., 2008). The breakthrough of LCA is the use of an analytical methodology focused on the person, in contrast to past data analysis techniques that have focused on the variables (Lanza and Rhoades, 2013), where for each observed outcome, a regression was build up and as consequence and increasing in the false discovery rates might occur (Simmons et al., 2011). LCA makes it possible to analyze the simultaneous use of different types of substances and different patterns of use, seeking the risk factors associated with each specific pattern (Cho et al., 2015).

In low of this, this study aims to identify different patterns of drug use in early adolescence and fill this gap in the literature by determining whether these patterns are associated with certain parenting styles and other sociodemographic factors among Brazilian students.

2. Material and methods

This study presents the results of the baseline data collection of a randomized controlled trial to evaluate a school drug-use prevention program. Thus, the original design of the study is a controlled parallel-group randomized trial among 7th- and 8th-grade public school students in six Brazilian cities. In partnership with the Brazilian branch of the United Nations Office on Drugs and Crime (UNODC), the Brazilian Ministry of Health decided to undertake a culturally adapted version of the European drug prevention program *Unplugged*, renamed #Tamojunto, to be applied in Brazilian public schools (Pedroso et al., 2015).

This article examined the data from this cross-sectional sample from the baseline data collection, prior to the application of the intervention (that is, from the pre-test). The study was registered in the Brazilian Ministry of Health's Brazilian Registry of Clinical Trials (Registro Brasileiro de Ensaios Clínicos – REBEC) under the number RBR-4mnv5g. The study protocol was approved by the Federal University of São Paulo's research ethics committee (protocol #473,498).

2.1. Sampling

The sample in this study consisted of 6391 students aged 11–15 in the 7th and 8th grades of 72 public schools in the cities of São Paulo, São Bernardo do Campo, Brasília, Florianópolis, Tubarão, and Fortaleza.

Based on Lwanga and Lemeshow (1991) calculation of sample sizes for longitudinal studies, for a power of 80%, a level of significance of

5%, and a difference between the groups of 1.5 percentage points (5%–3.5%), the sample size necessary for each group in this study was calculated to be 2835 participants. Taking into account a loss of 50%, the sample had to include 4253 participants in each group. The parameters used were based on a previous pilot study and the expected results for the randomized controlled trial. Details of the study design and a flowchart of the sampling were presented in a prior publication (Sanchez et al., 2017).

2.2. Questionnaires

The data were collected through an anonymous questionnaire completed by the participants and administered by researchers in the classroom, without the presence of the teacher. The questionnaire was developed and tested by the European Union Drug Abuse Prevention (EU-DAP) program and used in previous studies on the effectiveness of *Unplugged* (Faggiano et al., 2008). A version that had been translated into and adapted for Portuguese was used in Brazil, with some questions replaced by items from two questionnaires that have been widely used in various studies of Brazilian students: a World Health Organization questionnaire, used by the Brazilian Center for Information about Psychotropic Drugs (Centro Brasileiro de Informações Sobre Drogas Psicotrópicas – CEBRID), (Carlini et al., 2010) and the questionnaire of the National Survey of Student Health (Pesquisa Nacional de Saúde do Escolar – PENSE), used by the Brazilian Ministry of Health (IBGE, 2012).

The questionnaire assessed the use of the following drugs: alcohol, tobacco, marijuana, and inhalants. In addition, it assessed binge drinking (the consumption of 5 or more doses of alcohol during a two-hour period) and sociodemographic data. The students' socioeconomic class was assessed using the scale of the Brazilian Association of Research Companies (Associação Brasileira de Empresas de Pesquisa – ABEP) (ABEP, 2012), which takes into account the head-of-household's education and the goods and services used, with scores ranging from 0 to 46 or in categories from A to E; higher scores indicate better economic standing, and socioeconomic classes are ranked from A (highest) to E (lowest).

The data relating to parenting styles were collected through the scales of Demandingness and Responsiveness (Lamborn et al., 1991). This instrument was used to define four parenting styles (authoritarian, authoritative, neglectful, and indulgent) based on Maccoby and Martin's theoretical model (Maccoby and Martin, 1983). The instrument consists of two scales that refer to the orthogonal dimensions of demandingness and responsiveness. The scales are structured by six items on the demandingness dimension and ten items on the responsiveness dimension, assessed by means of a three-point Likert scale such that values closer to three indicate greater perceived demandingness and responsiveness.

Parents are classified as high or low in demandingness and high or low in responsiveness. The scale is corrected based on the median scores for each subscale, with the parents who score at or above the median for demandingness or responsiveness being classified as high in demandingness or responsiveness, respectively, whereas parents who score at or below the median were classified as low in demandingness or responsiveness. Parenting styles are defined in four categories, based on the combination of these two dimensions: authoritative (parents scoring high on demandingness and responsiveness), authoritarian (those scoring high on demandingness and low on responsiveness), indulgent (parents scoring low on demandingness and high on responsiveness), or neglectful (those scoring low on both demandingness and responsiveness) (Calafat et al., 2014).

The assessed outcome variables included whether the following had been used over the past 12 months: alcohol, tobacco, marijuana, or inhalants. In the case of alcohol, any pattern of binge drinking (BD) over the past year was also assessed. The explanatory variables analyzed were parenting style (neglectful, authoritative, authoritarian, or

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