

Parenting styles as a tobacco-use protective factor among Brazilian adolescents

Estilos parentais como fator de proteção ao consumo de tabaco entre adolescentes brasileiros

Estilos parentales como factor protector para el consumo de tabaco entre adolescentes brasileños

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Abstract

The objective was to evaluate the relationship between tobacco use (previous month and frequent use), parenting styles and parental smoking behavior in a sample of high school students. Participants were recruited from public and private high schools from 27 Brazilian state capitals (N = 17,246). The overall prevalence of tobacco use in life was 25.2%; 15.3% in the previous year; 8.6% in the previous month; and 3.2% for frequent use. Tobacco use by the parents was reported by 28.6% of the students. Regarding parenting styles, 39.2% were classified as negligent, 33.3% authoritative, 15.6% as indulgent and 11.9% authoritarian. Compared to adolescents with authoritative parents, those with negligent or indulgent parents were more prone to report tobacco use during the last month or frequent use. This study showed an association between parenting styles and tobacco use by high school students. Authoritative parents were associated with protection from frequent and previous month tobacco use among adolescents.

Tobacco; Smoking; Parent-Child Relations; Adolescent

Resumo

O objetivo foi analisar a associação entre o uso de tabaco (no mês e frequente) com os estilos parentais e o comportamento de fumar dos pais, em uma amostra de estudantes do Ensino Médio. Foram avaliados 17.246 estudantes do Ensino Médio de escolas públicas e privadas das 27 capitais brasileiras. A prevalência do uso de tabaco na vida foi de 25,2%, 15,3% no ano, 8,6% no mês, e 3,2% para uso frequente. Em relação aos estilos parentais, 39,2% dos pais foram classificados como negligentes, 33,3% autoritativos, 15,6% como indulgentes e 11,9% autoritários. Comparados a estudantes com pais autoritativos, filhos de pais negligentes ou indulgentes tiveram maior chance de relatar o uso no último mês ou frequente de tabaco. Observou-se uma associação entre o estilo parental e uso de cigarros por estudantes do Ensino Médio. O estilo parental autoritativo foi associado à proteção ao uso de tabaco no mês e frequente entre os adolescentes.

Tabaco; Hábito de Fumar; Relações Pais-Filho; Adolescente

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Introduction

The family is the first group a human being belongs to. It is a system of meaningful relationships, in which individuals become interdependent^{1,2,3}. Family characteristics are associated with protective or risky behavior in the use of substances by teenagers, including tobacco^{4,5}. A study identified that between 80 and 90% of tobacco users started to use the substance during adolescence, and some two thirds became regular smokers before turning 19 years⁶. In Brazil, despite a decrease in the rate of smokers among adolescent students^{7,8}, cigarette smoking by adolescents is still significant: almost 17% of the students who took part in a study that included a huge sample of public and private schools in 27 capital cities of Brazilian states acknowledged having smoked cigarettes at least once in their lives⁸. This issue is receiving special attention, and is the focus of strategies to reinforce smoking prevention⁹.

Living with parents or older siblings who smoke is associated with a higher chance of adolescents to smoke, and to continue smoking^{10,11}. Many types of behavior of adolescent children are influenced by the style of their parents, including academic performance, risky sexual behavior, and the use of drugs, including tobacco^{12,13,14,15,16,17}.

The first classification of parenting styles was proposed by Baumrind¹⁸, and was later updated by MacCoby & Martin¹⁹ and Bornstein & Bornstein²⁰. The most recent theoretical model classifies parenting styles from two dimensions: demandingness (related to parent-controlled supervision and discipline), and responsiveness (related to the individuality, emotional support and parent-encouraged self-regulation). Another relevant aspect relates to the repetition of some behavior patterns in different generations of a family¹. Intergenerational repetition seems to involve some aspects of development, such as the identification of the young people with figures of reference. Therefore, living with smoking parents or siblings seems to favor the commencement of smoking by adolescents^{21,22}.

Although there is evidence on the influence of parents on tobacco use by adolescents, these are data from developed countries as knowledge about developing countries is still limited²³. In Brazil, studies on parenting styles and use of substances have been conducted^{13,17,24}; none of which, however, focuses on cigarette use specifically. Moreover, there are limitations of the studies regarding the size of their sample and population representation. The development of studies that will fill the gaps may provide important

information for family guidance and prevention programs in Brazil.

This study aimed at analyzing the association between tobacco use (per month and frequent use) with parenting styles and parental smoking behavior, according to reports provided by a representative sample of high school students of public and private schools of the 27 Brazilian state capital cities.

Methods

Study design

This study is a secondary analysis of the data from the *VI National Assessment on Psychotropic Drug Use Among Elementary and High-School Students of Public and Private Schools in the 27 Brazilian Capital Cities*, conducted by the Brazilian Center on Drug Information (Centro Brasileiro de Informações sobre Drogas – CEBRID) and the Brazilian National Secretariat on Drug Policy (Secretaria Nacional de Política Sobre Drogas – SENAD). It is a cross-sectional study carried out in 2010, intended to reflect the full diversity of public and private school students in the 27 Brazilian capital cities, whose main goal was to investigate drug use among students. Further information about the study may be found in previous publications^{8,25,26}.

Sample

The sample was calculated based on official data from the 2009 *School Census*, provided by the Brazilian Ministry of Education's National Institute for Educational Studies and Research Anísio Teixeira (INEP), and it was designed so that the 27 capital cities investigated were properly represented. Initially, the sample was divided into two independent subsamples: (1) public schools and (2) private schools. In each of them, three strata were created: (1) elementary schools only, (2) high-schools only and (3) schools that provided both elementary and high-school education. Afterwards, a draw was made to select the classes, with proportional likelihood among the participating schools (2 to 3 classes were drawn per school, on average); following this, all students from the classes that were drawn were invited to take part in the study.

The initial approach reached 86% of participation acceptance rate: 789 schools participated in the investigation (512 public and 277 private). It is estimated that 83% of the students of the drawn classes were in the classroom on the data collection day. Only 0.3% of the total

student sample refused to participate. Students who responded yes about the use of a fictional drug, included to minimize false-positive rate on drug-use report were excluded from the analysis. Therefore, the total sample included 50,890 students. For the present analysis, 17,246 high-school students, aged between 13 and 18 years, with valid information on tobacco-use in the month prior to the investigation were considered

Procedures

CEBRID delivered training for a team of coordinators in charge of data collection in each capital, in order to standardize the adopted procedures and present the investigation tools. The coordinators were experienced with research, and most of them were connected to local universities, and replicated the training for the investigators of each capital city in which data were collected.

The investigators contacted the schools that were drawn to inform them about the study and invite them to participate. Once participation was accepted, a date was scheduled for data collection according to the availability of the school.

Data were collected with the use of a self-report questionnaire with no identification. The questionnaire was to be filled within a class period, under supervision of a trained investigator and without the presence of school employees or teachers, in order to minimize eventual interferences. Whenever possible, data collection from all classes of the participating school was made on a single day, to minimize information exchange among student and contamination bias.

Ethical aspects

The goals of the study and potential discomforts/benefits were explained to the students at the time of their invitation to participate in the investigation. Participation was voluntary, and the students had the right not to participate, stop filling out the questionnaire at any point, or give it back in blank. Once the investigation was completed, the participating schools received an informational booklet on psychotropic substances prepared by CEBRID. The present study was approved by the Ethics Research Committee, Federal University of São Paulo (CEP: 0386/07). Because the subjects were students under the age of 18 years, the principal of each school signed two copies of the Informed Consent Form, in order to allow the students to respond to the questionnaire.

Instruments

The base questionnaire used was closed, to be self-completed, and anonymous; it was originally proposed by the World Health Organization (WHO) ²⁷, and adapted to the Brazilian population ²⁸. The same questionnaire was used in five other previous assessments conducted by CEBRID, and for the current version the *Parenting Styles Scale*²⁹ was included, after being adapted to the Brazilian population ³⁰. The used variables are described as follows, according to their use in the present analysis.

• Measures

a) Tobacco use/smoking: for the present study, cigarette smoking in the previous month and frequent cigarette smoking were analyzed from the answers to the following questions: “During the past month, meaning within the last 30 days, did you smoke any cigarette?”. Frequent cigarette smoking was considered as smoking on six or more days in the month prior to the investigation.

b) Sociodemographic: Gender and age-related issues were investigated. Socioeconomic status was estimated from the type of school (public or private).

c) Parenting styles: Information about how the adolescents perceived parenting styles was collected through the *Parenting Styles Scale*²⁹, adapted to the Brazilian population ³⁰. The questions asked were related to two dimensions: demands and responsiveness. Parenting styles were divided into four categories, from the combination of these two dimensions: authoritative (parents who score high in demands and responsiveness), authoritarian (high demands and low responsiveness), indulgent (parents who score low in demands and high in responsiveness), or negligent (parents who score low in demands and responsiveness) ^{19,20}. In relation to the demands dimension, the questions asked focused parental control/monitoring, as in: “Up to what point do your parents want to know where you go, when you go out with friends?”, or “Up to what point do your parents actually know what do you do in your free time?”. For responsiveness, aspects related to parental support were addressed, as in: “About the parents – I can count on them if I have any trouble”, or “They encourage me to think on my own (they value my opinion)”. The scale is corrected from the median of the scores of each subscale, and students whose scores are equal to the median are considered missing values (n = 5,259). From the combination between high/low responsiveness and demands, a parenting sty-

les variable was developed, including the following characteristics: authoritative, authoritarian, indulgent and negligent. In our sample, the Cronbach's alpha for parenting styles was 0.60.

d) Tobacco use by the parents: Information about tobacco use by the parents was collected from the answer to the following question: "Does your father (or stepfather) smoke cigarettes?" or "Does your mother (or stepmother) smoke cigarettes?"

Data analysis

Sample weights were considered in all analyses with the use of svy commands, software Stata, version 11 (StataCorp LP, College Station, USA), presenting confidence intervals with level of significance of at least 5%.

To estimate the association of the independent (parenting styles) with the dependent variables (use of cigarettes in the previous month or frequent use of cigarettes), logistic regression models were used. The tobacco-use dependent variable selected was the use in the previous month, for the lower response variability among users, as the use in life includes adolescents who smoked only once in their life, in addition to the temporal proximity of the response about use and with their perception of the parental model.

All final models were adjusted for sociodemographic variables (gender, age, type of school), and tobacco use by the parents.

Results

Characteristics of the sample

Sociodemographic data and family characteristics of the total sample, and according to tobacco-use patterns are presented in Table 1. Tobacco use in life was reported by 25.2% (95%CI: 23.9-26.6); 15.3% (95%CI: 14.1-16.5) reported tobacco use in the year prior to the investigation; 8.6% (95%CI: 7.6-9.6) of the students stated they had smoked within the last 30 days; and the frequent use of cigarettes was reported by 3.2% (95%CI: 2.7-3.7) of the students. Tobacco use by the parents was reported by 28.6% (95%CI: 27.5-29.8) of the students. In regards to parenting styles, 39.2% (95%CI: 37.6-40.8) of the students considered their parents negligent; 33.3% (95%CI: 32.0-34.7) saw their parents as authoritative; 15.6% (95%CI: 14.6-16.7) believed their parents were indulgent; and 11.9% (95%CI: 11.0-12.8) reported having authoritarian parents.

Family characteristics and frequent use of cigarettes

Among the students who smoked frequently, 57.7% (95%CI: 48.7-66.2) considered their parents negligent; 21.9% (95%CI: 16.3-28.7) saw their parents as indulgent; 13.9% (95%CI: 9.3-20.3) believed their parents to be authoritative; and 6.5% (95%CI: 3.6-11.6) claimed to be children of authoritarian parents. In terms of parental smoking, 46.2% (95%CI: 40.2-52.3) of the adolescents reported and the father and/or the mother smoked cigarettes.

Table 2 presents the logistic regression models (odds ratio), both crude (OR) and adjusted (aOR) by the variables parental smoking, age, gender, and type of school, estimating tobacco use in the previous month, and frequent use. The adjusted logistic models did not show statistically significant differences between authoritarian and authoritative parenting styles for both tobacco use patterns.

Children of indulgent parents were more prone to have smoked in the previous month (aOR = 2.8; 95%CI: 2.1-3.7) than children of authoritative parents. A similar relation was observed among adolescents who reported having negligent parents (aOR = 3.3; 95%CI: 2.5-4.2).

Likewise, adolescents who claimed having indulgent (aOR = 3.3; 95%CI: 2.0-5.3) or negligent parents (aOR = 3.1; 95%CI: 1.9-5.1) had higher chance of reporting frequent smoking when compared with children of authoritative parents.

The logistic models also showed that children of smoking parents are more likely to smoke. This was seen for both, tobacco use in the previous month (aOR = 1.7; 95%CI: 1.4-2.2) and frequent use (aOR = 2.2; 95%CI: 1.6-3.0).

Discussion

The present study showed an association between family characteristics (parenting styles and parental smoking) and tobacco use in the previous month and frequent use by high-school students of public and private schools in the 27 Brazilian capital cities. Students whose parents are seen as authoritative had less chance of having smoked in the previous month when compared to children who believe their parents score low in being demanding (i.e., are indulgent or negligent).

These results support previous studies that showed that children of authoritative parents have less chance of reporting drug use, including tobacco, compared to parents that have indulgent or negligent styles^{15,16,17}.

Table 1

Sociodemographic and family characteristics of the total sample and according to tobacco-use patterns, in the previous month and frequent use (N = 17,246).

	Total (N = 17,246)		Tobacco use (yes)			
	n	% (95%CI)	Previous month (n = 1,335)		Frequent use (n = 437)	
			n	% (95%CI)	n	% (95%CI)
Mean age (SE)	17,246	15.9 (0.03)	1,335	16.3 (0.04)	437	16.5 (0.07)
Gender						
Female	9,556	55.6 (54.5-56.7)	585	48.6 (44.0-53.2)	177	46.5 (39.8-53.2)
Male	7,690	44.4 (43.3-45.5)	750	51.4 (46.9-56.0)	260	53.6 (46.8-60.2)
Type of school						
Public	10,035	77.9 (74.8-80.6)	771	77.7 (72.8-81.9)	282	82.0 (76.4-86.6)
Private	7,211	22.1 (19.4-25.2)	564	22.3 (18.1-27.2)	155	18.0 (13.5-23.7)
Parenting style						
Authoritative	3,962	33.3 (32.0-34.7)	139	15.1 (12.3-18.4)	41	13.9 (9.3-20.3)
Authoritarian	1,519	11.9 (11.0-12.8)	80	7.6 (5.4-10.7)	21	6.5 (3.6-11.6)
Indulgent	1,886	15.6 (14.6-16.7)	190	18.8 (15.6-22.6)	69	21.9 (16.3-28.7)
Negligent	4,653	39.2 (37.6-40.8)	552	58.5 (53.4-63.3)	187	57.7 (48.7-66.2)
Missings	5,259	-	374	-	119	-
Tobacco use by parents						
No	12,898	71.4 (70.2-72.5)	843	59.4 (55.1-63.5)	247	53.8 (47.7-59.8)
Yes	4,348	28.6 (27.5-29.8)	492	40.6 (36.5-45.0)	190	46.2 (40.2-52.3)

95%CI: 95% confidence interval; SE: standard error.

No significant differences were observed between authoritative and authoritarian parenting styles in relation to the use of tobacco in the previous month or frequent use. Despite differences between both parenting styles, it is possible that high demanding scores, in which parent supervision and control are included, reflect a protective role towards tobacco use by adolescents. Accordingly, a previous study found that the greater the heed paid by the parents in supervising and being aware of their children's activities, the lower the chance of them using tobacco³¹. These findings reinforce the possibility of parental supervision being an important protective factor, and thus it should be addressed in adolescent-focused prevention programs. In the absence of some clear limits, family ties are weakened. Furthermore, it is crucial to have the previous development of relationship of trust between parents and children, so that the adolescents can accept the limits imposed by the parents³².

It is important to consider that authoritative parents also present higher levels of responsiveness (encouraging individuality, emotional support, self-regulation), which also seems to be associated with lower probability of tobacco use among adolescents. Previous studies observed that, differently from what happens in families whose parents are indulgent or negligent, chil-

dren who see their parents as authoritative and whose family relations provide support, a sense of belonging, and limits seem to accept more easily the family values and parental follow-up, and that would favor a reduced use of substances, including tobacco^{13,33}. It is thus important to consider the family culture and/or the identification of the adolescent with a role model, as children are part of a family system^{1,2,3}. There are studies that go beyond the direct relation between the adolescents and their parents, and show that the parenting style of friends' parents may also influence using substances or not^{34,35}. In our sample, about 58% of the adolescents who smoke frequently have identified their parents as being negligent, this means, aspects related to both parental control and emotional support seem to be compromised, which suggests increased vulnerability of these youths to be exposed to risks, such as the frequent use of tobacco that may eventually lead to an addiction, once the use is maintained at hazardous levels.

Regarding the parental smoking behavior addressed in this study, it was also associated with smoking in the previous month and frequent smoking by the adolescents. Similar results have been broadly described in the literature^{23,36,37,38}. Often, the smoking behavior of the parents can be understood by the adolescent as "normal" and

Table 2

Estimates of regression logistic models [odds ratio crude (OR) and adjusted (aOR) *] for tobacco use in the previous month and frequent use (n = 12,020).

	Tobacco use (yes)			
	Previous month		Frequent use	
	OR (95%CI)	aOR (95%CI)	OR (95%CI)	aOR (95%CI)
Parenting style				
Authoritative		Reference		Reference
Authoritarian	1.4 (0.9-2.3)	1.4 (0.9-2.2)	1.3 (0.6-2.8)	1.3 (0.6-2.7)
Indulgent	2.9 (2.1-3.8)	2.8 (2.1-3.7)	3.5 (2.2-5.6)	3.3 (2.0-5.3)
Negligent	3.6 (2.8-4.7)	3.3 (2.5-4.2)	3.7 (2.2-6.0)	3.1 (1.9-5.1)
Tobacco use by parents				
No		Reference		Reference
Yes	1.8 (1.5-2.2)	1.7 (1.4-2.2)	2.2 (1.7-2.8)	2.2 (1.6-3.0)
Age	1.4 (1.3-1.5)	1.4 (1.3-1.5)	1.6 (1.4-1.8)	1.5 (1.3-1.7)
Gender				
Female		Reference		Reference
Male	1.4 (1.1-1.7)	1.2 (0.9-1.5)	1.5 (1.1-1.9)	1.2 (0.8-1.7)
Type of school				
Public		Reference		Reference
Private	1.0 (0.8-1.3)	1.2 (0.9-1.5)	0.8 (0.6-1.1)	0.9 (0.7-1.3)

95%CI: 95% confidence interval.

* Adjusted for the variables: parental tobacco use, age, gender, and type of school.

taken as a model to deal with daily situations³⁹. Considering that tobacco is a legal substance, and that many youth see their parents routinely smoking at home, such parental behavior may be perceived as a permissive attitude, an authorization or even an encouragement of the family to use tobacco. Notwithstanding, parental smoking alone does not account for smoking by the children. Interventions targeting adolescents should consider both, parent behavior and parenting style³³. Future studies are necessary to increase understanding of how family relations may interfere in cigarette-smoking by adolescents.

This is the first study to address parenting styles and cigarette use by Brazilian adolescents that has a representative sample from all 27 Brazilian capital cities, and includes students from public and private schools. Nevertheless, some limitations should be considered in the interpretation of the findings. Parenting styles were analyzed from the report given by the adolescents, which provides data about their perception on parental practices, and how these practices influence their smoking/non-smoking behavior. Furthermore, this being a cross-sectional study, causal relationships cannot be inferred.

The present study suggests it is important for the family to be included in tobacco-use prevention programs targeting adolescents, in order to

reinforce the role of the parents, favor their being close to their children, and strengthen family ties. The results, from the point of view of prevention, show that the importance of drawing limits and of parental supervision is a core aspect to be addressed. In addition, one should also provide emotional parental support and promote the adolescent's individuality. Non-smoking parents seem to represent positive models for their children not to smoke. The set of parental attitudes associated with other psychosocial factors, operate in a somewhat protective way in relation to tobacco use by adolescents, and should be taken into account by prevention programs. Concurrently, it seems to be fundamental to increase the comprehensiveness of future interventions, so that the adolescent is considered in their multiple relations (family, school, friends, community, society). Intervention programs should consider the importance of including proposals for reflection among family members (including about smoking), reorganization of family relations, promoting the feeling of competence, and favoring changes, by means of an active role by the participants.

Resumen

El objetivo fue analizar la asociación entre el consumo de tabaco (durante el mes y su frecuencia) con los estilos parentales y el hábito de fumar de los padres, en una muestra de estudiantes de secundaria. Los participantes fueron reclutados de escuelas públicas y privadas de 27 capitales estatales de Brasil (n = 17.246). La prevalencia de uso en la vida fue un 25,2%, en el último año 15,3%, en el último mes 8,6%, y 3,2% de uso frecuente. El consumo de tabaco parental fue reportado por un 28,6% de los estudiantes. 39,2% de los padres fueron clasificados como negligentes, 33,3% autoritativos, 15,6% indulgentes y 11,9% autoritarios. Comparados con los adolescentes con padres autoritativos, aquellos con padres negligentes o indulgentes reportaron más uso de tabaco durante el último mes o uso frecuente. Se encontró asociación entre estilos parentales y uso de tabaco por parte de los estudiantes. El estilo parental autoritativo se asoció con la protección para el uso del tabaco en el mes y frecuencia entre los adolescentes.

Tabaco; Hábito de Fumar; Relaciones Padres-Hijo; Adolescente

Contributors

C. S. Tondowski contributed with the design of the project, analyses, data interpretation, and the initial writing of the article. A. Bedendo, C. Zuquetto, D. P. Locatelli and E. S. Opaleye contributed with the analyses, data interpretation, and the writing of the article. A. R. Noto coordinated the collection of data, contributed to the design of the study, interpretation and review of the manuscript.

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