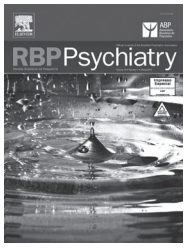
Rev Bras Psiquiatr. 2012;34:43-51

Official Journal of the Brazilian Psychiatric Association
RBP Psychiatry
Revista Brasileira de Psiquiatria
Volume 34 • Number 1 • March/2012



ORIGINAL ARTICLE

The Brazilian smoker: a survey in the largest cities of Brazil

Emérita Sátiro Opaleye,[1] Zila M Sanchez,[2] Yone Gonçalves de Moura,[2] José Carlos Fernandes Galduróz,[1] Danilo Polverini Locatelli,[2] Ana Regina Noto[1]

[1] Departamento de Psicobiologia, Universidade Federal de São Paulo
[2] Centro Brasileiro de Informações sobre Drogas Psicotrópicas (Brazilian Information Center on Psychotropics Drugs - CEBRID), Departamento de Psicobiologia, Universidade Federal de São Paulo

Received on December 9, 2010; accepted on April 6, 2011

DESCRIPTORS
Tobacco;
Smoking;
Epidemiology;
Brazil;
Cross-sectional studies.

Abstract
Objective: To understand the sociodemographic factors associated with daily consumption of cigarettes and pattern of cigarette use among Brazilian smokers. *Method*: A cross-sectional study was performed in 2005 involving the 108 largest Brazilian cities. Data were collected through interviews with subjects aged 12 to 65 years in randomly selected households. Based on a questionnaire adapted to the Brazilian context, a logistic regression model was used to investigate the association between the sociodemographic characteristics of the sample and smoking. *Results*: Of the 7,921 subjects interviewed, 16.4% reported daily use of cigarettes. The smoking prevalence was similar between genders, although women reported to start smoking at a later age and smoke fewer cigarettes per day. Almost 65% of the smokers were interested in quitting or reducing their smoking habit. The main sociodemographic characteristics associated with smoking were as follows: adult age (30-59 years old), unemployment, low education level, and low socioeconomic level. Alcohol abuse was also shown to be associated with smoking. *Conclusions*: Our findings suggest that adverse socioeconomic characteristics are implicated in increased susceptibility to smoking in Brazil. In our sample, a high proportion of smokers reported interest to quit or reduce smoking. These data suggest that sociodemographic factors should be considered in the elaboration of smoking prevention and treatment policies.

Corresponding author: Emérita S. Opaleye; Rua Napoleão de Barros, 925, 1º andar; 04024-003 São Paulo, Brazil;
Phone: (+55 11) 21490161; Fax: (+55 11) 50842793; E-mail: emerita@psicobio.epm.br

1516-4446 - ©2012 Elsevier Editora Ltda. All rights reserved.

DESCRITORES:
Tabaco;
Tabagismo;
Epidemiologia;
Brasil;
Estudos transversais.

Fatores associados ao hábito de fumar do brasileiro: um estudo nas maiores cidades do país

Resumo
Objetivo: Conhecer fatores sociodemográficos associados ao consumo diário de cigarros, bem como o padrão de uso de cigarros do tabagista brasileiro. *Método*: Estudo transversal realizado em 2005 nas 108 maiores cidades brasileiras através de entrevistas a indivíduos de 12 a 65 anos em domicílios sorteados por amostragem representativa. Com base em questionário adaptado para o contexto brasileiro, as características sociodemográficas foram investigadas em modelo de regressão logística para verificar associação com o hábito de fumar. *Resultados*: De 7.921 entrevistados, 16,4% relataram uso diário de cigarros. A prevalência de uso entre os gêneros foi semelhante, embora as mulheres tenham relatado idade de início de uso superior e menores quantidades por dia. Quase 65% dos fumantes manifestaram interesse em abandonar ou reduzir o hábito. As principais características sociodemográficas associadas ao tabagismo foram: idade adulta (30 a 59 anos), desemprego, menor escolaridade e menor poder aquisitivo. O uso abusivo de álcool também se mostrou associado ao fumo. *Conclusões*: Os achados sugerem características socioeconômicas desfavorecidas implicadas em maior vulnerabilidade ao tabagismo no Brasil. Houve um elevado relato de fumantes interessados em abandonar ou reduzir o hábito. Os dados apontam fatores sociodemográficos que devem ser considerados na elaboração de políticas de prevenção e tratamento.

Introduction

Smoking is the most common preventable cause of death worldwide[1] and is associated with various health problems, including cardiovascular, ischemic, and cerebrovascular diseases, in addition to neoplasias of various origins.[2-5] A study by Mathers and Loncar[2] projected that mortalities associated with smoking in 2015 will be 50% greater than mortalities associated with HIV/AIDS. Overall, smoking is projected to be responsible for 10% of all global deaths.

Despite the reduction in tobacco consumption in developed countries in recent years, global smoking has increased mainly due to the prevalence of smoking in developing countries.[1] According to Cavalcante,[3] part of the increase in smoking in developing countries is due to the weakness of smoking control policies in these countries. The Brazilian government strategies to combat smoking have advanced in recent years.[3] However, data show that tobacco consumption in Brazil still has a large impact on public health. A recent study including more than 177,000 individuals aged over 35 years from 16 Brazilian capitals found that 13.6% of deaths were associated with tobacco. The main factors found to be associated with smoking-related deaths were: chronic airway obstruction, ischemic heart disease, lung cancer, and cerebrovascular disease.[4]

Epidemiologic studies of cigarette consumption also shed light on the overall problem. In 2001 and 2004, two domestic surveys of more than 100 Brazilian municipalities applying the same methodology were performed. Comparison of the results suggested that lifetime use of tobacco increased from 41.1% to 44%. However, no significant difference was found in the number of smokers (9% and 10.1% in 2001 and 2004, respectively).[5]

Studies have also suggested that certain sociodemographic factors are associated with smoking; these include male gender, lower level of education, and low socioeconomic class.[6-9] Nevertheless, several factors that vary by culture, such as media, friends, and family may also influence smoking behavior.[10-12] Additionally, some studies have suggested that smoking is associated with a greater risk of alcohol and other drugs consumption.[13-15]

Knowledge of the factors associated with smoking is of great importance for the optimization of resources, better targeting of prevention campaigns, and the promotion of a wider scope of treatment programs. However, there is a knowledge gap concerning the factors associated with smoking in Brazil. Therefore, the objective of the present study was to investigate factors associated with the daily use of cigarettes in a representative sample of the largest cities in Brazil, as well as to describe the consumption pattern among smokers.

Method

Study design

This study was part of a cross-sectional survey of households concerning the use of psychotropic drugs in Brazil. It was undertaken between August and December 2005 by the *Centro Brasileiro de Informações sobre Drogas Psicotrópicas* (Brazilian Center for Information on Psychotropic Drugs, CEBRID). The study included individuals between the ages of 12 and 65 years from Brazil's 108 largest cities, including all the capitals and cities with a population over 200,000. The information was collected through domestic interviews by way of anonymous questionnaires. The interviews were conducted in isolated locations by previously trained interviewers dressed in uniform and without the presence of a third party.

Sample

The sample was obtained randomly in three stages using clustering and stratification techniques. In the first stage, the census categories were sorted to include 200 to 300 households that represented the geographic regions of each city and accounted for the final 398 census categories in the 108 cities studied. Next, a systematic, randomized sample was created from each census category. In the last stage, a dweller from each home was independently and randomly selected by the interviewer to answer the questionnaire. This process generated a final sample of 7,939 respondents. Details on the sampling method have been previously described by Fonseca et al.[16]

Measures

The Substance Abuse and Mental Health Services Administration (SAMHSA) questionnaire[17] was used. SAMHSA is a questionnaire that was adapted for a Brazilian population and includes questions concerning sociodemographic data and the use of drugs. A standardized scale from the *Associação Brasileira de Institutos de Pesquisa de Mercado* (Brazilian Association of Market Research Institutes; ABIPEME) was used for socioeconomic classification; this scale varies from A (greater purchasing power) to E (lower purchasing power).[18]

Sociodemographics characteristics

We used the following variables to evaluate the social and demographic profile of respondents: age; gender; education (ranging from no education/incomplete elementary school to college or above); occupation (student, unemployed, retired or employed); marital status (married, single, separated/divorced or widowed); who he/she lives with (distributed among family, partner, alone or others); and religion (Catholic, Protestant, Spiritualist, others or no religion). Country regions (Northern, Center-Western, Northeastern, Southeastern and Southern) were identified from the city name.

Smokers and non-smokers

For those who reported any lifetime use of tobacco, a follow-up question regarding the frequency of use during the last year was asked. This question had the following response options: "I am not currently smoking"; "I smoke every day"; "I smoke 5-6 days a week"; "I smoke 3-4 days a week"; "I smoke 1-2 days a week"; "I smoke 3-4 days a month"; "I smoke 1-2 days a month"; "I smoke less than once a month". The dependent variable used in the logistic regression was created by labeling all respondents that chose the "I smoke every day" response option as "smokers" and labeling all respondents that choose other response options, or reported no lifetime use of tobacco, as "non-smokers". Thus, in the present study, respondents who reported daily use of tobacco over the last year were classified as smokers.

Pattern of cigarette use

Questions on pattern of tobacco use were only made to individuals who reported some lifetime use of cigarettes. Respondents were asked at what age they first used tobacco and at what age they were regular users (open questions). Another question made to respondents was how long after awakening they usually waited to light their first cigarette of the day. Response options were "not applicable", "5 minutes or less", "6 to 30 minutes", "31 to 60 minutes" and "more than 60 minutes". Respondents were also asked about the number of cigarettes used each day and were given the following response options: "not applicable", "1-10 cigarettes", "11-20 cigarettes", "21-30 cigarettes", "more than 30 cigarettes." Finally, the questionnaire posed direct yes/no questions to assess if respondents were interested in quitting, interested in reducing consumption, and if they had had any success in quitting or reducing consumption.

Use of alcohol and other substances

Respondents were considered to have a lifetime use of drugs if they responded affirmatively to have ever used: marijuana, cocaine, crack, solvents, hallucinogens, or controlled medications without prescription (e.g., benzodiazepines, amphetamines, barbiturates or opiates). Respondents were assigned to one of the following categories based on frequency of alcohol use in the last year: "abstainers" (no alcohol use in the last year), "sporadic users" (used alcohol up to four days a month in the last year) and "frequent and/or heavy users" (used alcohol more than six days a month in the last year). Respondents reporting consumption of five or more alcoholic beverages on the same day in the last year were considered binge drinkers. A scale based on questions from the SAMHSA was used to classify alcohol dependence.[17]

Data analysis

Bivariate analyses were conducted between the "smoker" and "non-smoker" groups regarding each of the sociodemographic characteristics, patterns of alcohol use, and lifetime drug use. We estimated the crude odds ratio by logistic regression. Next, a logistic regression model was developed with a dependent variable (whether or not the person was a smoker) adjusted by all variables proved to be statistically significant after the bivariate analyses.

To evaluate the effect of gender on cigarette consumption patterns, we used linear regression when our measure of consumption was continuous (age of first use and age of regular use), ordered logistic regression when it was ordinal (amount of cigarettes per day, time to smoke after waking), and logistic regression when the measure was binary (attempted or accomplished to reduce/stop smoking).

In all models we used a city as a clustering variable, considering the survey sample design, and we used robust standard errors to construct confidence intervals of our estimates. The significance level adopted was 5%. All analyses were performed using the STATA (Version 11.0) software.

Ethics

All required ethical procedures were completed. Participants were made aware of the objectives of the study, the voluntary nature of their participation, respect for their anonymity, and the right to withdraw at any time or to refuse to answer any questions. All participants signed the free and informed consent form. The study was approved by the Research Ethics Committee at the Universidade Federal de São Paulo (#1895/06).

Results

Sample characteristics

Of the 7,939 questionnaires, 18 were excluded from analysis due to respondents declining to answer questions about their use of tobacco. Thus, the total dataset included 7,921 valid questionnaires regarding daily tobacco use and associated characteristics. The majority of our sample was female (58.5%), between 20 and 49 years of age (63.3%), and belonged to socioeconomic classes C and D (70.9%). Lifetime use of tobacco was reported by 44% of respondents. Use of tobacco within the past year and use within the past month was reported by 19.1% and 18.4% of participants, respectively.

Smokers comprised 16.4% of the studied sample (n = 1,301). Table 1 presents the crude odds ratio for sociodemographic characteristics. Similarly, Table 2 presents the pattern of alcohol consumption and the lifetime use of other drugs for the smoker and non-smoker groups.

Factors associated with smoking

The final logistic regression model is presented in Table 3. All significant variables in the bivariate analyses were included in the model. After three iterations of backward stepwise logistic regression, the final model included ten variables. For all variables, the reference categories were defined by those with greater numbers of respondents.

Respondents aged between 20 and 29 years were less likely to be smokers than respondents aged between 30 and 59 years. This trend of older respondents smoking in greater proportions did not hold when 20-29 year old responders were compared to those over 60. Interestingly, adolescents were less likely to be smokers compared to young adults.

Inhabitants of the Northern and Northeastern regions of the country were less likely to be smokers compared to those from the Southeastern region.

Regarding religion, those who considered themselves Protestants were 60% less likely to be smokers than those who identified themselves as Catholic (95% CI: 0.33-0.49).

The most unfavorable socioeconomic characteristics were associated with daily smoking. First, socioeconomic classes D and E were the most likely to use tobacco when compared to class C. Next, being unemployed increased the chance of belonging to the smoker group by 1.42-fold (95% CI: 1.18-1.71) when compared to those who were employed. Finally, a lower level of education resulted in a greater chance of smoking when compared to individuals who completed high school.

Separated or divorced individuals had a 43% greater chance of tobacco consumption than married responders (95% CI: 1.17-1.74). Similarly, single individuals were more likely to be smokers than married individuals.

The use of alcohol with a pattern of abuse was more likely to be found among smokers. Almost 43% reported frequent and/or heavy use of alcoholic beverages in the past month, 30% mentioned at least one episode of binge drinking in the past year and the same prevalence was found for alcohol dependence. The adjusted final model showed two of those patterns associated with smoking: drinking frequently or heavily and being an alcohol dependent. Finally, the lifetime use of other drugs was also associated with smoking (OR = 1.76, 95% CI: 1.50-2.06).

Patterns of smoking according to gender

Table 4 presents the relative characteristics of tobacco consumption based on gender of smokers. The first use of cigarettes occurred later in life for women than for men, as did regular use. Similarly, female smokers consumed fewer cigarettes. The odds of smoking more cigarettes were reduced by 46% for each category when the smoker was a woman.

A high proportion of smokers reported previous attempts to decrease or stop their cigarette consumptions (64.8%). Female smokers were more likely to express an interest in reducing/stopping the habit. Among female smokers, nearly 70% responded positively to this question. Approximately 14.8% of smokers reported success in reducing consumption, with no significant differences between genders.

Discussion

This study presented factors associated with smoking in a representative sample of the largest Brazilian cities, including all 27 capitals and various other cities. This knowledge may prove beneficial to preventive programs. The results of this study indicate that the following sociodemographic factors were associated with smoking: adulthood, marital status (separated or divorced), low education level (or none), and belonging to economic classes C and D. Alcohol abuse was also found to be associated with smoking.

The limitations of this study must be noted. Population-based surveys that rely on self-report may not reliably portray reality. Another concern is that questions associated with tobacco consumption were limited specifically to the use of cigarettes; they did not probe the use of cigarillos, cigars, pipe, and tobacco chewing and other forms of consumption not common in the Brazilian culture. Besides, the nature of this cross-sectional study was correlational, and thus, it could not assess causal relationships. Finally, conducting a survey of a nationwide representative sample in a continental country like Brazil is a challenge. Our findings cannot be extrapolated to a national perspective. However, this study presented a representative large sample of a population aged between 12 and 65 years in the largest cities of Brazil (more than 200,000 inhabitants).

The findings of this study support the conclusion that socioeconomically vulnerable populations may be at greater risk of cigarette consumption, thus, corroborating international and national studies.[7,8,19] The economic strata identified in this study include individuals with lower incomes (classes D and E), lower education levels (incomplete basic education or illiterate) and the unemployed. It is possible that the lack of access to information is one of the primary explanations to these findings. A telephone-based survey conducted in all Brazilian capitals found that fewer number of years studied was associated with higher smoking prevalence,[20] even when stratified by gender.[21] Future studies, preferentially employing qualitative approaches, may better explain this possibility.

Residents of the North and Northeast regions were less likely to smoke than residents of the Southeast region. These finding points to a cultural factor that may help explain regional variations in cigarette consumption. Although tobacco has its origin in the Americas, its commercial exploitation

Table 1 Sociodemographic characteristics of the total sample (n = 7,921) and smokers (n = 1,301), Brazil, 2005

Variables	Total n = 7,921 n (%)	Smokers n = 1,301 n (%)	Non-smokers *vs* Smokers OR (95% CI)*
Gender			
Female	4631 (58.5)	646 (49.6)	Ref
Male	3290 (41.5)	656 (50.4)	1.53 (1.33-1.77)
Region of the country			
Southeast	4104 (51.8)	754 (58.0)	Ref
South	878 (11.1)	175 (13.4)	1.10 (0.88-1.39)
West Central	673 (8.5)	100 (7.7)	0.77 (0.64-0.94)
North	600 (7.6)	65 (5.0)	0.54 (0.39-0.75)
Northeast	1666 (21.0)	207 (15.9)	0.62 (0.49-0.80)
Age Range (years)			
12 to 19	1130 (14.3)	63 (4.8)	0.39 (0.28-0.54)
20 to 29	1848 (23.3)	243 (18.7)	Ref
30 to 39	1724 (21.7)	316 (24.3)	1.48 (1.23-1.79)
40 to 49	1444 (18.2)	343 (26.4)	2.06 (1.71-2.48)
50 to 59	1118 (14.1)	246 (18.9)	1.86 (1.49-2.32)
60 or more	657 (8.3)	90 (6.9)	1.05 (0.80-1.37)
Religion			
Catholic	4611 (58.2)	840 (64.6)	Ref
Evangelical/Protestant	1941 (24.5)	134 (10.3)	0.33 (0.28-0.40)
Spiritualist	336 (4.2)	73 (5.6)	1.25 (1.00-1.56)
Others	160 (2.0)	42 (3.2)	1.59 (1.12-2.27)
No religion	873 (11.0)	212 (16.3)	1.43 (1.19-1.73)
Occupation			
Employed	5200 (65.6)	915 (70.3)	Ref
Student	1167 (14.7)	58 (4.5)	0.24 (0.18-0.33)
Retired	606 (7.7)	106 (8.1)	0.99 (0.80-1.22)
Unemployed	948 (11.9)	222 (17.0)	1.43 (1.20-1.70)
Schooling			
Illiterate/Incomplete Primary Education	2241 (28.3)	446 (34.3)	1.53 (1.26-1.86)
Complete Primary Education	2369 (29.9)	399 (30.6)	1.24 (1.04-1.49)
High School Graduate	2580 (32.6)	361 (27.7)	Ref
College Graduate	731 (9.2)	95 (7.3)	0.91 (0.74-1.13)
Economic Class			
A	335 (4.2)	42 (3.2)	0.80 (0.49-1.29)
B	1520 (19.2)	227 (17.4)	0.98 (0.80-1.20)
C	2929 (37.0)	446 (34.3)	Ref
D	2686 (33.9)	469 (36.0)	1.18 (0.99-1.39)
E	451 (5.7)	117 (9.0)	1.95 (1.58-2.40)
Marital Status			
Married	3533 (44.6)	587 (45.2)	Ref
Single	3404 (43.0)	488 (37.5)	0.84 (0.72-0.98)
Separated/Divorced	570 (7.2)	150 (11.5)	1.79 (1.50-2.14)
Widowed	414 (5.2)	76 (5.8)	1.13 (0.90-1.42)
Live with			
Family	6010 (75.9)	925 (71.1)	Ref
Alone	724 (9.1)	169 (13.0)	1.67 (1.41-1.98)
Partner	1071 (13.5)	180 (13.8)	1.11 (0.92-1.34)
Other	116 (1.5)	27 (2.1)	1.67 (1.05-2.66)

* Odds ratio estimated by logistic regression, clustered by city, non-smoker is the reference category.
The reference categories were selected based on the greater number of respondents.

Table 2 Characteristics relative to the consumption of alcohol and other drugs for the total sample (n = 7,921) and smokers (n = 1,301), Brazil, 2005

Variables	Total n (%) n = 7,921	Smokers n (%) n = 1,301	Non-smokers *vs* Smokers OR (95% CI)*
Frequency of alcohol use per year			
Abstained	3642 (46.0)	313 (24.1)	Ref
Sporadic use	2662 (33.6)	436 (33.5)	2.08 (1.67-2.60)
Frequent/heavy use	1617 (20.4)	552 (42.4)	5.51 (4.42-6.87)
Binge drinking per year			
Abstained	3971 (50.1)	367 (28.2)	Ref
No	2780 (35.1)	533 (41.0)	2.33 (1.83-2.96)
Yes	1170 (14.8)	401 (30.8)	5.12 (4.00-6.56)
Alcohol dependence			
No	6946 (87.7)	901 (69.2)	Ref
Yes	975 (12.3)	400 (30.8)	4.67 (3.80-5.73)
Lifetime use of other drugs**			
No	6417 (81.0)	887 (68.2)	Ref
Yes	1504 (19.0)	414 (31.8)	2.37 (2.06-2.72)

*Odds ratio estimated by logistic regression, clustered by city, non-smoker is the reference category.

**Marijuana, cocaine, crack, solvents, hallucinogens and benzodiazepines, amphetamines, barbiturates, and opiates without medical prescription.

The reference categories were selected based on the greater number of respondents.

and consumption began in Europe and then spread to other continents.[22] Therefore, it is possible that a greater concentration of European immigrants in the Southern region influenced the smoking habit in this area.

Our analyses showed lower smoking frequencies among those who claimed to be Protestant compared to those who were Catholic. There is evidence in literature that religiosity is a form of protection against consumption of various substances, which may be related to intrinsic factors of religiosity or external factors such as the social role of religion.[23,24] In Brazil, there are two factors that may be considered to explain these findings. First, the Catholic religion is clearly predominant, and there is an enormous variation in the behavior of individuals within this religion. Especially important in this aspect is the common tendency to consider oneself as Catholic, yet not practice the religion. This is rather unlikely among Protestants. Also, tobacco is a legal and well-accepted drug and, as such, it is rarely mentioned as a "drug" in Catholic masses. Therefore, the religion has little influence on individuals or on their decision to quit smoking.[25] Finally, as this study could not determine causal relationships, it is not clear whether individuals opted to follow the principles of Protestantism because it better fit their smoking-related religious beliefs or if Protestant individuals decided to quit smoking after accepting the religion to be better accepted into the group. The former premise would suggest that the Protestant religion is not protective against smoking behavior; rather smokers are less likely to identify with it and, therefore, join Protestant faiths.

Smokers who participated in this study showed greater consumption of other substances compared to non-smokers; that is, they were 3.13 times more likely to drink frequently or heavily and had 76% greater chance of experiencing other drugs during their lifetime. These findings are similar to other studies[7,15] and are important for the identification of behaviors associated with smoking and the development of effective treatment programs that take these behaviors into consideration.

The present findings show that nearly 65% of Brazilian smokers intend to quit smoking or at least reduce the amount of cigarettes smoked, although very few individuals have been successful. Compared to the national assessment using the same methods in 2001,[26] this study shows a considerable increase in the number of people who reported an intention to reduce or quit smoking (from 16.4% in 2001 to 64.8% in 2005). The intention to quit smoking was greater among women; women also showed a less abusive consumption pattern regarding the number of cigarettes smoked per day. Therefore, it is possible that the development of programs specifically design to reach women smokers will help them succeed to quit it.

Finally, the findings of the present study indicate factors associated with smoking, such as lower socioeconomic and educational levels. They also indicate that a great deal of smokers seem to be interested in reducing cigarette consumption. This scenario presents an opportunity for public service agents to provide the resources necessary to assist the population with treatment; such treatment may include

Table 3 Association between sociodemographic factors, patterns of alcohol consumption, and lifetime use of other drugs and smoking in Logistic regression (n = 7,921), Brazil, 2005

Variables of the final model	Non-smokers *vs* Smokers	
	aOR*	95% CI
Age range		
12 – 19	0.63	0.44-0.88
20 – 29	Ref	
30 – 39	1.69	1.40-2.05
40 – 49	2.56	2.02-3.25
50 – 59	2.55	1.92-3.39
60 or more	1.37	0.95-1.97
Region of the country		
Southeast	Ref	
South	1.29	0.97-1.71
West Central	0.97	0.75-1.24
North	0.72	0.52-0.98
Northeast	0.48	0.36-0.63
Religion		
Catholic	Ref	
Evangelical	0.40	0.34-0.48
Spiritualist	1.15	0.86-1.52
Other	1.58	1.07-2.31
No religion	1.17	0.98-1.41
Occupation		
Employed	Ref	
Student	0.50	0.34-0.73
Retired	1.05	0.85-1.30
Unemployed	1.42	1.18-1.71
Education		
Illiterate/Incomplete Primary Education	1.47	1.22-1.76
Complete Primary Education	1.32	1.10-1.59
High School Graduate	Ref	
College Graduate	0.67	0.51-0.87
Economic class		
A	0.67	0.39-1.14
B	0.97	0.77-1.21
C	Ref	
D	1.28	1.10-1.49
E	2.10	1.63-2.69
Marital status		
Married	Ref	
Single	1.19	1.00-1.42
Separated/Divorced	1.43	1.17-1.74
Widowed	1.20	0.88-1.64
Frequency of alcohol use per year		
Abstained	Ref	
Sporadic use	1.65	1.29-2.11
Frequent/heavy use	3.13	2.51-3.90
Alcohol dependence (yes)	2.43	1.96-3.02
Lifetime use of other drugs ** (yes)	1.76	1.50-2.06

*aOR: Adjusted by all the variables on the table clustered by city; final model excluded gender, live with, and binge drinking; non-smoker is the reference category. **Marijuana, cocaine, crack, solvents, hallucinogens and benzodiazepines, amphetamines, barbiturates, and opiates without medical prescription. The reference categories were selected based on the greater number of respondents.

Table 4 Pattern and characteristics of tobacco consumption among smokers according to gender (n = 1,301), Brazil, 2005

	Male (n = 655)	Female (n = 646)	Total (n = 1,301)	Estimates (95% CI)
Age of first use (average)	15.5	16.1	15.8	0.70 (0.16-1.23)*
Age of regular use (average)	17.5	18.4	17.9	0.95 (0.24-1.65)*
	n (%)	n (%)	n (%)	
Amount of cigarettes per day				
1-10	194 (29.7)	295 (46.0)	489 (37.8)	0.54 (0.38-0.76)**
11-20	354 (54.2)	275 (42.9)	629 (48.6)	
21-30	58 (8.9)	40 (6.2)	98 (7.6)	
More than 30	47 (7.2)	32 (5.0)	79 (6.1)	
Time to smoke after waking (min)				
5 or less	174 (26.7)	170 (26.4)	344 (26.6)	1.16 (0.93-1.45)**
6 to 30	236 (36.3)	219 (34.0)	455 (35.1)	
31 to 60	96 (14.8)	62 (9.6)	158 (12.2)	
More than 60	144 (22.2)	194 (30.1)	338 (26.1)	
Attempted to reduce/stop	393 (60.1)	446 (69.7)	839 (64.8)	1.53 (1.16-2.01)***
Accomplished to reduce/stop	51 (12.9)	73 (16.4)	124 (14.8)	1.33 (0.79-2.27)***

*Regression coefficient from Linear regression, both models expressed p < 0.01; **Odds ratio estimated by Ordered logistic regression; ***Odds ratio estimated by Logistic regression. All models were performed clustered by city and have male as the reference category.

medication, medical care, and psychological assistance. The basic units of health services can play an important role by acting within areas that are not economically assisted and increasing the number of preventive programs that focus on populations with lower levels of education. Moreover, qualitative research should be conducted to provide a better understanding of the vulnerability of this specific population.

Disclosures

Emérita Sátiro Opaleye
Employment: *Centro Brasileiro de Informações sobre Drogas Psicotrópicas (CEBRID), Departamento de Psicobiologia, Universidade Federal de São Paulo, Brazil.*
Zila M Sanchez
Employment: *Centro Brasileiro de Informações sobre Drogas Psicotrópicas (CEBRID), Departamento de Psicobiologia, Universidade Federal de São Paulo, Brazil.*
Yone Gonçalves de Moura
Employment: *Centro Brasileiro de Informações sobre Drogas Psicotrópicas (CEBRID), Departamento de Psicobiologia, Universidade Federal de São Paulo, Brazil.*
José Carlos Fernandes Galduróz
Employment: *Departamento de Psicobiologia, Universidade Federal de São Paulo, Brazil.*
Danilo Polverini Locatelli
Employment: *Centro Brasileiro de Informações sobre Drogas Psicotrópicas (CEBRID), Departamento de Psicobiologia, Universidade Federal de São Paulo, Brazil.*
Ana Regina Noto
Employment: *Centro Brasileiro de Informações sobre Drogas Psicotrópicas (CEBRID), Departamento de Psicobiologia, Universidade Federal de São Paulo, Brazil.*
* Modest
** Significant
*** Significant: Amounts given to the author's institution or to a colleague for research in which the author has participation, not directly to the author.
Financing: Secretaria Nacional de Políticas sobre Drogas (SENAD), financial support of Associação Fundo de Incentivo à Pesquisa (AFIP).

References

1. WHO. WHO Report on the Global Tobacco Epidemic. The MPOWER package 2008;Geneva.
2. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med. 2006;3:e442.
3. Cavalcante T. O controle do tabagismo no Brasil: avanços e desafios. Rev Psiq Clin. 2005;32:283-300.
4. Correa PC, Barreto SM, Passos VM. Smoking-attributable mortality and years of potential life lost in 16 Brazilian capitals, 2003: a prevalence-based study. BMC Public health. 2009;9:206.
5. Fonseca AM, Galduroz JC, Noto AR, Carlini EL. Comparison between two household surveys on psychotropic drug use in Brazil: 2001 and 2004. Cien Saude Colet. 2010;15:663-70.
6. Menezes A, Minten G, Hallal P, Victora C, Horta B, Gigante D, Barros F. Tabagismo na coorte de nascimentos de 1982: da adolescência à vida adulta, Pelotas, RS. Rev Saúde Pública. 2008;42:78-85.
7. Baumann M, Spitz E, Guillemin F, Ravaud JF, Choquet M, Falissard B, Chau N; Lorhandicap group. Associations of social and material deprivation with tobacco, alcohol, and psychotropic drug use, and gender: a population-based study. Int J Health Geogr. 2007;6:50.
8. Degenhardt L, Chiu WT, Sampson N, Kessler RC, Anthony JC, Angermeyer M, Bruffaerts R, de Girolamo G, Gureje O, Huang Y, Karam A, Kostyuchenko rS, Lepine JP, Mora ME, Neumark Y, Ormel JH, Pinto-Meza A, Posada-Villa J, Stein DJ, Takeshima T, Wells rJE. Toward a global view of alcohol, tobacco, cannabis, and cocaine use: findings from the WHO World Mental Health Surveys. PLoS Med. 2008;5:e141.
9. Tramacere I, Gallus S, Zuccaro P, Colombo P, Rossi S, Boffetta P, La Vecchia C. Socio-demographic variation in smoking habits Italy, 2008. Prev Med. 2009;48:213-7.

10. Nichter M, Padmawati S, Danardono M, Ng N, Prabandari Y. Reading culture from tobacco advertisements in Indonesia. Tob Control. 2009;18:98-107.
11. DiNapoli PP. Early initiation of tobacco use in adolescent girls: key sociostructural influences. Appl Nurs Res. 2009; 22:126-32.
12. Wallace JM, Jr., Vaughn MG, Bachman JG, O'Malley PM, Johnston LD, Schulenberg JE. Race/ethnicity, socioeconomic factors, and smoking among early adolescent girls in the United States. Drug Alcohol Depend. 2009;104(Suppl1):S42-9.
13. Botega NJ, Mitsuushi GN, Azevedo RC, Lima DD, Fanger PC, Mauro MLF, Gaspar KC, Silva VF. Depression, alcohol use disorders and nicotine dependence among patients at a general hospital. Rev Bras Psiquiatr. 2010;32:250-6.
14. Iglesias V, Cavada G, Silva C, Caceres D. [Early tobacco and alcohol consumption as modifying risk factors on marijuana use]. Rev Saude Pública. 2007; 41:517-22.
15. Beets MW, Flay BR, Vuchinich S, Li KK, Acock A, Snyder FJ. Longitudinal patterns of binge drinking among first year college students with a history of tobacco use. Drug Alcohol Depend. 2009;103:1-8.
16. Fonseca AM, Galduroz JC, Tondowski CS, Noto AR. Alcohol-related domestic violence: a household survey in Brazil. Rev Saude Pública. 2009;43:743-9.
17. SAMHSA. Substance Abuse and Mental Health Services Administration - Substance Abuse in States and Metropolitan Areas: Model Based Estimates from the 1991-1993, National Household Survey on Drug-Abuse: Summary Report. US Department of Health and Human Services, 1996.
18. ABIPEME. Associação Brasileira dos Institutos de Pesquisa de Mercado - Proposição para um novo critério de classificação sócio-econômica. Mímeo, São Paulo, 1978.
19. Moreira LB, Fuchs FD, Moraes RS, Bredemeir M, Cardozo S. [Prevalence of smoking and associated factors in a metropolitan area in the southern region of Brazil]. Rev Saude Pública. 1995;29:46-51.
20. Silva GAE, Valente JG, de Almeida LM, de Moura EC, Malta DC. Tobacco smoking and level of education in Brazil, 2006. Revista De Saude Pública. 2009; 43:48-56.
21. Moura EC, Malta DC, Neto OLD, Monteiro CA. Prevalence and social distribution of risk factors for chronic noncommunicable diseases in Brazil. Revista Panamericana De Salud Publica-Pan American Journal of Public Health. 2009;26:17-22.
22. Borio G. Tobacco Timeline. Available at: http://wwwtobaccoorg/History/Tobacco_Historyhtml [cited October 10, 2010] 2010.
23. Van der Meer Sanchez Z, De Oliveira LG, Nappo SA. Religiosity as a protective factor against the use of drugs. Subst Use Misuse. 2008;43:1476-86.
24. Edlund MJ, Harris KM, Koenig HG, Han X, Sullivan G, Mattox R, Tang L. Religiosity and decreased risk of substance use disorders: is the effect mediated by social support or mental health status? Soc Psychiatry Psychiatr Epidemiol. 2010;45:827-36.
25. van der Meer Sanchez Z, Nappo SA. Religious treatments for drug addiction: an exploratory study in Brazil. Soc Sci Med. 2008;67:638-46.
26. Carlini EA, Galduroz JC, Noto AR, Carlini CM, Oliveira LG, Nappo SA. [Accessed on 10 Nov 2010] II Levantamento domiciliar sobre o uso de drogas psicotrópicas no Brasil: estudo envolvendo as 108 maiores cidades do país - 2005. Available at: http://www.cebridepmbr/indexphp; 2007.