

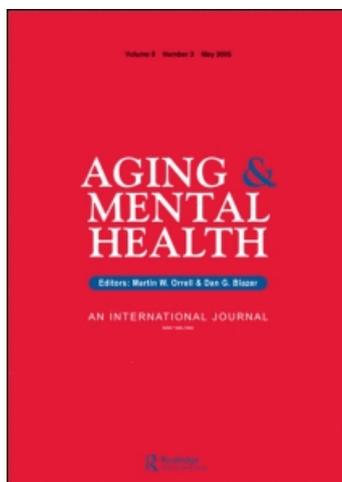
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Tobacco use among the elderly: The first Brazilian National Survey (BNAS)

C. S. Madruga^a; C. P. Ferri^b; I. Pinsky^a; S. L. Blay^c; R. Caetano^d; R. Laranjeira^a

^a Departamento de Psiquiatria, Unidade de Pesquisa em Álcool e outras Drogas (UNIAD), Universidade Federal de São Paulo, São Paulo, Brazil ^b Section of Epidemiology, King's College London, Institute of Psychiatry, Health Service and Population Research, London, UK ^c Departamento de Psiquiatria, Universidade Federal de São Paulo, São Paulo, Brazil ^d School of Public Health, University of Texas, Dallas Regional Campus, Dallas, TX, USA

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Tobacco use among the elderly: The first Brazilian National Survey (BNAS)

C.S. Madruga^{a*}, C.P. Ferri^b, I. Pinsky^a, S.L. Blay^c,
R. Caetano^d and R. Laranjeira^a

^a*Departamento de Psiquiatria, Unidade de Pesquisa em Alcool e outras Drogas (UNIAD), Universidade Federal de São Paulo, São Paulo, Brazil;* ^b*Section of Epidemiology, King's College London, Institute of Psychiatry, Health Service and Population Research, London, UK;* ^c*Departamento de Psiquiatria, Universidade Federal de São Paulo, São Paulo, Brazil;* ^d*School of Public Health, University of Texas, Dallas Regional Campus, Dallas, TX, USA*

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Objective: This study describes the prevalence and pattern of tobacco use among the elderly in Brazil and establishes its association with socio-demographic characteristics, other substance use and depression.

Method: The analyses were performed in 400 individuals aged 60 years and over who participated in the first Brazilian national alcohol survey (BNAS) in 2000.

Results: Nearly 60% of the sample had ever smoked, of them one in three were still smoking at the time of the interview. Most (94.3%) of the tobacco users were smoking everyday and 34.3% consuming more than 20 cigarettes a day. Only 1% of the former smokers had received support to quit. Over half of the current users (65%) would use free treatment to quit if it existed in Brazil, and just under half of them (47.4%) would consider quitting if cigarettes' price were higher. Currently, tobacco users were more likely to be men and alcohol abusers. Prevalence of depression was high regardless participant smoking status (33.0% among non-smokers, 34.7% among current smokers and 39.3% among former smokers). There was no significant association between smoking and depression.

Conclusion: This study found a disturbingly high proportion of tobacco users among the elderly in Brazil. According to the Global Burden of Disease project, tobacco has the highest mortality risk of all substance use categories, especially for the elderly. This study shows there is an urgent need to develop smoking cessation interventions targeted specifically to the elderly.

Keywords: smoking; aged; cigarettes; Brazil; epidemiology

Introduction

It is estimated that about four million people die of tobacco-related diseases every year worldwide. This figure is expected to rise to 10 million by 2030, with seven out of 10 deaths happening in developing countries (WHO, 2000). Brazil is the largest country in Latin America with the population estimated to be 190.6 million in 2009. The increasing life expectancy and the fast declining fertility rates are causing a rapid increase of the elderly population in Brazil, which reached 8.6% of the total population (14.5 million people aged 60 years and over) in 2000 (IBGE, 2004). This increase has been faster in Latin [LS1] America compared to the rest of the world, and it is expected to continue being faster in the following decades (Gasparini, Alejo, Haimovich, Olivieri, & Tornarolli, 2007).

According to the 2008 WHO Report for Tobacco Smoking (WHO, 2008), the prevalence of tobacco use in the adult Brazilian population was 16.2%. According to this same report, prevalence of tobacco consumption in Latin America varied from 11.2%

in Guatemala to 33.3% in Uruguay, which is similar to what was found in Europe: 26.0% in the United Kingdom; 33.2% in Spain and 23.2% in the United States. The prevalence of tobacco use tend to decrease in older age groups, in England for instance, it decreases to 12% among those aged 65 years or over (NHS The Information Centre, 2008); and to 9.3% in the United States (Centers for Disease Control and Prevention, 2009).

There is a chronic lack of epidemiologic data from developing countries regarding elderly populations in general, and about tobacco use within this age group in particular. A study conducted in south Brazil (Marinho, Blay, Andreoli, & Gastal, 2008) has shown that 18.8% of the elderly were smokers (28.9% among men and 13.6% among women). Studies based on nationally representative samples are scarce.

This is the first study to describe the prevalence and pattern of tobacco use among the elderly in Brazil, using data from the first Brazilian national alcohol survey (BNAS). This study also aims to establish possible associations of tobacco use with

*Corresponding author. Email: clarice.madruga@kcl.ac.uk

Table 1. Socio-demographics and smoking prevalence among elderly in Brazil (BNAS, 2006).

	Male, <i>n</i> (weighted %) (<i>n</i> = 161 (41))	Female, <i>n</i> (weighted %) (<i>n</i> = 240 (59))	Total, <i>n</i> (weighted %) (<i>n</i> = 401)
Age (years)			
60–69	101 (66.3)	146 (61.7)	247 (63.8)
70–79	46 (27.2)	74 (30.4)	120 (29.0)
80+	14 (6.4)	20 (7.7)	34 (7.2)
Marital status			
Single/separated/divorced/widowed	50 (17.5)	155 (58.5)	205 (40.5)
Married/living with a partner	111 (82.5)	85 (41.5)	196 (59.5)
Education			
Primary school (inc)	99 (62.2)	158 (63.9)	257 (63.2)
Secondary school	39 (24.1)	51 (21.4)	90 (22.6)
A level or above	23 (13.6)	31 (14.7)	54 (14.3)
Income			
No income	6 (8.0)	48 (49.3)	54 (33.1)
Up to US\$ 128	14 (26.6)	30 (22.3)	44 (24.0)
US\$ 130–US\$ 260	17 (26.9)	17 (17.6)	34 (21.2)
US\$ 261 or more	19 (38.5)	7 (10.8)	26 (21.6)
Depression	44 (26.9)	114 (43.0)	158 (35.9)
Consumption of tobacco (cigarettes, roll-up's, pipes or cigars)			
Never smoke	42 (27.0)	118 (52.0)	160 (41.0)
Former smoker	79 (48.7)	92 (36.1)	171 (41.7)
Age of onset (mean SD)	15.58 (6.1)	18.9 (10.9)	17.3 (9.0)
Years of consumption (mean SD)	52.4 (8.1)	47.2 (14.9)	50.2 (11.7)
Current smoker	40 (24.3)	30 (11.9)	70 (17.3)
Pattern of consumption (cigarettes/day)			
Up to 9	15 (37.5)	18 (60.0)	33 (47.1)
10–19	9 (22.5)	4 (13.3)	13 (18.6)
20 or more	16 (40.0)	8 (26.7)	24 (34.3)
Daily tobacco consumption (yes/no)	38 (95.0)	28 (93.3)	66 (94.3)
Age of smoking onset (mean SD)	14.7 (5.3)	20.7 (13.5)	17.2 (10.0)
Years of tobacco consumption (mean SD)	52.4 (8.2)	47.2 (14.9)	50.2 (11.7)
Use of other substances			
Alcohol use	76 (47.2)	37 (15.4)	113 (28.2)
Alcohol abuse ^a	11 (5.7)	0 (0)	11 (2.5)
Sedative use ^b	7 (4.0)	31 (14.8)	38 (10.0)

^aAccording to ICD criteria.

^bOnce a week or more.

socio-demographic characteristics, other substances use and depression (Table 1).

The analysis for this study is restricted to 401 participants who were 60 years and over.

Method

Sampling and procedures

The BNAS was conducted between November 2005 and April 2006. A multistage cluster sampling procedure was used to select 3007 individuals aged 14 years and older from the Brazilian household population. The sampling involved three stages: (1) selection of 143 counties using probability proportional to size methods (PPS); (2) selection of two census sectors for each county, with the exception of the 14 biggest selected counties, totaling 325 census sectors, also using PPS; and (3) within each census sector eight households were selected by simple random sampling, followed by the selection of a household member to be interviewed using the 'the closest future birthday' technique. One-hour face-to-face interviews were conducted in the respondent's home by trained interviewers, using a standardized questionnaire. A total of 3007 interviews were carried out (response rate = 66.4%).

Measurements

The questionnaire used was the Brazilian adaptation of the Hispanic American Baseline Alcohol Survey (HABLAS) questionnaire developed by Caetano, Vaeth, Ramisetty-Mikler, and Rodriguez (2009). It accessed socio-demographic characteristics such as gender, age, education level, marital status, monthly personal income, etc.

Tobacco use: participants were asked about their consumption of tobacco products (cigarettes, roll-ups, pipes or cigars). Information on patterns of consumption (amount consumed, frequency of use in the last 30 days); age of onset and attitudes towards smoking were also obtained. Former smokers were defined by complete abstinence for at least two years and current smokers those who regularly consumed any tobacco product in the last 30 days.

Alcohol use: it was defined as the consumption of any alcoholic beverage in the last 12 months. Alcohol

abuse and dependence were diagnosed according to ICD-10.

Sedative use was defined as the use of sedative drugs once a week or more. Depression was assessed using the Brazilian validated version of 20-item Center for Epidemiological Studies Depression Scale (CES-D), using the score 16 as the cut-off point (Batistoni, Neri, & Cupertino, 2007).

Statistics analyses

Statistical analyses were conducted using Stata SE 10. All analyses were conducted on data weighted to take into account differing selection probabilities at each stage. We have described the socio-demographic characteristics of the population and their lifestyle by gender. We used logistic regression analyses to estimate the crude and adjusted odds ratio with 95% confidence interval (95% CI), for the association between socio-demographic variables, other substance use and depression with current tobacco use.

Ethics

The Ethics Committee of the Federal University of Sao Paulo approved the project. All respondents granted their informed consent.

Results

Sample characteristics

The mean age of the participants was 68.3 years (± 6.9), most of them were women (59%), married or living with a partner (40.5%), with no qualifications (63.2%). Over one-third of the studied population had no income. More than one in three participants (35.9%) showed depressive symptoms, which are clinically relevant, and prevalence was higher among women than men (43.0% and 26.9%, respectively).

Nearly, one in five participants were current tobacco smokers and two-fifths were former smokers who were the majority (87.1%) and had quit smoking seven years ago or more. Amongst the current smoking population, nearly all smoked every day, and about a third were heavy smokers (20 or more cigarettes a day).

Regarding use of other substances, 40.6% of the elderly population still consumed alcohol and 58.3% are male. Participants with alcohol abuse were all men (2.9%). However, the majority of sedative consumers were women (10.0% compared to 8.3% among men).

Attitudes towards tobacco consumption

About two-thirds of the current smokers reported desire to quit (80.2%) and a little over half of them (59.6%) had tried quitting in the past 12 months, mainly for health reasons (60.6%). Just under half of the smoking population (47.4%) would consider

Table 2. Predictors of tobacco use among elderly in Brazil.

Variables	Unadjusted OR (95% CI)	Adjusted OR ^a (95% CI)
Gender		
Female	1.00	1.00
Male	2.39 (1.26–4.52)	3.98 (1.01–15.67)
Age (years)		
60–69	1.00	1.00
70–79	0.93 (0.47–1.84)	1.36 (0.44–4.13)
80+	2.07 (0.56–7.69)	4.46 (0.33–59.03)
Education		
Illiterate	1.00	1.00
Up to secondary school	0.66 (0.33–1.30)	1.77 (0.20–2.91)
A level or above	1.13 (0.44–2.90)	3.94 (0.57–27.0)
Marital status		
Single/separated/widowed	1.00	1.00
Married/living with a partner	0.69 (0.37–1.28)	1.71 (0.55–5.25)
Income		
No income	1.00	1.00
Up to US\$ 128	1.95 (0.62–6.18)	3.80 (0.98–14.72)
US\$ 130–260	0.65 (0.22–1.90)	1.31 (0.33–5.19)
US\$ 261 or more	1.01 (0.28–3.63)	1.90 (0.30–12.19)
Alcohol abuse		
No	1.00	1.00
Yes	20.31 (4.90–84.03)	13.77 (1.96–96.79)
Depression		
Yes	1.00	1.00
No	1.00 (0.97–1.03)	0.99 (0.93–1.05)

Note: ^aAdjusted by all variables in the table.

quitting if cigarettes price were higher and most of them (65%) would use free treatment to quit if it existed in Brazil. Also among the smoking population just under one-third (28.9%) of those who currently drink reported no desire to stop smoking and only 12% of those who do not drink reported no desire to quit.

One in four smokers (28%) thought that smoking is not as harmful to health as it is advertised, and 17% disagreed that their health would improve if they stopped smoking. Only 1.3% of the former smokers reported receiving support to quit. Men showed a much earlier age of smoking onset in average (14.7(SD = 5.3)) than women (20.7(SD = 13.4)). Current tobacco users had smoked for 50.2 years in average (SD = 11.7) and former tobacco users had consumed cigarettes for 43.7 years (SD = 10.9).

Predictors of current tobacco consumption

The unadjusted logistic regression model (Table 2) showed that gender and alcohol abuse were associated to current tobacco use. The odds for using tobacco is nearly four times higher in men compared to women (adjusted OR: 3.98; 95% CI: 1.01–15.67) and over 13 times higher among alcohol abusers compared to non-alcohol abusers (adjusted OR: 13.77; 95% CI: 1.96–96.79).

Although the prevalence of depression in the smoking population was slightly higher than in

the abstinent groups (34.7% for current smokers against 33.0% non-smokers and 39.3% former smokers) the adjusted association between tobacco use and depression was not statistically significant.

Discussion

About two-thirds of the Brazilian elderly population have ever smoked regularly and one in five is still smoking. Nearly all current smokers consume tobacco daily (94%) and heavily (more than half of them smoke over 10 cigarettes a day). The high proportion of smokers and the pattern of consumption found in this sample are a major concern, since the elderly are the most vulnerable to tobacco-related diseases such as cancer, heart disease and lung disease (Enstrom & Kabat, 2006). The Global Burden of Disease review from alcohol, illicit drugs and tobacco reported that tobacco had the highest mortality risk of all substance use categories, especially for the elderly (Rehm, Taylor, & Room, 2006). Current smokers are consuming tobacco for more than 40 years in average and one in three thinks this is not bad for their health, which might explain why about 20% have no wish to quit. There is evidence from low and middle income countries that social economically disadvantaged smokers have limited awareness of risks of smoking (WHO, 2000).

Oposing the results recently found by Kenney et al. (2009), there was no significant association between smoking and depression. Our negative finding might be partially explained by the fact that we have adjusted for alcohol abuse, which might be one of the explanations for the association between smoking and depression found in other studies. Nevertheless, prevalence of depression was high regardless of participant smoking status (33.0% among non-smokers, 34.7% among current smokers and 39.3% among former smokers), and still an important issue for those willing to stop as smokers with depression are more likely to have difficulty in stopping smoking and experience more severe withdrawal symptoms (Covey, 1999).

Although the usage of sedatives is common among the elderly, the comorbid use of both substances tobacco and sedative are less common among the elderly compared to younger age groups (John et al., 2007). In this study, the elderly smokers were not more likely to consume sedatives than non-smokers or former smokers, although a considerably high prevalence of sedatives use was noticed among women (14.8%).

Only gender and alcohol abuse were found to be associated with current smoking habit. The finding that current smokers who drink were less likely to wish stop smoking compared to those who do not drink is in the same line of previous findings for young age groups. Alcohol and tobacco consumption are highly correlated and alcohol use is a known risk factor for

failed smoking cessation in the adult population. The recommendation that smokers should avoid alcohol consumption during the initial stages of a quit attempt (Fiore, 2000) might also apply to the old age population (McKee, Krishnan-Sarin, Shi, Mase, & O'Malley, 2006; Zimmerman, Warheit, Ulbrich, & JB, 1990).

It is important to highlight that by using national population data, we have avoided the selection and referral biases inherent in studies of clinic-based patients. However, the cross-sectional nature of this study limits its ability to infer causality. The sample size might have limited our statistical power bringing the possibility of type 2 error in some of our results.

The lack of public health strategies to respond to tobacco use in Brazil is an important issue as it was found that only 1% of the former smokers received support to quit. In addition, the finding that more than half of the smokers (65%) would try to quit if free treatment was available is extremely important in the sense of stimulating treatment initiatives from the government. A significant body of research on the impact of tax increases on cigarette consumption shows that higher tobacco prices significantly reduce tobacco use (Abdullah & Husten, 2004; Hopkins, et al., 2001). This study found that 47.4% of the elderly population reported that they would consider quitting if the cigarette price was higher, agreeing with the data found by the WHO Tobacco Control in Developing Countries (WHO, 2000), which shows that smokers from low-income countries are even more responsive to price changes. Studies have shown that the benefits of quitting smoking are almost immediate for older persons, and the likelihood of former smokers having tobacco-related diseases decreases the longer the person refrains from smoking (Burns, 2000). This study supports the development of interventions to promote smoking cessation targeting the elderly population specifically.

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