ORIGINAL ARTICLE / *ARTIGO ORIGINAL*

Smoking in adults in the municipality of Rio Branco, Acre, Brazil: a population-based study

Tabagismo em adultos no município de Rio Branco, Acre: um estudo de base populacional

Patricia Merly Martinelli[I], Creso Machado Lopes[I], Pascoal Torres Muniz[I], Orivado Florencio de Souza[I]

ABSTRACT: *Objective:* To analyze the associations between smoking and socioeconomic status, and to analyze the profile of smokers in the city of Rio Branco, Acre. *Methods:* A population-based cross-sectional study conducted with 1,512 adults living in urban and rural areas. Information about demographic aspects, socioeconomic status and smoking habits were collected through home interviews. Crude and adjusted prevalence ratios with their respective 95% confidence intervals were calculated by Poisson regression. *Results:* The overall prevalence of smoking was of 19.9%. Males had a higher prevalence (22.7%) in contrast to females (17.6%). By age, a higher prevalence was observed at 50 – 59 years in males (30.9%) and at 40 – 49 years in females (23.8%). A linear trend was observed between the higher prevalence of smoking and the lower amount of years of education and income (p < 0.05). The profile of smokers indicated that the majority, in both genders, began smoking at age 15, smoked between 1 and 10 cigarettes per day, lit the first cigarette of the day 60 minutes after waking up and had tried to quit smoking at least twice. *Conclusion:* The high prevalence of smoking is a relevant public health problem in Rio Branco. Community actions must be implemented for the prevention and control of tobacco use.

Keywords: Smoking. Life style. Health surveys. Health profile. Prevalence. Cross-sectional studies.

[I]Graduate Program in Collective Health, *Universidade Federal do Acre* – Rio Branco (AC), Brasil.

Corresponding author: Patricia Merly Martinelli. Programa de Pós-graduação em Saúde Coletiva, Universidade Federal do Acre. Campus Universitário, BR 364, Km 04, CEP 69915-900, Rio Branco, AC, Brasil. E-mail: martinelli_patricia@hotmail.com

RESUMO: *Objetivo:* Analisar as associações entre o tabagismo e os aspectos socioeconômicos e verificar o perfil do fumante no município de Rio Branco, Acre. *Métodos:* Estudo transversal de base populacional conduzido com 1.512 indivíduos adultos residentes nas zonas urbana e rural. Informações sobre os aspectos demográficos, socioeconômicos e hábitos tabágicos foram coletados por entrevistas domiciliares. Razões de prevalência brutas e ajustadas com os respectivos intervalos de confiança em 95% foram calculados mediante regressão de Poisson. *Resultados:* A prevalência geral de tabagismo foi de 19,9%. O sexo masculino mostrou maior prevalência de tabagismo (22,7%) em contraste ao sexo feminino (17,6%). Por faixa etária, maiores prevalências foram observadas aos 50 – 59 anos no sexo masculino (30,9%) e aos 40 – 49 anos no sexo feminino (23,8%). Foi observada tendência linear entre maior prevalência de tabagismo com menos anos de estudo e renda mais baixa (p < 0,05). O perfil do fumante indicou que a maioria, ambos os sexos, iniciou o hábito de fumar aos 15 anos, fumava entre 1 e 10 cigarros por dia, acendia o primeiro cigarro do dia após 60 minutos de acordar e havia tentado parar de fumar pelo menos duas vezes. *Conclusão:* A prevalência alta de tabagismo apresentou-se como um importante problema em saúde pública em Rio Branco. Ações comunitárias devem ser implementadas para prevenção e controle do tabagismo.

Palavras-chave: Tabagismo. Estilo de vida. Inquéritos epidemiológicos. Perfil de saúde. Prevalência. Estudos transversais.

INTRODUCTION

The dangers of smoking have been shown for many decades[1], proving to be one of the biggest challenges to public health. Currently, more than 1.3 million people are smokers worldwide. Of this total, 82% live in countries with medium and low incomes[2-5]. In Brazil, this context is experienced by 25 million smokers older than 15 years of age[6]. Despite efforts to reduce the prevalence of smoking, it is observed that several factors contribute to its spread in developing countries, such as the significant growth of tobacco consumption by women with low income and less education[2,7,8].

In 2008, a national household survey showed that the state of Acre had the higher prevalence of smokers in Brazil (22.1%), and only 56.4% planned to quit smoking[9]. In the same year, in Rio Branco, an overall prevalence of 18.0% was verified through telephone survey[10]. Compared to the State capitals of Brazil, Rio Branco had the highest prevalence of smoking in females and the lowest difference in this prevalence between both genders (1.0%)[10].

In the Brazilian capitals, since 2006, the Ministry of Health has been conducting annual monitoring of the smoking prevalence by telephone surveys[11]. Despite being relevant, the results of these investigations are limited to the capitals of the Northern region due the low coverage of residential telephone lines[12]. Thus, it is recommended that population-based

household surveys are conducted in the state capitals of the northern region, in order to investigate the profile of smokers in the region.

Regional investigations of the profile of smokers aim to direct the implementation of public policies and to guide community action according to the characteristics, attitudes and beliefs of smokers. This study aims to analyze the associations between smoking and socioeconomic aspects and to assess the profile of smokers in the municipality of Rio Branco, Acre.

METHODS

This is a cross-sectional population-based study conducted from September 2007 to August 2008. Data on smoking were obtained from the survey "Health and Nutrition in Children and Adults in the Municipality of Rio Branco, Acre".

Procedures for the selection of subjects and the determination of the sample size are detailed in another publication[13]. To summarize it, a cluster sampling was applied in two stages, where the primary units were census tracts, as determined by the 2006[14] National Household Sample Survey (PNAD) and the secondary units were households. Initially, 35 census tracts were drawn: 31 in the urban area and 4 in rural areas. Subsequently, 25 households were selected in each census tract. All residents of each household were invited to participate in the study. A total of 1,516 subjects older than 18 years of age were eligible, with a response rate of 99.73%. Inclusion criteria were not presenting any health problems which could affect recalling past events.

A structured questionnaire with closed questions was administered to selected subjects within the households. The variables were composed of demographic and socioeconomic characteristics and smoking habits. Age was categorized into five strata: 18 – 29 years; 30 – 39 years; 40 – 49 years; 50 – 59 years; 60 years or older. Marital status was grouped into three categories: single; stable union; and widowed, separated and divorced. According to the occupational activity reported by the interviewee, three categories were compiled: workers; no income (students, unemployed and homemakers); and retirees or pensioners. The variable income such as minimum wage (MW) was categorized as 5 or more MWs; 2 – 4; 1; less than 1 or no income. This variable was based on the Brazilian MW in effect in the years in which the interviews were carried out (R$ 380, or US$ 195, in 2007 and R$ 415, or US$ 247, in 2008). The education variable was collected in full years of study and categorized in: 12 or more years; 9 – 11 years; 5 – 8 years; 4 years or less.

According to the World Health Organization (WHO) [15] smoking was determined in the following manner: current smoker (smoker, occasional smoker or ex-smoker who consumed at least one cigarette in the last six months); non-current smokers (never smoked or ex-smoker who did not consume any cigarettes in the last six months). Smoking was identified by the following variables: age when started smoking (less than

15 years old, between 16 and 20 years old and above 21 years old), number of cigarettes smoked per day (1 – 10 cigarettes, 11 – 20 cigarettes, and 21 cigarettes or more), how much time after waking up the first cigarette of the day is smoked (first 5 minutes, 6 – 30 minutes, 31 – 60 minutes and 60 minutes), frequency of purchase of cigarettes from street vendors (always, sometimes or never). The type of cigarette smoked was analyzed in two categories, namely: industrialized with filter and others (filterless industrialized cigarettes and straw cigarettes). Variables that indicated awareness of the dangers of smoking were: warning pictures (encourages cessation and does not encourage cessation) and number of cessation attempts (none, 1 time and 2 times or more).

Data were entered following routine developed in the Epi-Info 6.1 program. After the process of typing, data were transported to the StataTM 10.0 statistical software, where the categorizations and statistical analyzes were performed. All analyzes were performed using the svy module. Crude and age-adjusted prevalence ratios, with their respective 95% confidence intervals (95%CI), of smoking by demographic and socioeconomic variables were obtained using Poisson regression. In the analysis, the χ^2 test or Fisher's exact test was used to compare men and women according to smoking behavior. In all statistical analyzes, the significance level considered was of 5%.

The research project was approved by the Ethics Committee of Universidade Federal do Acre, according to protocol number 23107.00150/2007-22.

RESULTS

Of the total 1,516 subjects found in the households of the selected tracts, there were four subjects who did not respond adequately to questions regarding the smoking module. Of the 1,512 subjects studied, 43.3% were male and 56.7% were female, giving a response rate of 99.7%. The prevalence of smoking in the population was 19.9% (95%CI 17.8 – 21.9), with a higher proportion in men (22.9%, 95%CI 19.6 – 21.6) than in women (17.6%, 95%CI 15.6 – 20.1) (Table 1).

Crude and age-adjusted prevalence ratios (PR), between the independent variables and smoking according to gender, are presented in Tables 2 and 3. Higher prevalence ratios were observed in the age group 50 – 59 years for males (PR 1.59, 95%CI 1.05 – 2.39) and in the age group 40 – 49 years in females (OR 1.91, 95%CI 1.21 – 3.02). In both genders, after adjustment for age, a linear relationship was revealed between years of education and lower income in minimum wages, and the smoking situation (p-value for trend < 0.05), while the category of retired or pensioners smoked 1.52 times more than the working class.

Table 4 presents the description of the profiles of smokers according to gender. Regarding the indicators of tobacco dependence, the majority began smoking aged less than 15 years (men: 49.6%, women: 52.0%). Over half of the subjects reported smoking one to ten

Table 1. Description of the general characteristics, according to demographic and socioeconomic characteristics, of the adult population ≥ 18 years of Rio Branco, AC, 2008.

Variables	Total		Male		Female	
	n = 1.512	%	n = 655	%	n = 857	%
Age group (years)						
18 – 29	575	38.0	269	41.1	306	35.7
30 – 39	325	21.5	138	21.1	187	21.8
40 – 49	247	16.3	96	14.7	151	17.6
50 – 59	186	12.3	78	11.9	108	12.6
≥ 60	179	11.9	74	11.2	105	12.2
Marital status						
Single	507	33.5	228	34.8	279	32.5
Stable union	836	55.3	393	60.0	443	51.7
Widowed/separated/divorced	169	11.2	34	5.2	135	15.8
Occupational activity						
Workers	844	55.9	448	68.4	396	46.2
No income	247	16.3	88	16.5	139	16.3
Retirees/pensioners	420	27.8	99	15.1	322	37.5
Income [a]						
5 MW or more	164	10.9	88	13.6	76	8.9
2 to 4 MW	278	18.6	159	24.6	119	13.9
1 MW	458	30.5	226	34.9	232	27.2
No income/less than 1 MW	601	40.0	174	26.9	427	50.0
Schooling (years)						
≥ 12	244	16.2	101	15.4	143	16.9
9 – 11	559	37.1	238	36.3	321	37.7
5 – 8	300	19.9	149	22.7	151	17.7
≤ 4	403	26.7	167	25.6	236	27.7
Smoking						
Non-current smoker	1211	80.1	505	77.1	706	82.4
Current smoker	301	19.9	150	22.9	151	17.6

[a] Minimum wage (MW) of R$ 380, or US$ 195, in 2007 and R$ 415, or US$ 247, in 2008.

cigarettes per day (men 65.1%, women: 67.9%). A low frequency of women (0.8%) who smoked 21 or more cigarettes per day was identified in this variable. A high frequency of smoking the first cigarette of the day was reported within 60 minutes after wake up (men: 48.5%, women: 53.7%). Males showed a higher frequency (18.4%) of smoking in the first 5 minutes after waking up compared to women (10.1%). Considering the awareness of the dangers of smoking, it was observed that more than half of the subjects reported two or more attempts to quit smoking (men: 53.3%, women: 59.7%).

From the total number of smokers, it was observed that 72.4% of men and 75.2% of women had tried to quit smoking. Over the past six months, there was a recurrence in smoking in 30.6% and 34.4% in men and women respectively (data not shown).

Table 2. Prevalence and prevalence ratio of male smokers, according to socioeconomic and demographic conditions, adjusted for age, in the adult population ≥ 18 years of Rio Branco, AC, 2008.

Variable	n	%	Crude PR (95%CI)	p-value	Adjusted PR[a] (95%CI)	p-value
Age group (years)						
18 – 29	269	19.3	1	1		
30 – 39	138	22.4	1.16 (0.75 – 1.78)	0.480		
40 – 49	96	23.9	1.23 (0.81 – 1.88)	0.305		
50 – 59	78	30.7	1.59 (1.05 – 2.39)	0.027		
≥ 60	100	27.0	1.39 (0.78 – 2.48)	0.243		
Linear trend p-value				0.052		
Marital status						
Single	228	18.8	1	1	1	1
Stable union	393	25.1	1.33 (0.98 – 1.80)	0.060	1.20 (0.86 – 1.67)	0.258
Widowed/separated/divorced	34	23.5	1.24 (0.7 – 2.20)	0.434	1.05 (0.58 – 1.91)	0.857
Occupational activity						
Workers	448	22.5	1	1	1	1
No income	108	16.6	0.73 (0.43 – 1.24)	0.246	0.62 (0.36 – 1.05)	0.078
Retirees/pensioners	99	31.3	1.38 (1.00 – 1.91)	0.045	1.52 (1.08 – 2.12)	0.016
Income [b]						
5 MW or more	88	15.9	1	1	1	1
2 to 4 MW	159	16.9	1.06 (0.58 – 1.96)	0.829	1.13 (0.59 – 2.16)	0.694
1 MW	226	24.3	1.52 (0.84 – 2.7)	1.153	1.66 (0.89 – 3.07)	0.103
No income/less than 1 MW	174	28.1	1.77 (1.08 – 2.87)	0.023	2.09 (1.24 – 3.53)	0.007
Linear trend p-value				0.019		0.005
Schooling (years)						
≥ 12	101	8.9	1	1	1	1
9 – 11	238	17.6	1.98 (0.89 – 4.35)	0.087	1.99 (0.89 – 4.43)	0.088
5 – 8	149	28.8	3.23 (1.52 – 6.88)	0.003	3.23 (1.51 – 6.87)	0.003
≤ 4	167	33.5	3.76 (1.84 – 7.69)	0.001	3.68 (1.76 – 7.70)	0.001
Linear trend p-value				0.000		0.000

RP: Prevalence Ratio; [a]prevalence ratio adjusted for age.
[b]Minimum Wage (MW) in the amount of R$ 380, or US$ 195, in 2007 and R$ 415, or US$ 247, in 2008.

DISCUSSION

The results obtained in this study with the population interviewed in their households showed a high prevalence of smoking among adults of both genders. The smoking prevalence identified in the municipality of Rio Branco was approximate to that found in a national survey (18.0%, 95%CI 13.6 – 22.4) in 2008, which used telephone interviews[9]. The highest prevalence of smoking were found in individuals with low income and less education, corroborating data from national and international research[6,7,10]. In the profile

Table 3. Prevalence and prevalence ratio of female smokers, according to socioeconomic and demographic conditions, adjusted for age, in the adult population ≥ 18 years of Rio Branco, AC, 2008.

Variables	n	%	Crude PR (95%CI)	p-value	Adjusted PR[a] (95%CI)	p-value
Age group (years)						
18 – 29	306	12.4	1	1		
30 – 39	187	19.2	1.55 (0.99 – 2.40)	0.051		
40 – 49	151	23.8	1.91 (1.21 – 3.02)	0.006		
50 – 59	108	18.5	1.49 (0.85 – 2.60)	0.155		
≥ 60	105	20.0	1.61 (0.98 – 2.63)	0.058		
Linear trend p-value				0.019		
Marital status						
Single	279	19.3	1	1	1	1
Stable union	443	15.3	0.79 (0.55 – 1.12)	0.187	0.73 (0.51 – 1.04)	0.086
Widowed/separated/divorced	135	21.4	1.10 (0.77 – 1.58)	0.553	0.87 (0.56 – 1.34)	0.524
Occupational activity						
Workers	396	14.6	1	1	1	1
No income	139	17.2	1.17 (0.77 – 1.78)	0.425	0.99 (0.63 – 1.54)	0.964
Retirees/pensioners	321	21.5	1.46 (1.06 – 2.02)	0.020	1.52 (1.11 – 2.07)	0.010
Income [b]						
5 MW or more	76	7.8	1	1	1	1
2 to 4 MW	119	11.7	1.49 (0.49 – 4.46)	0.465	1.47 (0.49 – 4.39)	0.472
1 MW	232	20.2	2.56 (1.09 – 5.99)	0.031	2.58(1.09 – 6.94)	0.031
No income/less than 1 MW	427	19.6	2.49 (1.04 – 5.94)	0.040	2.78 (1.15 – 6.73)	0.024
Linear trend p-value				0.015		0.004
Schooling (years)						
≥ 12	143	4.1	1	1	1	1
9 – 11	321	12.7	3.04 (1.24 – 7.46)	0.017	3.02 (1.23 – 7.38)	0.017
5 – 8	151	21.8	5.20 (2.20 – 13.41)	0.001	5.25 (2.02 – 13.65)	0.001
≤ 4	236	30.0	7.17 (3.36 – 15.27)	0.000	7.45 (3.37 – 16.50)	0.000
Linear trend p-value				0.000		0.000

RP: Prevalence Ratio; [a]prevalence ratio adjusted for age.
[b]Minimum Wage (SM) in the amount of R$ 380, or US$ 195, in 2007 and R$ 415, or US$ 247, in 2008.

of smokers, it was identified that most of them lit their first cigarette of the day within 60 minutes after waking up and started smoking before 15 years of age. Despite the early start of the smoking habit in adults in the city of Rio Branco, we observed a pattern of light consumption, because most smokers reported consuming one to ten cigarettes per day.

In Brazil, data from the Ministry of Health show decline in smoking prevalence in both sexes from 2006 to 2010[11,16]. Said survey also showed approximation of the prevalence of smoking among males and females. Similarly, in Rio Branco, approximate values of prevalence among men and women were found. According to Lopez et al.[8], the decline

Table 4. Distribution profile of smokers by gender, of the adult population ≥ 18 years, the city of Rio Branco, AC, 2008.

Variables	Male		Female		
	n	%	n	%	p-value
Start of smoking habit (years)					0.387[a]
< 15	64	49.6	66	52.0	
16 – 20	47	36.4	38	29.9	
> 21	18	14.0	23	18.1	
Total	129	100.0	127	100.0	
No. of cigarettes smoked/day					0.038[b]
1 – 10	84	65.1	91	67.9	
11 – 20	35	27.1	42	31.3	
21 or more	10	7.8	1	0.8	
Total	129	100.0	134	100.0	
Time after waking up first cigarette is lit					0.303[a]
First 5 minutes	25	18.4	14	10.1	
From 6 to 30 minutes	33	24.3	36	26.1	
From 31 to 60 minutes	12	8.8	14	10.1	
After 60 minutes	66	48.5	74	53.7	
Total	136	100.0	138	100.0	
Warning pictures					0.490[a]
Encourage cessation	71	55.0	70	51.1	
Do not encourage cessation	58	45.0	67	48.9	
Total	129	100.0	137	100.0	
Number of cessation attempts					0.494[a]
0	36	26.7	33	24.6	
1	27	20.0	21	15.7	
2 or more	72	53.3	80	59.7	
Total	135	100.0	134	100.0	
Tipe of cigarette					0.583[a]
Industrialized with filter	110	80.3	115	83.3	
Others	27	19.7	23	16.7	
Total	137	100.0	138	100.0	
Frequency of buying cigarettes from street vendors					0.342[a]
Always	40	29.4	35	25.2	
Sometimes	30	22.1	23	16.5	
Never	66	48.5	81	58.3	
Total	136	100.0	139	100.0	

[a]Pearson's χ^2 test.
[b]Fisher's exact test.

in the smoking prevalence occurs in four stages. Thus, it is suggested that the smoking situation in Rio Branco is in a process of transition from stage 3 to 4, presenting an approximation of the prevalence of smoking among men and women and the reduction of overall prevalence in the whole population. Research conducted on the Brazilian smoking

behavior over the past 20 years suggests that the decrease in the smoking prevalence occurred due to a number of intersectoral actions in health, education, legislation, and economic interventions[17]. Moreover, the reduction in the differences in prevalence of smoking between the genders, due to the lower rate of decline in females, may be due to women being targeted by tobacco marketing[18-21].

In the present study, we observed a linear increase between smoking and age. These findings are consistent with other studies[22,23] that investigated the effectiveness of antismoking educational activities targeted at vulnerable groups: young (stimuli not to start smoking) and elderly (encouraging cessation). As well as the issue of the selective survival bias present in cross-sectional studies.

The association between smoking and schooling was observed in adults from Rio Branco as in other national and international studies[2,6,7,10]. The information and knowledge gained in the higher education levels are important aspects in choosing health behaviors. Although these factors provide the notion of risk of diseases, their relevance is minimized by the low awareness and lack of internalization of the harm of smoking[5,23,24,25].

The higher prevalence of smoking among lower income strata identified in adults from Rio Branco is in line with the context of social inequality in Brazil. In the 2008 PNAD[10], the Northern region had one of the lowest spending on cigarettes per month. However, in Rio Branco, because there is a high incidence of poverty (32.1%)[26], spending on cigarettes may be impacting on the monthly income. Thus, the effective measures in tobacco control can contribute to redirect spending to necessities such as food, education and housing[6,7,24].

In the present study, we found that retirees or pensioners smoked more than the working class. Considering that most retirees and pensioners are older compared to workers, it is inferred that the permissive and misleading past trends reflect neglect in health care today[27].

The age of start in the habit of smoking is important to determine the time of exposure to cigarette and the vulnerability to the onset of tobacco-related diseases. Cigarette use by adolescents can be influenced by several factors including environmental, personal and behavioral issues[27]. In the investigated sample, it was found that most individuals become smokers before 15 years of age. Thus, the evidence of the early start of the smoking habit by Rio Branco inhabitants demonstrates the risk of premature deaths of these individuals during their productive life, and the likely increase in the number of visits to the health care system[22,23,28].

The amount of cigarettes consumed and the time of smoking the first cigarette upon waking indicates the degree of dependence. The number of cigarettes smoked reveals the amount of nicotine to satisfy the smoker[29]. In addition, nicotine accumulates in the blood for approximately six to nine hours after the last cigarette[30]. According to the time of the last cigarette smoked and the degree of nicotine dependence, regular smokers are at a low serum level of nicotine upon waking up[5], experiencing withdrawal symptoms until their first cigarette of the day is lit. In the present study, the highest proportion of smokers smoked

less than ten cigarettes a day and took about an hour to light the first cigarette of the day. Thus, the majority of smokers is classified as light smokers who are satisfied with relatively low amounts of nicotine[21,28].

In both sexes, the majority of smokers said they had tried to quit smoking twice or more. For this fact, it appears that smokers are aware of the dangers of smoking. Thus, it is suggested that the access to treatment and counseling network is increased for smokers, in order to help them quit smoking and avoid relapses[21,25].

Currently, there is no consensus in the literature as to the criteria in determining smokers[15,31,32]. Thus, considering the percentage of relapse in the last six months, above 30% in men and women, we chose to use the framework of WHO.

CONCLUSION

In the present study, we demonstrated a high prevalence of smoking among adults in Rio Branco, Acre. In the profile of smokers, we identified that they started smoking during adolescence, but they present a behavior of light smokers and strongly express attempts to quit smoking. This highlights the need to strengthen preventive measures, such as public regulatory policies for prices, implementation of smoke-free environments and the prohibition of advertising and propaganda. Furthermore, it is suggested that counseling and treatment actions are implemented in primary health care.

ACKNOWLEDGEMENTS

REFERENCES

1. Doll R, Hill AB. Mortality in relation to smoking: ten years' observations of British doctors. Br Med J 1964; 1(5396): 1460-7.

2. Jha P, Chaloupka FJ, Moore J, Gajalakshmi V, Gupta PC, Peck R et al., Tobacco Addiction, Disease Control Priorities in Developing Countries. 2 ed. The International Bank for Reconstruction and Development / The World Bank, april 2006. Disponível em: http://www.dcp2.org/pubs/DCP. (acessado em 12 de outubro de 2012).

3. Shafey O, Dolwick S, Guindon GE (Eds). Tobacco Control Country Profiles. American Cancer Society, Atlanta, GA, 2003.

4. World Health Organization [homepage on the Internet]. Geneva: World Health Organization. Who report on the global Tobacco epidemic, 2011: warning about the dangers of tobacco. Disponível em: http://www.who.int/tobacco/global_report/2011/en/. (acessado em 15 de maio de 2010)

5. Viegas, CAA. Tabagismo: do diagnóstico à saúde pública. Editora Atheneu, São Paulo; 2007.

6. Almeida LM, Szklo AS, Souza MC, Sampaio MMA, Mendonça AL, Martins LFL, orgs. Global addult tobacco survey – Brazil Report. Rio de Janeiro: Instituto Nacional de Câncer; 2010.

7. Laaksonen M, Rahkonen O, Karvonen S, Lahelma E. Socioeconomic status and smoking: Analysing inequalities with multiple indicators. Eur J Public Health 2005; 15(3): 262-9.

8. Lopez AD, Collishaw NE, Piha T. A descriptive model of the cigarette epidemic in developed countries. Tob Control 1994; 3(3): 242-7.

9. Malta DC, Moura EC, Silva AS, Oliveira PPV, Silva VLC. Prevalencia do tabagismo em adultos residentes nas capitais dos estados e no Distrito Federal, Brasil, 2008. J Bras Pneum 2010; 36(1): 75-83.

10. IBGE. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios (PNAD). Tabagismo, 2008. Disponível em: http://www.ibge.gov.br/home/estatistica/população/trabalhoerendimento/penad2008/suplementos/tabagismo/pnad-tabagismo.pdf. (acessado em 15 de dezembro de 2012).

11. Brasil, Ministério da Saúde. VIGITEL, 2006. Vigilância de Fatores de risco e proteção para doenças crônicas por inquérito telefônico: estimativas sobre frequência e distribuição sócio-demográfica de fatores de risco e proteção para doenças crônicas nas capitais dos 26 estados brasileiros e no Distrito Federal em 2006. Brasília: Ministério da Saúde; 2007.

12. Bernal R, Silva NN. Cobertura de linhas telefônicas residenciais e vícios potenciais em estudos epidemiológicos. Rev Saúde Pública 2009; 43(3): 421-6.

13. Lino MZR, Muniz PT, Siqueira KS. Prevalência e fatores associados ao excesso de peso em adultos: inquérito populacional em Rio Branco, Acre, Brasil, 2007-2008. Cad Saúde Pública 2011; 27(4): 792-810.

14. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios (PNAD) 2006. Rio de Janeiro, 2007.

15. World Health Organization. Guidelines for the conduct of tobacco smoking among health professionals. Report WHO. Geneva: World Health Organization, 1983.

16. Brasil, Ministério da Saúde. VIGITEL, 2010. Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico: estimativas sobre frequência e distribuição sócio-demográfica de fatores de risco e proteção para doenças crônicas nas capitais dos 26 estados brasileiros e no Distrito Federal em 2010. Brasília: Ministério da Saúde; 2010.

17. Salem S, Szklo AS, Levy D, Souza MC, Szklo M, Figueiredo VC, et al. Changes in cigarette consumption patterns among Brazilian smokers between 1989 and 2008. Cad. Saúde Pública 2012; 28(11): 2211-5.

18. Hitchman SC, Fong GT. Gender empowerment and female-to-male smoking prevalence ratios. Bull World Health Organ 2011; 89(3): 195-202.

19. World Health Organization [homepage on the Internet]. Geneva: World Health Organization. Who-regional for european. Women and tobacco. Disponível em: http://www.euro.who.int/en/what-we-publish/information-for-the-media/sections/features/2010/women-and-tobacco. (acessado em 25 de maio de 2010).

20. Choudhury S, Kengganpanich M, Benjakul S, Lorenzo A, Abascal W, Apelberg BJ, et al. Differences by Sex in Tobacco Use and Awareness of Tobacco Marketing - Bangladesh, Thailand, and Uruguay, 2009. MMWR 2010; 59(20): 613-8.

21. Reichert J, Araújo AJ, Gonçalves CMC, Godoy I, Chatkin JM, Sales MPU et al. Diretrizes para a cessação do tabagismo – 2008. J Bras Pneumol 2008; 34(10): 845-80.

22. Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. BMJ 2004; 328(7455): 1519.

23. Kuhnen M, Boing AF, Oliveira MC, Longo GZ, Njaine K. Tabagismo e fatores associados em adultos: um estudo de base populacional. Rev Bras Epidem 2009; 12(4): 615-26.

24. Ross H, Chaloupka FJ. Economic policies for tobacco control in developing countries. Salud Publica Mex 2006; 48(1): 113-20.

25. Fiore M, Jaén CR, Baker TB, Bailey WC, Bennett G, Benowitz NL, et al. Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update Panel, Liaisons, and Staff. A clinical practice guideline for treating tobacco use and dependence: 2008 update. A U.S. Public Health Service report. Am J Prev Med 2008; 35(2): 158-76.

26. Instituto de Pesquisa Econômica Aplicada. Radar Social. Brasília; 2005.

27. Wünsch Filho V, Mirra AP, Lopez RM, Antunes LF. Tabagismo e câncer no Brasil: evidências e perspectivas. Rev Bras Epidemiol 2010; 13(2): 175-87.

28. Rosemberg J, Rosemberg AM, Moraes MA. Nicotina: droga universal. São Paulo: São Paulo (Estado). Secretaria da Saúde. Centro de Vigilância Epidemilológica; 2003.

29. Meirelles RHS. Tabagismo e DPOC – dependência e doença – fato consumado. Pulmão RJ 2009; 1(1): 13-9.

30. Benowitz NL. Pharmacology of nicotine: addiction, smoking-induced disease, and therapeutics. Annu Rev Pharmacol Toxicol 2009; 49: 57-71.

31. World Health Organization. Tobacco country profiles, 2nd Ed. Proceedings of the 12th World Conference on Tobacco or Health, 2003 Aug 3-9; Helsinki, Finalnd: WHO; 2003.

32. Santos JDP, Silveira DV, Oliveira DF, Caiaffa WT. Instrumentos para avaliação do tabagismo: uma revisão sistemática. Ciênc Saúde Coletiva 2001; 16(12): 1443-8123.