

Factors associated to smoking habit among older adults (The Bambuí Health and Aging Study)

Fatores associados ao hábito de fumar entre idosos (Projeto Bambuí)

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Keywords

Smoking, epidemiology. Older adults. Health surveys. Prevalence. Epidemiology. Socio-economic factors. Educational status.

Abstract

Objective

To describe the characteristics and associated factors of the smoking habit among older adults.

Methods

A population-based study was carried out comprising 1,606 (92.2%) older adults (≥ 60 years old) living in the Bambuí town, Southeastern Brazil in 1997. Data was obtained by means of interview and socio-demographic factors, health status, physical functioning, use of healthcare services and medication were considered. The multiple multinomial logistic regression was used to assess independent associations between smoking habits (current and former smokers) and the exploratory variables.

Results

The prevalence of current and past smoking was 31.4% and 40.2% among men, and 10.3% and 11.2% among women, respectively ($p < 0.001$). Among current smokers, men consumed a larger number of cigarettes per day and started the habit earlier than women. Among men, current smoking presented independent and negative association with age (≥ 80 years) and schooling (≥ 8 years) and positive association with poor health perception and not being married. Among women, independent and negative associations with current smoking were observed for age (75-79 and ≥ 80 years) and schooling (4-7 and ≥ 8 years).

Conclusions

Smoking was a public health concern among older adults in the studied community, particularly for men. Yet, in a low schooling population, a slightly higher level was a protective factor against smoking for both men and women. Programs for reducing smoking in the elderly population should take these findings into consideration.

Descritores

Tabagismo, epidemiologia. Idoso. Levantamentos epidemiológicos. Prevalência. Epidemiologia. Fatores socioeconômicos. Escolaridade.

Resumo

Objetivo

Descrever as características e fatores associados ao hábito de fumar em uma população idosa.

Métodos

Estudo de base populacional realizado com 1.606 (92,2%) idosos (≥ 60 anos) residentes na cidade de Bambuí, Estado de Minas Gerais, em 1997. As variáveis estudadas foram: fatores sociodemográficos, condições de saúde, função física, uso

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de serviço de saúde e de medicamentos. Os dados foram coletados por meio de entrevista. A regressão logística multinomial foi utilizada para avaliar associações independentes entre o hábito de fumar (atual e passado) e as variáveis exploratórias.

Resultados

A prevalência de tabagismo atual e passado foi de 31,4% e 40,2% entre os homens, e de 10,3% e 11,2% entre as mulheres, respectivamente ($p < 0,001$). Entre os tabagistas atuais, os homens consumiam maior número de cigarros diários e iniciaram o hábito mais cedo do que as mulheres. Entre os homens, o tabagismo atual apresentou associação independente e negativa com idade (≥ 80 anos) e escolaridade (≥ 8 anos) e associação positiva com percepção ruim da saúde e não ser casado. Entre as mulheres, associações independentes e negativas com tabagismo atual foram observadas para idade (75-79 e ≥ 80 anos) e escolaridade (4-7 e ≥ 8 anos).

Conclusões

O tabagismo constituiu um problema de saúde pública entre os idosos da comunidade estudada, sobretudo no sexo masculino. Mesmo em uma população de baixa escolaridade, o grau de instrução foi fator protetor para o tabagismo em ambos os sexos. Programas para a redução do tabagismo na população idosa deveriam levar estes resultados em consideração.

INTRODUCTION

Population aging was first observed in developed countries, but more recently this phenomenon has extensively occurred in developing countries. In Brazil, the population aged 60 years or more increased from 3 millions in 1960 to 14 millions in 2002 and it is estimated to reach 32 millions by 2020, when it will represent the 6th largest elderly population in the world.¹⁶

As observed in other countries, the leading causes of death among older Brazilian adults are cardiovascular diseases (cerebrovascular diseases and ischemic heart disease), neoplasms (malignant neoplasms of the lungs, trachea and bronchi, prostate and breast cancer) and respiratory diseases (chronic obstructive pulmonary disease and pneumonia).¹⁷ This profile can be explained, at least partially, by the existence of modifiable risk factors, of which smoking is the most important.³ However, smoking habit among older adults in Brazil has been given little attention. In the city of Pelotas, South Brazil, the prevalence of current smoking among older adults in 1998 was 15.8%.⁷ In the Bambuí town, Southeast Brazil, this prevalence in 1997 was 18.7%.¹⁵

Elderly smokers present higher mortality risk for cancer and cardiovascular disease, compared to those who never smoked.^{2,14} Furthermore, smoking reduces the quality of life for older adults because it is associated with poorer health status.^{1,6} Studies of prevalence and factors associated with smoking in this population are thus important for the identification of high-risk groups helping the development of intervention strategies, since stop smoking leads to a reduced risk of mortality¹⁰ and improved health conditions.⁶

In general, the prevalence of smoking among older adults is lower than that observed in younger age groups. This occurs as a consequence of cessation of the smoking habit with increasing age, differences between generations (cohort effect) and/or premature death of smokers.¹⁵ However, elderly smokers when compared to young smokers have higher risk of developing diseases related to smoking because they tend to be exposed longer and more intensely to tobacco.¹² Furthermore, the absolute number of elderly smokers are likely to increase as a consequence of global aging population.⁸

Most studies, but not all,^{1,24} have found that smoking is more frequent among men with lower socioeconomic condition and little formal education.¹¹

The objective of the present study was to describe the smoking habit of older adults living in the community and to examine the factors associated with current and past smoking.

METHODS

The municipality of Bambuí is located in Southeast Brazil, in the state of Minas Gerais, comprising 20,500 inhabitants, 73% in the urban area. Life expectancy at birth was 70.2 years and infant mortality rate was 48.4 per 1,000.¹⁸ The leading causes of death among older adults in the municipality were cerebrovascular disease (CID-10: I60-I69), Chagas' disease (CID-10: B57) and chronic obstructive pulmonary disease (CID-10: J43, J44), with mortality rates of 712.8, 377.4 and 293.5 per 100,000, respectively.^{20,*}

The participants of the Bambuí Health and Aging

*Ministério da Saúde, Brasil. Informações demográficas e socioeconômicas, 1996. Available from: <http://tabnet.datasus.gov.br/cgi/ibge/popmap.htm>

Study¹⁸ were identified through a complete census carried out in the Bambuí town in 1996. All of the 1,742 residents aged 60 or more were included in the baseline, but 1,606 cohorts participated in the present study. The participants were similar to the total elderly population with respect to gender, age, number of people living in the household, conjugal status, family income and schooling.

The data for this study was obtained by means of interviews carried out at the subject's home, in 1997. The subject was interviewed directly, except when this was impossible due to a cognitive deficit or health problem. In this case, a proxy responded the interview questionnaire.¹⁸

The questions related to the use of cigarettes were translated into Portuguese from the National Center for Health Statistics (NCHS) questionnaire.²¹ The following questions were used: (1) *Have you smoked at least 100 cigarettes during your entire life?* (2) *How old were you when you first started smoking cigarettes fairly regularly?* (3) *Do you smoke cigarettes now?* (4) *About how many cigarettes do you smoke per day?* (5) *About how old were you when you last smoked cigarettes (fairly regularly)?*

The outcome variable in this study was the smoking habit, and the subjects were classified as: (1) never smoked (those who haven't smoked 100 cigarettes during life time); (2) former smokers (those who have already smoked 100 cigarettes, but who were not smoking at the time of the study); and (3) current smokers (those who had already smoked 100 cigarettes in their life and were smokers at the time of the study).

The following exploratory variables were considered: (a) socio-demographic (age, gender, conjugal status, number of people living in the household, number of completed years of schooling, monthly

household income in Brazilian minimum wages (US\$120.00); (b) health status (self-rated health, inability to perform routine activities due to health problems in the last two weeks, reported medical diagnosis of myocardial infarction, arterial hypertension, hypercholesterolemia, diabetes, Chagas' disease, angina and intermittent claudication);²⁵ (c) activities of daily life (ADL) (inability to perform at least one of four ADL – transferring from bed to chair, eating, dressing and bathing; walking at least 1.5 km without tiring); (d) use of healthcare services (number of medical visits in the past 12 months and number of hospital admissions in the past 12 months); (e) medication use in the past 90 days. Proxies did not answer questions that depended on personal judgment, such as self-rated health, and for this variable a new category (proxy respondent) was considered in the analysis.

Univariate data analysis was based on the Chi-square Pearson test, Chi-square for linear trend (for proportion) and the Student t-test (for mean).

Multiple multinomial logistic regression was used to determine the independent effect of associations between the smoking habit and the exploratory variables, estimating the adjusted odds ratio and 95% confidence intervals. In this analysis, current and former smokers were compared to those who never smoked (reference category). All variables which presented an association with the smoking habit in the univariate analysis ($p < 0.20$) were included in the initial logistic model. Those variables associated with the smoking habit ($p < 0.05$) were maintained in the final logistic model. Schooling and income presented significant associations with the smoking habit in both the univariate and the multivariate analysis. However, due to co-linearity, only schooling was maintained in the final logistic model because its stronger association with the smoking habit (for males

Table 1 - Selected characteristics concerning the smoking habit among older adults, according to gender. Bambuí, Brazil, 1997.

| Variables | Men | N (%) Women | Total |
|--|-------------|-------------------|-------------|
| Current and past smoking | | | |
| Current smokers | 201 (31.4) | 99 (10.3) | 300 (18.7) |
| Former smokers | 258 (40.2) | 108 (11.2) | 366 (22.8) |
| Never smoked | 182 (28.4) | 758 (78.5) | 940 (58.5) |
| | | $p < 0.001^*$ | |
| Number of cigarettes smoked per day among current smokers | | | |
| 1-9 | 106 (52.7) | 74 (74.8) | 180 (60.0) |
| 10-20 | 78 (38.8) | 20 (20.2) | 98 (32.7) |
| >20 | 17 (8.5) | 5 (5.0) | 22 (7.3) |
| | | $p = 0.001^{**}$ | |
| Average (standard deviation) | | | |
| Average age of starting smoking among current smokers | 15.2 (7.5) | 21.0 (13.2) | 17.1 (10.1) |
| | | $p < 0.001^{***}$ | |
| Average age of quitting smoking habit among former smokers | 49.0 (15.1) | 49.5 (13.8) | 49.1 (14.8) |
| | | $p = 0.798^{***}$ | |

*Pearson's Chi-square test

**Chi-square test for linear trend

***Student's t-test

and females). Analysis was performed separately for men and women, using Stata software.

RESULTS

Among the 1,606 subjects, 641 (39.9%) were men and 965 (60.1%) were women. The average age was 69.3 years (SD=7.4), ranging between 60 and 95 years. A proxy was required for 90 interviews (5.6%).

Table 1 shows some characteristics of the smoking habit among older adults, according to gender. The prevalence of current smoking and past smoking was 31.4% and 40.2% among men, and 10.3% and 11.2% among women, respectively ($p < 0.001$). Among current smokers, 52.7% of men and 74.8% of women consumed less than 10 cigarettes per day ($p = 0.001$). The average age of starting to smoke was lower among men (15.2 years) than among women (21.0 years) and the age of quitting the habit among former smokers was similar for both men and women. Among former smokers, only seven subjects (2.2%) had quit the habit for less than one year (data not shown).

Table 2 presents the distribution of the smoking habit among men and women, according to selected socio-demographic characteristics. Among men, positive association was observed for conjugal status (unmarried) and negative associations were observed for

schooling and family income. Among women, the smoking habit showed significant and negative association with age and family income.

The distribution of the smoking habit among men and women, according to selected health conditions indicators, is presented in Table 3. Significant associations were found among the outcome and poorer health perception among men, and the presence of intermittent claudication among women.

The distribution of the smoking habit among men and women, according to selected physical functioning indicator, use of healthcare services and use of medication is shown in Table 4. Smoking habit was associated with the inability to walk 1.5 kilometers without tiring among men, and with the number of medicines taken in the past 90 days among women.

Table 5 presents the final results of multivariate analysis of smoking habit among older adults for both men and women. Among men, current smoking presents a negative and independent association with age group (≥ 80 years) and schooling (≥ 8 years), and a positive association with conjugal status (unmarried) and self-rated health (poor). None of the studied characteristics showed independent association with past smoking among men. Among women, current smoking showed independent and negative association with age group

Table 2 - Smoking habit among men and women older adults according to socio-demographic characteristics. Bambuí, Brazil, 1997.

| Variables | Never smoked | Men | Current smokers | Never smoked | Women | Current smokers |
|----------------------------------|--------------|--------------------------------|-----------------|--------------|--------------------------------|-----------------|
| | (N=182) % | Former smokers (N=258) % | (N=201) % | (N=758) % | Former smokers (N=108) % | (N=99) % |
| Age group (years) | | | | | | |
| 60-64 | 26.6 | 38.7 | 34.7 | 77.7 | 10.2 | 12.1 |
| 65-69 | 30.1 | 42.3 | 27.6 | 78.0 | 8.4 | 13.6 |
| 70-74 | 28.6 | 38.6 | 32.8 | 75.7 | 14.6 | 9.7 |
| 75-79 | 21.6 | 41.9 | 36.5 | 83.2 | 12.4 | 4.4 |
| ≥ 80 | 37.2 | 41.4 | 21.4 | 82.1 | 13.4 | 4.5 |
| | | p=0.401* | | | p=0.035 | |
| Conjugal status | | | | | | |
| Married | 30.1 | 41.9 | 28.0 | 79.1 | 10.9 | 10.0 |
| Others** | 23.9 | 35.8 | 40.3 | 78.3 | 11.3 | 10.4 |
| | | p=0.010 | | | p=0.963 | |
| Number of residents in household | | | | | | |
| ≤ 2 | 28.4 | 41.2 | 30.4 | 78.9 | 11.4 | 9.7 |
| 3-4 | 28.0 | 40.3 | 31.7 | 78.7 | 10.5 | 10.8 |
| ≥ 5 | 28.3 | 39.1 | 32.6 | 76.3 | 12.7 | 11.0 |
| | | p=0.995 | | | p=0.936 | |
| Schooling (years) | | | | | | |
| 0 | 23.9 | 35.7 | 40.4 | 73.4 | 13.1 | 13.5 |
| 1-3 | 28.7 | 40.7 | 30.6 | 79.9 | 10.4 | 9.7 |
| 4-7 | 29.3 | 42.5 | 28.2 | 81.9 | 9.7 | 8.4 |
| ≥ 8 | 37.0 | 48.2 | 14.8 | 84.7 | 11.1 | 4.2 |
| | | p=0.019 | | | p=0.103 | |
| Monthly family income*** | | | | | | |
| <2 | 18.4 | 41.1 | 40.5 | 77.1 | 11.3 | 11.6 |
| 2-3.99 | 31.4 | 36.0 | 32.6 | 74.9 | 12.8 | 12.3 |
| ≥ 4 | 32.2 | 44.9 | 22.9 | 84.4 | 9.2 | 6.4 |
| | | p=0.001 | | | p=0.040 | |

*Pearson's Chi-square test

**Single, divorced, separated and widowed

***In Brazilian minimum wages (US\$120.00)

(75-79 and ≥80 years) and schooling (4-7 and ≥8 years). Past smoking was negatively associated with schooling (4-7 years) and positively associated with the presence of intermittent claudication.

DISCUSSION

The results of this study showed great differences in the smoking habit between men and women. The prevalence of current smoking was three times greater among men than among women. The prevalence among aged males (31%) in Bambuí was much higher than that observed among men (≥65 years) in the United States (13%),⁸ United Kingdom (18%)⁴ and Canada (20%).¹⁹ Among women, this prevalence (10%) was fairly similar to that observed in the United States (11%)⁸ and slightly lower than the prevalence found in the United Kingdom (17%)⁴ and Canada (14%).¹⁹

In addition to the higher prevalence of smoking among men in the present study, they started to smoke earlier and consumed a larger number of cigarettes per day, which is similar to that observed in the North

American population.¹ However, the daily consumption of cigarettes among the Bambuí elderly was lower than that reported in the United States¹ and Canada.¹⁹ In three population-based studies carried out in Canada (1985, 1986 and 1989), the proportion of the elderly (≥65 years) who consumed more than 20 cigarettes per day varied from 52 to 61% among men and from 30 to 38% among women.¹⁹ In the Bambuí population, this proportion was 9% among men and 5% among women. Considering that a higher consumption of cigarettes is associated with higher risk of death,¹⁴ it may be suggested that the reduction in cigarette consumption may contribute to higher survival of Bambuí elderly smokers, and have an impact on the prevalence of current smokers.

The reduction of smoking at increasing age was observed in both men and women, corroborating the results obtained in other studies.^{1,19} However, the reduction of the prevalence of smokers with age does not mean that the absolute number of elderly smokers is reducing. Population aging leads to an increasing number of smokers, as observed in the United States in the period from 1965 to 1994.⁸

Table 3 - Smoking habit among men and women older adults according to health conditions indicators. Bambuí, Brazil, 1997.

| Variables | Never smoked (N=182) % | Men Former smokers (N=258) % | Current smokers (N=201) % | Never smoked (N=758) % | Women Former smokers (N=108) % | Current smokers (N=99) % |
|--|------------------------------|---------------------------------------|---------------------------------|------------------------------|---|--------------------------------|
| Self-rated health | | | | | | |
| Good/ very good | 30.3 | 43.1 | 26.6 | 79.7 | 10.7 | 9.6 |
| Reasonable | 29.8 | 41.5 | 28.7 | 79.7 | 11.0 | 9.3 |
| Poor | 21.0 | 36.1 | 42.9 | 75.4 | 12.3 | 12.3 |
| Proxy | 30.8 | 32.7 | 36.5 | 81.6 | 7.9 | 10.5 |
| | | p=0.030* | | | p=0.648 | |
| Inability to perform routine activities due to health problems in past 2 weeks | | | | | | |
| Yes | 22.0 | 41.4 | 36.6 | 74.4 | 13.6 | 12.0 |
| No | 29.4 | 40.1 | 30.5 | 79.6 | 10.6 | 9.8 |
| | | p=0.320 | | | p=0.288 | |
| Prior medical diagnosis of myocardial infarction | | | | | | |
| Yes | 27.3 | 39.4 | 33.3 | 78.0 | 12.2 | 9.8 |
| No | 29.2 | 40.7 | 30.1 | 78.9 | 11.1 | 10.0 |
| | | p=0.924 | | | p=0.978 | |
| Prior medical diagnosis of hypertension | | | | | | |
| Yes | 27.0 | 42.7 | 30.3 | 79.3 | 11.3 | 9.4 |
| No | 29.6 | 38.0 | 32.4 | 77.2 | 11.0 | 11.8 |
| | | p=0.484 | | | p=0.471 | |
| Prior medical diagnosis of hypercholesterolemia | | | | | | |
| Yes | 33.7 | 44.2 | 22.1 | 82.1 | 11.4 | 6.5 |
| No | 27.6 | 39.6 | 32.8 | 77.8 | 11.1 | 11.1 |
| | | p=0.129 | | | p=0.177 | |
| Prior medical diagnosis of diabetes | | | | | | |
| Yes | 29.8 | 49.1 | 21.1 | 80.6 | 14.0 | 5.4 |
| No | 28.2 | 39.4 | 32.4 | 78.2 | 10.8 | 11.0 |
| | | p=0.184 | | | p=0.106 | |
| Prior medical diagnosis of Chagas' disease | | | | | | |
| Yes | 28.0 | 45.5 | 26.5 | 75.1 | 11.0 | 13.9 |
| No | 28.5 | 38.9 | 32.6 | 79.9 | 11.3 | 8.8 |
| | | p=0.306 | | | p=0.062 | |
| Intermittent claudication | | | | | | |
| Yes | 18.6 | 40.7 | 40.7 | 30.0 | 60.0 | 10.0 |
| No | 29.5 | 40.5 | 30.0 | 79.2 | 10.7 | 10.1 |
| | | p=0.361 | | | p<0.001 | |
| Angina | | | | | | |
| Yes | 30.6 | 44.4 | 25.0 | 84.4 | 9.4 | 6.2 |
| No | 29.1 | 40.4 | 30.5 | 78.0 | 11.6 | 10.4 |
| | | p=0.777 | | | p=0.317 | |

*Pearson's Chi-square test

Table 4 - Smoking habit among men and women older adults according to physical functioning indicator, use of healthcare services and use of medication. Bambuí, Brazil, 1997.

| Variables | Never smoked (N=182) % | Men Former smokers (N=258) % | Current smokers (N=201) % | Never smoked (N=758) % | Women Former smokers (N=108) % | Current smokers (N=99) % |
|--|------------------------------|---------------------------------------|---------------------------------|------------------------------|---|--------------------------------|
| Inability to perform daily life activities* | | | | | | |
| 0 | 28.8 | 39.6 | 31.6 | 78.4 | 11.0 | 10.6 |
| 1 | 28.6 | 50.0 | 21.4 | 83.0 | 8.5 | 8.5 |
| ≥2 | 18.2 | 45.4 | 36.4 | 72.7 | 21.2 | 6.1 |
| | | p=0.595** | | | p=0.324 | |
| Inability to walk 1.5 kilometers without tiring | | | | | | |
| No | 29.7 | 42.3 | 28.0 | 79.7 | 9.6 | 10.7 |
| Yes | 26.0 | 36.3 | 37.7 | 77.8 | 12.2 | 10.0 |
| | | p=0.042 | | | p=0.446 | |
| Number of medical visits in the last 12 months | | | | | | |
| 0 | 23.8 | 43.6 | 32.6 | 76.4 | 9.9 | 13.7 |
| 1-3 | 30.5 | 37.0 | 32.5 | 79.4 | 10.0 | 10.6 |
| ≥4 | 29.6 | 42.8 | 27.6 | 78.2 | 13.3 | 8.5 |
| | | p=0.357 | | | p=0.291 | |
| Number of hospitalizations in the last 12 months | | | | | | |
| 0 | 30.3 | 40.2 | 29.5 | 79.4 | 10.5 | 10.1 |
| 1 | 21.1 | 42.1 | 36.8 | 78.1 | 12.1 | 9.8 |
| ≥2 | 18.6 | 37.2 | 44.2 | 71.0 | 15.9 | 13.0 |
| | | p=0.123 | | | p=0.568 | |
| Number of medications used in the last 90 days | | | | | | |
| 0 | 31.7 | 33.1 | 35.2 | 83.3 | 7.7 | 9.0 |
| 1-2 | 26.7 | 39.1 | 34.2 | 77.3 | 8.2 | 14.5 |
| 3-4 | 28.9 | 44.2 | 26.9 | 79.7 | 11.1 | 9.2 |
| ≥5 | 26.8 | 47.4 | 25.8 | 77.3 | 14.7 | 8.0 |
| | | p=0.246 | | | p=0.033 | |

*Transferring from bed to chair, eating, dressing and bathing

**Pearson's Chi-square test

The unmarried men of Bambuí had greater chance of being current smokers, but the same was not true for unmarried women. There is some controversy with respect to the influence of conjugal status on smoking among older adults. It has been shown that smoking was more frequent among unmarried men and women in the age group of 50 and 65 years in California.¹³ Also, there is a controversy regarding the influence of the conjugal status on quitting smoking. Another study conducted in four localities in the United States showed that in two of them quitting smoking was more frequent among older adults who had already been married, while in the other two, the opposite was found.¹ Various hypotheses have been considered to explain the association between smoking and conjugal status, such as the greater social support observed between couples favoring quitting smoking.¹³ Supporting this theory is the fact that married individuals are more likely to receive medical counseling to quit smoking compared to single ones.²²

The association of smoking with lower socio-economic condition is well established. This association is explained by the high number of individuals who start smoking and the high level of dependence among this population, as well as the great difficulty to quit the habit, due to low motivation and the scarcity of resources.¹¹ In the United States, the association of smoking and schooling was weaker among older adults, compared to younger people (18-64 years), showing differences only at the extremes of schooling (<9 and >15 years).⁸ An analysis of four population studies in

that country revealed that, while men with the highest level of education showed the lowest prevalence of smoking, this association was inverse for women.¹ In the present study, schooling showed an independent and negative association with current smoking for both men and women. Among men the association was found only at the highest level of schooling (≥8 years), while among women it was not seen only for the highest but also for the intermediate (4-7 years) level of education. This is worth highlighting due to the low schooling in the studied population.

Besides the increased risk of death,^{2,14} several studies have shown that smoking reduces the quality of life of older adults, since it is associated to poorer health perception, emphysema, bronchitis, asthma, cardiovascular disease, infections, cough, chest and leg pain and limitations of daily life activities, difficulty in walking, climbing stairs and carrying objects, hospitalizations, use of medication, as well as depressive symptoms, among others.^{1,2,6,19} In the present study, positive associations with current smoking and with past smoking were observed for poor health perception among men, and for the presence of intermittent claudication among women.

Self-perception of health is a robust and consistent indicator of mortality among the older adults.⁹ The present study confirms other studies^{5,19,23} by identifying that current male smokers perceive their health to be poorer than those who have never smoked. In line

Table 5 - Results of multivariate analysis of smoking habit among men and women older adults. Bambuí, Brazil, 1997.

| Variables | Men – OR (95% CI)* | | Women – OR (95% CI)* | |
|---------------------------|--------------------|------------------|----------------------|-------------------|
| | Former smokers | Current smokers | Former smokers | Current smokers |
| Age group (years) | | | | |
| 60-64 | 1.0 | 1.0 | 1.0 | 1.0 |
| 65-69 | 0.94 (0.57-1.56) | 0.64 (0.37-1.11) | 0.81 (0.45-1.48) | 1.01 (0.59-1.73) |
| 70-74 | 0.94 (0.53-1.65) | 0.77 (0.43-1.40) | 1.26 (0.70-2.26) | 0.77 (0.41-1.45) |
| 75-79 | 1.29 (0.64-2.59) | 1.05 (0.51-2.19) | 0.95 (0.47-1.92) | 0.26 (0.09-0.75) |
| ≥80 | 0.73 (0.38-1.39) | 0.32 (0.15-0.68) | 1.00 (0.48-2.09) | 0.37 (0.14-0.99) |
| Conjugal status | | | | |
| Married | 1.0 | 1.0 | - | - |
| Others** | 1.13 (0.71-1.79) | 1.87 (1.16-3.00) | - | - |
| Schooling (years) | | | | |
| 0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 1-3 | 0.95 (0.57-1.57) | 0.66 (0.39-1.11) | 0.62 (0.37-1.05) | 0.63 (0.37-1.06) |
| 4-7 | 0.96 (0.57-1.64) | 0.62 (0.35-1.09) | 0.56 (0.32-0.99) | 0.53 (0.29-0.94) |
| ≥8 | 0.83 (0.40-1.73) | 0.24 (0.09-0.62) | 0.75 (0.33-1.69) | 0.27 (0.08-0.92) |
| Self-rated health | | | | |
| Good/very good | 1.0 | 1.0 | - | - |
| Reasonable | 0.95 (0.60-1.49) | 0.95 (0.57-1.58) | - | - |
| Poor | 1.19 (0.64-2.19) | 1.95 (1.03-3.69) | - | - |
| Proxy | 0.84 (0.37-1.92) | 1.21 (0.52-2.82) | - | - |
| Intermittent claudication | | | | |
| No | - | - | 1.0 | 1.0 |
| Yes | - | - | 16.49 (3.96-68.55) | 3.31 (0.33-33.24) |

*Odds ratios adjusted for the variables listed in the table using multiple multinomial logistic regression. The reference category used was the "never smoked" group. The final logistical model included 639 men and 905 women

**Single, divorced, separated and widowed

with other study,⁶ no association was observed between perception of self-rated health and past smoking, suggesting that the negative effect of smoking may be reversed by quitting smoking among older adults.

The main limitation of the present study is related to its cross-sectional design, which does not allow establishing temporal relationship. Nevertheless, it was not its objective to set up a cause-effect relationship. The study goal was to identify vulnerable groups, i.e., the characteristics that indicated the presence of current and past smoking among older adults. Furthermore, survival bias must be highlighted, since it reduces the strength of association found. This is particularly important in studies about smoking because the survival rate among smokers is lower than that among non-smokers.⁸

The results of the present study show that smoking is a public health concern among the older adults in the studied community, particularly for men. The reporting of a range of illnesses or chronic conditions had no impact on the habit of smoking (current or past) among the study subjects. This highlights the difficulties which can be expected in a program for reducing the prevalence of smoking. The importance of low schooling should be emphasized in the maintenance of the smoking habit among both elderly men and women. This finding is relevant since the level of schooling among the studied population is low, showing that even small differences in schooling are sensitive to identify the elderly with a greater or lower likelihood of smoking. Programs for reducing smoking in the elderly population should take these findings into consideration.

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