

FACTORS ASSOCIATED WITH SMOKING AMONG USERS OF THE FAMILY HEALTH STRATEGY

Erildo Vicente Müller¹, Makcine Timm da Silva², Clóris Regina Blanski Grden³, Péricles Martim Reche¹, Pollyanna Kássia de Oliveira Borges⁴, Jacy Aurélia Vieira de Sousa³

ABSTRACT: The aim was to identify factors associated with smoking among users of the Family Health Strategy. A cross-sectional, descriptive and analytic epidemiological study. The sample by convenience encompassed 100 individuals who were users of a Family Health Unit from a city in the center-south region of the Brazilian State of Paraná. There was a predominance of women (n=63; 63%), with a mean age of 49.5 years, Caucasian (n=82; 82%), who had completed junior high school (n=21; 21%) and who were married (n=49; 49%). Mean daily cigarette consumption was 17.7 cigarettes/day and 56 (56%) participants had a very high or high degree of dependence on nicotine. An association was observed between mean smoking duration and age (p=0.001), marital status – widowed (p=0.035), high cholesterol (p=0.035), use of antihypertensives (p=0.031) and very high degree of dependence on nicotine (p=0.008). The identification of the factors associated with smoking makes it possible for the health team to seek and plan prevention strategies, treatment and monitoring of smokers.

DESCRIPTORS: Tobacco Use Disorder; Smoking; Family Health; Tobacco; Cross-sectional Studies.

FATORES ASSOCIADOS AO TABAGISMO EM USUÁRIOS DA ESTRATÉGIA SAÚDE DA FAMÍLIA

RESUMO: Objetivou-se identificar fatores associados ao tabagismo em usuários da estratégia saúde da família. Estudo epidemiológico transversal, descritivo e analítico. A amostra por conveniência compreendeu 100 indivíduos usuários de uma Unidade Saúde da Família de um município da região centro sul do Paraná. Houve predomínio das mulheres (n=63; 63%), com média de idade de 49,5 anos, cor branca (n=82; 82%), com ensino fundamental completo (n=21; 21%) e casados (n=49; 49%). O consumo médio diário de cigarro foi de 17,7 cigarros/dia e 56 (56%) participantes apresentavam grau de dependência muito elevado ou elevado à nicotina. Constatou-se associação entre a média de tempo de tabagismo e idade (p=0,001), estado civil viúvo (p=0,035), colesterol elevado (p=0,035), uso de anti-hipertensivo (p=0,031) e grau de dependência a nicotina muito elevada (p=0,008). A identificação dos fatores associados ao tabagismo possibilita à equipe de saúde buscar e planejar estratégias de prevenção, tratamento e acompanhamento dos tabagistas.

DESCRIPTORIOS: Tabagismo; Hábito de fumar; Saúde da família; Tabaco; Estudos transversais.

FACTORES ASOCIADOS AL TABAQUISMO EN USUARIOS DE LA ESTRATEGIA SALUD DE LA FAMILIA

RESUMEN: Estudio cuyo propósito fue identificar factores asociados al tabaquismo en usuarios de la estrategia salud de la familia. Estudio epidemiológico transversal, descriptivo y analítico. El muestreo de conveniencia abarcó 100 individuos usuarios de una Unidad Salud de la Familia de un municipio de la región centro sur de Paraná. Hubo predominio de mujeres (n=63; 63%), con edad media de 49,5 años, color blanco (n=82; 82%), con enseñanza básica completa (n=21; 21%) y casados (n=49; 49%). El consumo medio de cigarrillos fue de 17,7 al día; 56 (56%) participantes presentaban grado de dependencia muy alto o alto de nicotina. Se constató asociación entre la media de tiempo de tabaquismo y la edad (p=0,001), estado civil viudo (p=0,035), colesterol elevado (p=0,035), uso de anti hipertensivo (p=0,031) y grado de dependencia de nicotina muy alto (p=0,008). La identificación de los factores asociados al tabaquismo posibilita al equipo de salud buscar y plantear estrategias de prevención, tratamiento y acompañamiento de los tabaquistas.

DESCRIPTORIOS: Tabaquismo; Hábito de fumar; Salud de la familia; Tabaco; Estudios transversales.

¹Pharmacist. Ph.D in Collective Health. Lecturer in Nursing at the State University of Ponta Grossa. Ponta Grossa, State of Paraná (PR), Brazil.

²RN. Resident in urgent and emergency care. Federal University of Paraná. Curitiba, PR, Brazil.

³RN. Ph.D in Nursing. Lecturer in Nursing at the State University of Ponta Grossa. Ponta Grossa, PR, Brazil.

⁴Dentist. Ph.D in Collective Health. Lecturer in Nursing at the State University of Ponta Grossa. Ponta Grossa, PR, Brazil.

Corresponding author:

Erildo Vicente Müller

Universidade Estadual de Ponta Grossa

Av. General Carlos Cavalcanti, 4748 - 84030-900 - Ponta Grossa, PR, Brasil

E-mail: erildomuller@hotmail.com

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● INTRODUCTION

Smoking is considered the principal cause of avoidable death, both worldwide⁽¹⁾ and in Brazil⁽²⁾. Estimates from the World Health Organization (WHO) indicate that one third of the world's adult population – that is, 1,200,000,000 people – are smokers⁽¹⁾.

According to Brazil's National Health Survey⁽³⁾, the prevalence of current use of tobacco in persons aged 18 years old or over is 15%, with a predominance of males (19.2%) and people in the age range from 40 to 59 years old (19.4%). Regarding the Brazilian States, the Southern Region leads the list of users of tobacco and its derivatives, with emphasis on the State of Paraná, with 18.1% of smokers⁽³⁾.

Included in the WHO's International Classification of Diseases (ICD-10), smoking is recognized as a chronic illness⁽⁴⁾ which presents a significant relation with the main groups of chronic, noncommunicable diseases (NCD): cardiovascular diseases, diabetes, neoplasias and chronic respiratory diseases⁽²⁾. Furthermore, the habit of smoking can raise the risk of death by 20 to 30 times⁽¹⁾, with estimates of 200,000 deaths each year resulting from smoking⁽⁵⁾.

Brazil is considered a global reference in the control of smoking. Educational, preventive, therapeutic and regulatory actions have, in recent decades, contributed to reducing the habit of smoking from 31.7% to 14.7% in adult individuals⁽⁵⁾. However, the number of smokers remains high, with significant repercussions for the development of health problems, entailing high social and economic costs.

In this regard, individual and collective actions focusing on treating and preventing smoking become relevant. Primary Care (PC), understood as the level of healthcare which is closest to the service user, must be considered the main place of assistance for the service user who is a smoker⁽⁶⁾. In this scenario, the health professionals – through longitudinal and comprehensive care which is close to the service user – can significantly increase the effectiveness of the actions in health directed towards this population⁽²⁾. Likewise, investigating the factors associated with tobacco use provides an opportunity for the health team to plan strategies for preventing and treating this habit, and monitoring smokers.

In the light of the above, the present study aimed to identify the factors associated with smoking in users of the Family Health Strategy.

● METHOD

This is an epidemiological study of the cross-sectional type. The sample, undertaken using convenience sampling, encompassed 100 individuals who were users of a Family Health Unit in a city in the center-south region of the State of Paraná. This unit has two family health teams, and attends a population of 8000 people ascribed to the area.

The research field was selected because the researchers undertook activities of the Program for Education in Work for Health (*Programa de Educação pelo Trabalho para a Saúde*), covering health diagnosis for the community and later intervention through educational actions (*PET-Saúde*).

The inclusion criteria were: to be a smoker, to live in the area covered by the Family Health Strategy Team (ESF), and to be available for interview during a home visit. The exclusion criteria were: to be younger than 18 years old, to decline to participate in the study, or not to be found at home after two visits.

The individuals included in the study were selected from the files for registration of families ('File A') with the Community Healthcare Workers (ACS).

Data collection was undertaken in February – May 2015, through home visits accompanied by the Community Healthcare workers, and involved the use of a questionnaire for collecting sociodemographic data. The variables of interest studied were: sex, age, skin color (self-reported), educational level, marital status and family income. Also investigated were mean cigarette consumption and family antecedents for cardiovascular diseases. Weight, height and blood pressure were evaluated and the blood glucose test was undertaken.

In order to assess the degree of dependence on nicotine among the smokers, the Fagerström Test for Nicotine Dependence (FTND), validated for use in Brazil, was applied⁽⁶⁾. The instrument is made up of six questions. The sum of the points results in a score, varying from 0 to 10, and indicates the degree of the smoker's dependence, as: very low, low, moderate, high or very high – when it achieves, respectively, 0-2, 3-4, 5, 6-7 or 8-10 points.

In order to calculate Body Mass Index (BMI), weight and height were identified. Weight was checked using electronic scales of the EB9015 model certified by SGS. In order to ascertain height, a simple metric tape measure was used with a length of 1.5 m. The criteria for classification of BMI were those stipulated by the World Health Organization (WHO)⁽⁷⁾. If the subject had BMI <18.5, she was considered malnourished, and when BMI was between 18.5 and 24.9, the user was considered normal. For values from 25-29.9 or ≥ 30 , the individuals were classified as overweight and obese, respectively.

To evaluate the abdominal circumference, a tape measure was used, with the individual in the vertical position. The tape measure was placed around the waist on the line of the navel at a midpoint between the ribs and iliac crest – the classification criteria adopted from the International Diabetes Federation (IDF)⁽⁸⁾. The reference values for comparison between normality and central obesity were, respectively, 80/90 cm for women and 90/94 cm for men.

Blood pressure was checked twice using the indirect method and auscultatory method with the use of the sphygmomanometer for adults, confirmed by the National Institute of Metrology, Quality and Technology (*Instituto Nacional de Metrologia, Qualidade e Tecnologia*) (IMETRO), on both arms, with the subject seated and the legs side-by-side. The individuals were classified in accordance with the VII Brazilian Directives for Arterial Hypertension⁽⁹⁾.

Capillary blood glucose testing was undertaken approximately two hours after lunch or breakfast, using the blood glucose meter, aseptically, within the norms for patient safety. The parameter of reference used was that stipulated by the guidelines of the Brazilian Society of Diabetes⁽¹⁰⁾.

In order to analyze the results, the Stata software, version 12 (StataCorp LP, CollegeStation, TX, USA) was used. The data were firstly subjected to exploratory and descriptive analysis, the categorical variables being expressed as absolute frequencies and percentages.

The normality of the data was verified using the Kolmogorov-Smirnov test. The results obtained by the above-mentioned test demonstrated that the data have normal distribution. Still considering the premises, residual analyses were undertaken. The results evidenced there to be no evidence that the supposition of homoscedasticity had been violated, or that a transformation of the response variable or of the explanations was necessary.

Subsequently, the association between the variables was ascertained using simple linear regression with Snedecor's F test and Student's t-test, using the level of significance of ($p < 0.05$) for evaluation of the results.

The undertaking of the study complied with Brazilian and international rules for ethics in research involving human beings, in place at the time the study was conducted. The Ethics Committee for Research in Human Beings, of the Health Sciences Department, approved the study under Opinion N. 172,965.

● RESULTS

Of the total number of participants, it was ascertained that 63% (n=63) were female, with a mean age of 49.5 years old (SD= 16.7 years), a minimum age of 16, and a maximum age of 84 years old. There was a predominance of Caucasians (n=82; 82%), who had completed junior high school (n=21; 21%), whose income was over R\$ 901.00 per month (n=61; 61%) and who were married (n=49; 49%) (Table 1).

Table 1 - Absolute and percentage distribution of smokers by sociodemographic variables. Ponta Grossa, PR, Brazil, 2015

Variable	n (%)
Sex	
Female	63(63)
Male	37(37)
Age	
15-25 years old	10(10)
26-35 years old	17(17)
36-45 years old	9(9)
46-55 years old	21(21)
56-65 years old	27(27)
66 or over	16(16)
Skin color (self-reported)	
White	82(82)
Black	7(7)
Mixed race	11(11)
Educational level	
Illiterate	4(4)
Junior high school – complete	21(21)
Senior high school – complete	20 (20)
Higher education – incomplete	2(2)
Income	
No income	2(2)
Between R\$ 301.00 and 600.00	5(5)
Between R\$ 601.00 and 900.00	32(32)
> R\$ 901.00	61(61)
Marital status	
Married	49(49)
Divorced	12(12)
Single	21(21)
Widowed	18(18)

The habit of smoking was begun, on average, at the age of 16.7 years old, with a minimum age of six years old. The mean daily cigarette consumption was 17.7 (SD=10.7), with a minimum of one cigarette per day, and a maximum of 60 cigarettes per day. The degree of dependence on nicotine identified through the Fagerström scale revealed that 11% (n=11) of the interviewees presented very low dependence, 20% (n=20) low dependence, 13% (n=13) moderate dependence and 56% (n=56) a high or very high degree of dependence.

Table 2 shows that the greater duration of smoking was among the women (32.92 years), among those who were widowed (41.94 years), those with an income between 301-600 reais (42 years), and those whose self-reported skin color was black (41.57 years). The participants with the highest educational level (higher education – incomplete) had the lowest mean duration of smoking: 28.71 years ($\beta=-17.54$; $p<0.05$).

Table 2 – Mean duration of smoking (years), Beta coefficients for simple linear regression, and their confidence intervals (CI 95%), by sociodemographic variables. Ponta Grossa, PR, Brazil, 2015

Variables	Mean Durations of Smoking	Beta coefficient	CI 95%*	P value**
Sex				
Male	31.71	1.21	(98.44 – 6.02)	0.740
Female	32.92			
Age	-	0.9	(0.81 – 0.99)	0.001
Marital status				
Married	32.38	-		
Separated	40.75	8.37	(-1.57 – -18.32)	0.098
Single	20.25	-12.13	(-20.32 – -3.93)	0.004
Widowed	41.94	9.56	(0.67 – 18.45)	0.035
Educational level				
Illiterate	46.25	-	-	
Junior High School - complete	24.05	-22.19	(-39.89 – -4.50)	0.015
Senior High School - complete	28.71	-17.54	(-35.8 – 0.010)	0.050
Higher Education - incomplete	15	-31.25	(-67.21 – 4.71)	0.088
Income (R\$)				
None	4.5	-	-	-
301 to 600	42	37.5	(11.02 – 63.98)	0.006
601 to 900	39.06	34.56	(11.48 – 57.65)	0.004
901 and over	29.12	24.62	(1.86 – 47.37)	0.036
Skin color				
White	31.06	-	-	-
Black	41.57	10.51	(-2.70 – 3.72)	0.118
Mixed race	36.82	5.75	(-5.04 – 16.54)	0.292

Regarding family antecedents for cardiovascular diseases, the longest time was identified in the case of cerebrovascular accident (40.75 years), those with increased cholesterol (39.8 years), those who made use of antihypertensives (43.53 years), and who did not undertake physical exercise (32.82 years) (Table 3).

Table 3 – Mean duration of smoking (in years), Beta coefficients for simple linear regression, and their confidence intervals (CI 95%), by clinical variables. Ponta Grossa, PR, Brazil, 2015 (continues)

Variables	Mean durations of smoking	Beta Coefficient	CI 95%*	P value**
Family antecedents for cardiovascular diseases				
None	30.59	-	-	-
Cerebrovascular accident	40.75	10.16	(-1.35 – 21.67)	0.083
Diabetes Mellitus	29.71	-0.88	(-9.83 – 8.07)	0.846
Arterial Hypertension	28	-2.59	(-13.52 – 8.33)	0.639
Acute Myocardial Infarction	38.67	8.07	(-2.61 – - 18.76)	0.137
High cholesterol				
No	29.31	-	-	-
Yes	39.8	10.49	(0.54 – 20.45)	0.039

Use of antihypertensives				
No	26.97	-	-	-
Yes	43.53	16.56	(10.06 – 23.07)	0.001
Physical Exercise				
No	32.82	-	-	-
Yes	31.72	-1.09	(-8.62 – -6.43)	0.773
Degree of dependence on nicotine				
Not addicted	22.4	-	-	-
Weakly dependent	34.05	11.65	(-1.05 – 24.35)	0.072
Moderately dependent	27.54	5.14	(-8.66 – 18.94)	0.461
Highly dependent	31.41	9.01	(-3.02 – 21.04)	0.14
Very heavily dependent	39.38	16.98	(4.63 – 29.32)	0.008
Weight	-	-0.19	(-0.38 – -0.01)	0.047
Abdominal circumference	-	0.19	(-0.04 – 0.44)	0.1
Height	-	-43.78	(-82.80 – -4.78)	0.028
BMI	-	-0.33	(-0.88 – 0.22)	0.232
Glycemia	-	0.04	(-0.02 – 0.11)	0.161

A significant statistical correlation was observed between greater mean duration of smoking and 'very high' degree of dependence on nicotine ($\beta = 16.98$; $p > 0.008$). An association was ascertained between increase in duration of smoking and the variables of weight ($\beta = 0.19$; $p < 0.047$) and height ($\beta = -43.78$; $p < 0.028$) (Table 3).

● DISCUSSION

Regarding the sociodemographic variables of the sample, the findings resemble those of other investigations which evaluated the profile of tobacco users, regarding the predominance of the female sex⁽¹¹⁻¹³⁾, marital status – married⁽¹¹⁻¹²⁾ and mean educational level of eight years⁽¹¹⁾.

Regarding when the person began their habit of smoking, it was identified in this study that it was early – on average, at the age of 16.7 years old – and this is in consonance with the Brazilian context. According to Brazil's National Cancer Institute (INCA)⁽⁴⁾, the mean age for trying tobacco among young people is 16 years old in both sexes. In one study undertaken in Brazil, with 74,589 adolescents aged between 15 and 17 years old, high prevalences of tobacco use were observed in comparison with adolescents aged from 12 to 14 years old⁽¹⁴⁾.

Authors have emphasized that smoking is a pediatric disease, given that approximately 90% of regular smokers began their habit before the age of 18⁽¹⁵⁾. In this context, identifying the age at which people first try tobacco contributes to determining the length of exposure and risk factors for diseases; it also guides the health team in conducting educational anti-tobacco actions directed at vulnerable groups.

The mean daily consumption of cigarettes – 17.7 (SD=10.7) was similar to that found in the Brazilian and international literature^(11,16) and significantly higher than that evidenced in a cross-sectional investigation undertaken with adult Mexicans⁽¹³⁾, which found a mean of five cigarettes/day. Nevertheless, comparisons must be undertaken with caution, bearing in mind that different strategies are used in the studies for verifying cigarette consumption. In Brazil, according to the Report of the ITC Project (Brazil)⁽¹⁷⁾ the mean number of cigarettes smoked per day is 17.

The number of cigarettes consumed is related to the risk of death from lung cancer. According to INCA⁽⁵⁾, individuals who smoke between 1 and 14 cigarettes/day, 15 to 24 cigarettes/day and over 25 cigarettes/day have, respectively, risks 8, 14, and 24 times greater of death from this type of cancer than

people who have never smoked. On the other hand, stopping smoking significantly reduces the risk of death from causes associated with tobacco, increasing a population's mean survival by nine years.

The findings of the present study showed that there was a predominance of users classified at the high and very high levels of nicotine dependence. Authors⁽¹⁸⁾ indicate that individuals with low scores on the FTND are more prone to abandon the habit of smoking. Hence, it is supposed that the subjects studied in this study have greater difficulty in ceasing smoking and need specific strategies for support in quitting.

This investigation's sample was predominantly female, with greater duration of smoking found for this population. One possible justification for this finding may be attributed to the fact that data collection was undertaken in people's homes, at a time of day when most of the men were at work. According to the Brazilian National Health Survey of 2013⁽¹⁹⁾ men represent a higher percentage of tobacco users (19.2%) in comparison with women (11.2%). And – in spite of the prevalence of smoking being greater among men⁽¹⁻²⁾ – authors have observed a higher mean duration of smoking among women⁽²⁰⁾.

Tobacco significantly increases the risk for cardiovascular diseases among women, with emphasis on Acute Myocardial Infarction^(2,5). Likewise, it significantly increases the risk for developing various types of cancers, in particular that of the lungs and bronchi, which are the types of neoplasia which cause the second-highest number of deaths among Brazilian women⁽⁵⁾. In this context, emphasis is placed on the importance of prevention actions geared towards this group, which is the group which most seeks help for quitting smoking.

The mean age was significantly higher in comparison with a cross-sectional study undertaken in the state of Santa Catarina, with 707 individuals from the community in the age range between 20 and 59 years old, which identified a mean age of 38.7 years old⁽¹¹⁾. This difference may be explained by the sample's sociodemographic and cultural characteristics. In this study, a significant association was observed between age and the mean duration of smoking, as was the case with a population-based cross-sectional study conducted with 1512 adult individuals resident in the urban and rural zones ($p=0.019$)⁽¹²⁾.

It was identified that widowed people presented greater means of duration of smoking. This result may be attributed to the situation of vulnerability, which is common in divorced/widowed individuals or those who live alone. On the other hand, among those who are married or who live with a partner, the support between the couple could favor stopping the use of tobacco⁽²¹⁾.

However, in one population-based cross-sectional study⁽²²⁾ undertaken with 2153 women, it was evidenced that those in a stable relationship were more prone to be smokers in comparison with the single women (OR = 2.49; CI95%: 1.12-5.53).

Greater mean duration of smoking was found in individuals whose income is lower than one minimum salary, and who had lower educational levels. The prevalence of smokers is inversely proportional to education and income⁽²³⁻²⁴⁾. In the same way, authors⁽²⁰⁾ have highlighted that the part of the population with little or no education has nearly double the prevalence of smoking in comparison with those with a higher educational level. As a result, education constitutes a protective factor, as much in Brazil^(3,5,20) as in other countries^(1,25).

It is understood that the higher concentration of smoking in populations with low income and lower educational levels could be related to their reduced access to information, perception of self-care, quality-of-life and access to preventive medicine.

The participants who self-reported their skin color as black presented greater duration of smoking. This result is in consonance with the literature^(3,20), which indicates that people stated as being 'of color', or of African descent, present greater tobacco consumption (17.8%) in relation to Caucasian individuals (13.1%).

Regarding the clinical variables, a greater duration of smoking was ascertained among the participants who had high cholesterol and used antihypertensives. In isolation, cigarette consumption is a serious public health problem and an important risk factor for the occurrence of chronic noncommunicable

diseases, and also as a contributory cause for the appearance of dyslipidemia and arterial hypertension.

In a classic study on mortality among male smokers, authors⁽²⁶⁾ ascertained that smoking was an important cause of death for various chronic conditions. In the present study, the mean number of cigarettes smoked/day is high (17.7). Using data from the above-mentioned study as a reference⁽²⁶⁾, individuals who smoke between 15 and 24 cigarettes/day, aged below 45 years old, are eight times more likely to die than non-smokers due to ischemic heart disease, more than four times more likely to die between the ages of 65 and 74 years old from degeneration of the myocardium, and 2.7 times more likely to die from cerebral thrombosis in this same age group.

Among the participants, a high degree of overweight and obesity was observed – which was different from a cross-sectional investigation undertaken with students from public and private universities in the city of São Luís in the Brazilian state of Maranhão (MA). There was no significant statistical association between smoking and BMI ($p = 0.010$) and abdominal circumference ($p = 0.036$)⁽²⁷⁾.

In the light of the results presented, one can understand the importance of the professionals in the ESF identifying the factors associated with smoking among the service users, with emphasis on actions aimed at preventing the complications which arise from this habit in the long-term.

This study's limitations are related to the cross-sectional study outline, which does not allow one to ascertain relationships of cause and effect between the variables over time. The study was undertaken with a convenience sample which, added to the time of the home visit (undertaken in the morning and afternoon), may have evidenced lower representativeness of the male population in the sample.

However, as the literature is scant regarding this topic in the Family Health Strategies, the study's results are useful in local planning of health, and also for cities which have high coverage from the Family Health Strategy and need to be alert to longitudinal care, in order to prevent the occurrence or exacerbation of chronic diseases.

● FINAL CONSIDERATIONS

The study made it possible to identify the factors associated with smoking in users of the Family Health Strategy, with emphasis on age, educational level, marital status, high cholesterol, use of antihypertensives, weight and height. The identification of the factors associated with smoking makes it possible for the health team to seek strategies for improving care for the population in its area of coverage, opening doors for partnership between teaching and service in the referral of smokers to smoking cessation programs.

Besides the partnership with the teaching institutions, it is suggested that a network of care for smokers should be established, linking the primary care services with the other levels of the system. As a result, the care network can act in preventing the early initiation of this habit which is so harmful for health and in the care for the subjects who are already dependent on tobacco – with the objective of reducing the modifiable risk factors through the healthcare, and consequently reducing the incidence of chronic noncommunicable diseases.

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