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Prevalence of medical visits and associated factors, Pelotas, Southern Brazil, 1999-2000

ABSTRACT

OBJECTIVE: To estimate the prevalence of visiting doctors and to analyze associated factors.

METHODS: Cross-sectional, population-based study performed in the city of Pelotas, Southern Brazil, between December 1999 and April 2000. A total of 1,962 individuals of both sexes, aged between 20 and 69 years and living in the urban area were included in this study. Data were collected with standardized, pre-coded questionnaires. The outcome "visited doctor during the 12 months prior to interview" was analyzed with socioeconomic and demographic factors, presence of chronic diseases and psychiatric disorders, nutritional status, smoking, alcohol consumption, and hospitalizations in the year prior to interview. Poisson regression was used, according to a hierarchical model, controlled by confounding variables, and considering a significance level of <0.05.

RESULTS: Among interviewees, 1,395 (70.9%) had visited a doctor in the period analyzed. Multivariate analysis among men revealed that individuals who showed higher prevalences of medical visits had a per capita family income higher than 10 minimum wages per month, were over 60 years of age, suffered from diabetes mellitus, had a body mass index equal to or above 25kg/m², and had been hospitalized. Women who had a per capita family income higher than six minimum wages per month, were over 60 years of age, white and non-smokers, suffered from hypertension and diabetes, and had been hospitalized showed higher outcome prevalences.

CONCLUSIONS: Health inequalities were identified in relation to ethnicity and family income. In addition, there was high prevalence of medical visits, especially among individuals who were older and suffered from certain chronic, non-communicable diseases.

DESCRIPTORS: Health Services, utilization. Office Visits. Socioeconomic Factors. Health Inequalities. Cross-Sectional Studies.

INTRODUCTION

Health service access measures are some of the criteria that guarantee health system quality. This is based on the principle that people have the right to use health systems. However, according to the Black Report,[10] morbidity and mortality are higher among individuals who were not qualified or partially qualified for a job. Moreover, those who were not qualified used health services, especially services of a preventive nature, less frequently than the occupational groups.[10] National studies have pointed to socioeconomic, gender and geographic differences in terms of health service utilization.[16,18,22] According

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to epidemiological studies performed in the city of Pelotas, Southern Brazil, population groups who most frequently use health services show better indicators related to health care.[4,5] In addition, the characteristics of the population groups who use these services less frequently have been shown, revealing inequalities in the local health system.[5]

Based on epidemiological data, factors that promote and/or hinder access to the health system could be identified, thus contributing to its rationalization and qualification.

The present study aimed to estimate the prevalence of medical visits and also to analyze associated factors.

METHODS

Population-based, cross-sectional study performed between December 1999 and April 2000 with male and female individuals, aged between 20 and 69 years, living in the city of Pelotas urban area.

A project was developed with the *Universidade Federal de Pelotas* and the *Universidade do Vale do Rio dos Sinos* (Federal University of Pelotas and Vale do Rio dos Sinos University), involving multiple outcomes. The sample was calculated, based on estimates of prevalences of different outcomes included in this study, to guarantee 80% power, 5% alpha error, prevalence of events investigated varying between 25% and 75%, and a prevalence ratio of 2.0. The sample was increased by 10% to compensate for losses and refusals, and by other 15% to assure control of confusion factors in the multivariate analysis. Sample size was estimated as 1,800 individuals.

Sampling was carried out in multiple stages; first by conglomerates, when 40 census tracts and 30 homes from each tract were randomly selected. A total of 1,200 families and 1.5 person, aged between 20 and 69 years, were expected to be identified. In each tract, the starting point and block were randomly chosen. After choosing a home, the two homes following it were systematically ignored, and the third one was visited.

A total of 1,145 families (95.4%) were found, of which 55 refused to participate or were not found and thus classified as losses. All family members aged between 20 and 69 years were eligible and interviewed in private. Among the families found, 2,177 people were identified, and 1,968 within the age group studied were interviewed, totaling 9.8% of loss. Women of fertile age who were either pregnant or had delivered a baby in the 12 months preceding the interview, or yet individuals with limitations and inabilities, which cause them to be dependent on someone else to have access to health services, showed very low prevalences and were included in the analysis. In all, 1,962 adults were interviewed.

The instrument employed was a pre-coded, standardized questionnaire, applied by university students from the *Universidade Federal de Pelotas* who were not aware of the research objectives. Interviewers were trained to apply the questionnaire and take weight, height, and blood pressure measurements.

The outcome assessed was visiting doctors in the previous year, since the interview date.

Variables related to socioeconomic level were the following: economic class classification from the *Associação Brasileira de Empresas de Pesquisas e Mercados – ABEP*[a] (Brazilian Association of Research and Market Companies), per capita family income in minimum wages, and level of education. Economic class classification is a score based on wealth accumulation and level of education, where class A individuals show higher values.

The demographic variables analyzed were as follows: sex, age, ethnicity and marital status.

Life habits assessed were smoking and alcoholic beverage consumption. Smoking was considered as the habit of smoking, classifying individuals as non-smokers, ex-smokers, and smokers. Alcoholic beverage consumption was quantified in grams of ethanol consumed per day, considering frequency and type of beverage, and the cut-off point to define abuse was set at 30g/day.[14]

To assess nutritional status, the body mass index (BMI) was calculated for each individual, based on weight (kg) and height (m) measurements taken by interviewers. BMI values >25.0 were considered as overweight.

Comorbidity by some chronic, non-communicable diseases was analyzed: diabetes mellitus, systemic arterial hypertension, minor psychiatric disorders and chronic bronchitis. Presence of diabetes mellitus was reported by the interviewee. Arterial blood pressure measurement used was the average from two measurements taken during questionnaire application. Systemic arterial hypertension was defined as arterial blood pressure ≥160/95 mmHg (to increase specificity[17]), or by means of self-reported antihypertensive medication.

Presence of minor psychiatric disorders was established with the use of the Self Report Questionnaire (SRQ-20), with a cut-off point ≥6 for men and ≥7 for women.[11] Chronic bronchitis was determined by the presence of productive cough on most days, for three months or more, for at least two consecutive years.[21]

[a] Associação Brasileira de Empresas de Pesquisa. Critério de Classificação Econômica Brasil. São Paulo; 2003 [cited 2007 Dec 4]. Available from: http://www.anep.org.br/codigosguias/ABEP_CCEB.pdf

Interviewees were asked about possible hospitalization in the period of one year prior to interview.

As quality control, simplified questionnaires were re-applied to 10% of the sample. Data were codified in Epi-Info with double-typing.

In the crude analysis, prevalence ratios and 95% confidence intervals (95% CI) were calculated, and linear tendency and chi-square test were performed when indicated.[3] According to the literature, women use health services more frequently than men do, thus crude and adjusted analyses were stratified by sex.[5,18,22] Analyses were made with the SPSS 13.0. software.

Poisson regression was the multivariate analysis performed, using the Stata software, according to a hierarchical model, so that confounding variables were controlled.[2,23] Variables with a significance level of $P \leq 0.20$ in the crude analysis were introduced in the model, and those with a significance level of $P < 0.05$ remained in the model. Figure 1 shows the hierarchical model adopted: socioeconomic and demographic variables were included on the first level; on the second level, life habits and morbidity; on the third level, the variable "hospitalizations in the previous year".

The research project was approved by the Research Ethics Committee of Universidade Federal de Pelotas School of Medicine.

RESULTS

Among interviewees, 1,395 (70.9%; 95%CI[69.1;73.1]) had visited a doctor in the year prior to interview. All the 846 (43%) male individuals had an average of 1.8 (95%CI[1.6;2.0]) medical visits in the previous year, whereas the 1,122 (57%) women interviewed had an average of 4.7 (95%CI[4.1;5.2]) visits.

Table 1 shows the sample characteristics according to sex.

Class C predominated among both men and women, the majority of them had a per capita family income ≤3 minimum wages per month, and approximately half of them had not completed grades 5 through 8 (G5 – G8) in school. Likewise, among both sexes, the majority were younger than 50 years of age, white, and married or cohabitating. Over half of the men reported they were either smokers or ex-smokers, almost a third consumed alcoholic beverages abusively, and approximately half were overweight. As regards smoking, less than half of the female interviewees reported they were smokers or ex-smokers, 3.8% of them consumed alcohol abusively, and more than half were overweight.

In terms of morbidity, 5.1% of men mentioned diabetes mellitus, 21.4% had arterial hypertension, 21% minor psychiatric disorders, and 4.7% chronic bronchitis. Among women, the presence of minor psychiatric disorders predominated, 5.9% mentioned diabetes mellitus, 25.1% had hypertension, and 4.1% chronic bronchitis. Prevalence of hospitalization among men was 6.3%, whereas among women, 21.7%.

Bivariate analysis showed that the higher the economic class, per capita income and level of education, the more likely men and women were to visit a doctor. These three factors showed significant linear tendency test results (Tables 2 and 3).

Men aged between 30 and 39 years were 20% less likely to visit a doctor in the previous 12 months than those aged over 60 years (reference category).

There were no percentage differences of medical visits in terms of ethnic group or marital status (Table 2). As regards age among women, effect measures were greater in the 40-to-49-year and 60-to-69-year age groups (Table 3). Frequency of medical visits was 9% higher among those classified as white. Marital status analysis showed that widows visited doctors 4% more frequently. In the assessment of male behavioral variables, smoking (p=0.04) and obesity (p=0.001) were associated with medical visits. In terms of female life habits, bivariate analysis showed that smokers were 10% less likely to visit a doctor than those who never smoked. There were no statistically significant differences between alcohol consumption and BMI (Table 3).

Among morbidities, men who reported diabetes mellitus visited doctors more often. Arterial hypertension,

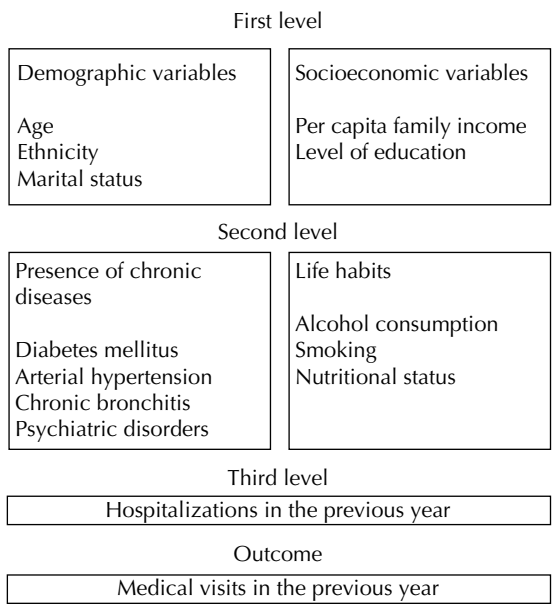

Figure. Hierarchical theoretical model for medical visits in the previous year.

Table 1. Distribution and prevalences of medical visits in the previous year, among men and women, according to socioeconomic and demographic variables, life habits and morbidities. City of Pelotas, Southern Brazil, 1999-2000.

Variable	Men		Women	
	n (%)	Prevalence of medical visits	n (%)	Prevalence of medical visits
Economic class				
Class E	40 (4.8)	19 (47.5)	49 (4.4)	33 (67.3)
Class D	210 (24.9)	114 (54.3)	315 (28.5)	238 (75.6)
Class C	323 (38.4)	182 (56.3)	401 (36.3)	324 (80.8)
Class B	219 (26.0)	141 (64.4)	281 (25.4)	243 (86.5)
Class A	50 (5.9)	36 (72.0)	60 (5.4)	55 (91.7)
Family income (minimum wages)				
<1.01	244 (29.1)	121 (49.6)	353 (31.9)	252 (71.4)
1.01 a 3	363 (43.3)	212 (58.4)	453 (40.9)	376 (83.0)
3.01 to 6	131 (15.6)	89 (67.9)	166 (15.0)	144 (86.7)
6.01 to 10	55 (6.6)	36 (65.5)	80 (7.2)	72 (90.0)
≥10.01	46 (5.5)	33 (71.7)	56 (5.1)	51 (91.1)
Level of education				
Illiterate or "G1 through G4" not completed	222 (26.4)	115 (51.8)	289 (26.1)	224 (77.5)
"G1 through G4" completed and "G5 to G8" incomplete	195 (23.2)	110 (56.4)	261 (23.6)	214 (82.0)
"G5 through G8" completed and high-school not completed	155 (18.4)	94 (60.6)	198 (17.9)	148 (74.7)
High-school completed and university level not completed	166 (19.7)	106 (63.9)	220 (19.9)	184 (83.6)
University level completed	104 (12.4)	67 (64.4)	138 (12.5)	123 (89.1)
Age (years)				
20 to 29	230 (27.2)	133 (57.8)	233 (20.9)	176 (75.5)
30 to 39	187 (22.1)	88 (47.1)	268 (24.0)	209 (78.0)
40 to 49	181 (21.4)	115 (63.5)	261 (23.4)	223 (85.4)
50 to 59	149 (17.6)	89 (59.7)	224 (20.1)	174 (77.7)
60 to 69	98 (11.6)	68 (69.4)	130 (11.6)	119 (91.5)
Ethnicity				
Non-white	144 (17.0)	79 (54.9)	189 (16.9)	142 (75.1)
White	702 (83.0)	415 (59.1)	927 (83.1)	759 (81.9)
Marital status				
Cohabiting	82 (9.7)	42 (51.2)	85 (7.6)	71 (83.5)
Married	480 (56.7)	292 (60.8)	555 (49.7)	455 (82.0)
Single	232 (27.4)	132 (56.9)	243 (21.8)	190 (78.2)
Separated	33 (3.9)	18 (54.5)	121 (10.8)	88 (72.7)
Widowed	19 (2.2)	10 (52.6)	112 (10.0)	97 (86.6)
Smoking				
Non-smoker	331 (39.1)	197 (59.5)	610 (54.7)	512 (83.9)
Ex-smoker	226 (26.7)	144 (63.7)	195 (17.5)	154 (79.0)
Current smoker	289 (34.2)	153 (52.9)	311 (27.9)	235 (75.6)
Alcohol consumption				
Does not drink	77 (9.1)	40 (51.9)	329 (29.7)	262 (79.6)
Drinks <30 g/day	536 (63.7)	319 (59.5)	736 (66.5)	598 (81.3)
Drinks ≥30 g/day	229 (27.2)	131 (57.2)	42 (3.8)	32 (76.2)

To be continued

Table 1 continuation

Variable	Men		Women	
	n (%)	Prevalence of medical visits	n (%)	Prevalence of medical visits
BMI (kg/m²)				
Overweight	434 (51.7)	276 (63.6)	591 (54.2)	488 (82.6)
Normal	405 (48.3)	213 (52.6)	500 (45.8)	391 (78.2)
Self-reported diabetes				
Yes	43 (5.1)	37 (86.0)	66 (5.9)	62 (93.9)
No	803 (94.9)	457 (56.9)	1050 (94.1)	839 (79.9)
Arterial hypertension				
Yes	181 (21.4)	111 (61.3)	279 (25.1)	243 (87.1)
No	664 (78.6)	383 (57.7)	833 (74.9)	656 (78.8)
Minor psychiatric disorders				
Yes	178 (21.0)	110 (61.8)	381 (34.2)	309 (81.1)
No	668 (79.0)	384 (57.5)	734 (65.8)	591 (80.5)
Chronic bronchitis				
Yes	40 (4.7)	27 (67.5)	46 (4.1)	39 (84.8)
No	806 (95.3)	467 (57.9)	1069 (95.9)	861 (80.5)
Hospitalization				
Yes	53 (6.3)	48 (90.6)	142 (12.7)	137 (96.5)
No	793 (93.7)	446 (56.2)	974 (87.3)	764 (78.4)

presence of minor psychiatric disorders and chronic bronchitis did not show statistically significant association with medical visits among men. Only the occurrence of hospitalization in the previous year was significantly associated. Among women, presence of diabetes mellitus and hypertension showed higher prevalences of medical visits. Presence of minor psychiatric disorders and chronic bronchitis were not associated with the outcome (Table 3). Like men, occurrence of hospitalization in the previous year was related to a higher frequency of visits to doctors ($p<0.01$).

In the multivariate analysis (Table 2), men with a per capita family income between 3.01 and six minimum wages per month and those with an income higher than 10.01 minimum wages per month visited doctors more often after adjustment for level of education and age. The effect of age was kept in the 60-to-69-year age group. After adjustment for the income and age variables, individuals who reported they had diabetes mellitus, were overweight or had been hospitalized visited doctors more frequently. Among women, multivariate analysis (Table 3) showed that people with a per capita family income from six minimum wages per month, in the 40-to-49-year and above-60-year age groups, and classified as white visited doctors more often. Women who did not smoke, mentioned diabetes mellitus and arterial hypertension, and had been hospitalized in the previous year showed higher outcome prevalences (Table 3).

DISCUSSION

The main methodological difficulty for studies that investigate service utilization is the lack of outcome validation. Studies on health service utilization are subject to imperfections in terms of quality of information provided by interviewees. Some authors point to the difficulty in validating health service utilization.[8,15] Despite these limitations, data employed in the analysis originated from a population-based sample, whose make-up in terms of sex and gender was comparable to that found in the city of Pelotas 2000 census, thus confirming that they are representative.

In this study, prevalence of medical visits in the previous year was high. Among the 1,962 interviewees, 1,395 (70.9%; 95%CI[69.1;73.1]) had visited a doctor in the year prior to interview. Mendonza-Sassi & Beria,[13] in a systematic review on health service utilization, observed that in countries such as the United States, Norway, Ireland, and Brazil the coverage of medical visits during one year reached 60% to 70% of the population. In the city of Pelotas, a study performed in 1992 showed that the utilization coverage in the same age group was 70%.[5] In the city of Rio Grande, Southern Brazil, a population-based, cross-sectional study revealed that 66% of individuals at age 15 or older had visited a doctor in the year prior to interview.[12]

Table 2. Distribution of prevalence ratio and hierarchical multivariate analysis with Poisson regression for men who visited doctors in the previous year, according to socioeconomic and demographic variables, life habits and morbidities. City of Pelotas, Southern Brazil, 1999-2000.

Variable	Crude analysis			Hierarchical multivariate analysis		
	Prevalence ratio	95% CI	p-value	Prevalence ratio	95% CI	p-value**
Economic class			<0.03			
Class E	1.0		0.001*			
Class D	1.14	0.81;1.62				
Class C	1.19	0.84;1.67				
Class B	1.36	0.96;1.91				
Class A	1.52	1.05;2.19				
Family income*** (minimum wages)						
<1.01	1.0		<0.01	1.0		0.05
1.01 to 3	1.18	1.01;1.37	0.001*	1.13	0.96;1.33	
3.01 to 6	1.37	1.15;1.63		1.31	1.09;1.58	
6.01 to 10	1.32	1.05;1.66		1.24	0.98;1.57	
≥ 10.01	1.45	1.16;1.80		1.37	1.07;1.75	
Level of education***			<0.09			0.50
Illiterate or "G1 through G4" not completed	1.0		<0.01*	1.0		
"G1 through G4" completed and "G5 to G8" incomplete	1.09	0.91;1.30		1.10	0.92;1.33	
"G5 through G8" completed and high-school not completed	1.17	0.98;1.40		1.16	0.96;1.40	
High-school completed and university level not completed	1.23	1.04;1.46		1.17	0.97;1.41	
University level completed	1.24	1.03;1.51		1.11	0.88;1.39	
Age*** (years)			0.01			<0.01
20 to 29	1.0		0.02*	1.0		
30 to 39	0.81	0.67;0.98		0.81	0.68;0.98	
40 to 49	1.10	0.94;1.28		1.10	0.94;1.28	
50 to 59	1.03	0.87;1.23		1.03	0.87;1.23	
60 to 69	1.20	1.01;1.42		1.20	1.01;1.42	
Ethnicity			0.35			
Non-white	1.0					
White	1.08	0.92;1.27				
Marital status			0.46			
Cohabitating	1.0					
Married	1.19	0.95;1.48				
Single	1.11	0.87;1.41				
Separated	1.06	0.73;1.55				
Widowed	1.03	0.64;1.65				
Smoking*****			0.04			0.38
Non-smoker	1.0			1.0		
Ex-smoker	1.07	0.94;1.22		0.99	0.86;1.15	
Current smoker	0.89	0.77;1.02		0.91	0.79;1.05	
Alcohol consumption			0.42			
Does not drink	1.0					
Drinks <30 g/day	1.15	0.91;1.44				
Drinks ≥30 g/day	1.10	0.86;1.40				

To be continued

Table 2 continuation

Variable	Crude analysis			Hierarchical multivariate analysis		
	Prevalence ratio	95% CI	p-value	Prevalence ratio	95% CI	p-value**
BMI (kg/m²)*****			<0.01			0.01
Overweight	1.0			1.0		
Normal	0.83	0.74;0.93		0.85	0.75;0.97	
Self-reported diabetes*****			<0.01			<0.01
Yes	1.0			1.0		
No	0.66	0.58;0.76		0.72	0.63;0.84	
Arterial hypertension			0.40			
Yes	1.0					
No	0.94	0.82;1.07				
Minor psychiatric disorders			0.31			
Yes	1.0					
No	0.93	0.81;1.06				
Chronic bronchitis						
Yes	1.0		0.25			
No	0.86	0.69;1.07				
Hospitalization******			<0.01			<0.01
Yes	1.0			1.0		
No	0.62	0.56;0.69		0.64	0.56;0.73	

* Linear tendency test
** Wald test
*** Analysis adjusted for age
**** Analysis adjusted for age, per capita family income and level of education
***** Analysis adjusted for age, family income, smoking, and BMI
****** Analysis adjusted for age, family income, BMI and self-reported diabetes

Data obtained in this study show that, among both sexes, older people visited doctors more frequently. Travassos et al,[22] while assessing data from the *Pesquisa Nacional por Amostra de Domicílios – PNAD* (National Household Sample Survey) conducted in 1998, in Brazil, did not find differences in age among women, but observed that, among men, older individuals showed higher frequency of health service utilization. Other authors[5,12] found an association between older age group and higher frequency of medical visits. Older individuals showed higher prevalence of chronic, non-communicable diseases that have a greater influence on health, requiring more contact with services.[3,9]

The prevalence of medical visits in the population assessed was 9% (95%CI: 1.00;1.18) higher among white women than non-white ones. This finding corroborates what was found by Travassos et al,[22] in the *PNAD* survey conducted in 1998, where a frequency 14% (95%CI: 1.03;1.26) higher of health service utilization by white women was observed. The following studies, also performed in the city of Pelotas, showed that the quality of health care for women classified as non-white was worse than that received by white women. Quadros et al[19] showed that non-white women had less coverage for cytopathological exams and Sclowitz et al[20] revealed low coverage of exams conducted by non-white women. Thus, this finding identifies a population group that must be prioritized by health services.

Moreover, among women exclusively, marital status influenced the frequency of medical visits: those who were separated visited doctors less often in the period of one year prior to interview. Capilheira & Santos[4] had already observed that in the city of Pelotas, separated women showed a 0.89 prevalence ratio for medical visit presence in the three months preceding assessment.

When the relation between per capita family income and outcome is analyzed, there were higher frequencies of medical visits in the period of one year among women with higher income. Studies have shown lower health service utilization by populations with low socioeconomic level,[12,16,22] even though, as already pointed out, these populations have greater need to use health services,[6] thus evidencing inequality. To seek for health equality means to eliminate inequalities systematically associated with underlying social disadvantages or marginalization. The health system has the responsibility to

Table 3. Distribution of prevalence ratio and hierarchical multivariate analysis with Poisson regression for women who visited doctors in the previous year, according to socioeconomic and demographic variables, life habits and morbidities. City of Pelotas, Southern Brazil, 1999-2000.

Variable	Crude analysis			Hierarchical multivariate analysis		
	Prevalence ratio	95%CI	p-value	Prevalence ratio	95%CI	p-value**
Economic class			<0.01			
Class E	1		<0.001*			
Class D	1.12	0.91;1.38				
Class C	1.2	0.98;1.47				
Class B	1.28	1.05;1.57				
Class A	1.36	1.10;1.68				
Family income*** (minimum wages)			<0.01	1		<0.01
<1.01	1		<0.001*	1.16	1.07;1.26	
1.01 to 3	1.16	1.08;1.26		1.2	1.08;1.34	
3.01 to 6	1.22	1.11;1.33		1.25	1.11;1.40	
6.01 to 10	1.26	1.14;1.39		1.23	1.07;1.42	
≥ 10.01	1.28	1.15;1.42				
Level of education***			<0.01			0.29
Illiterate or "G1 through G4" not completed	1		<0.01*	1		
"G1 through G4" completed and "G5 to G8" incomplete	1.06	0.97;1.15		1.04	0.96;1.14	
"G5 through G8" completed and high-school not completed	0.96	0.87;1.07		0.94	0.84;1.04	
High-school completed and university level not completed	1.08	0.99;1.18		1.01	0.91;1.12	
University level completed	1.15	1.06;1.25		1.03	0.92;1.15	
Age**** (years)			0.01			<0.01
20 to 29	1		0.01*	1		
30 to 39	1.03	0.94;1.14		1.05	0.95;1.16	
40 to 49	1.13	1.04;1.24		1.15	1.04;1.26	
50 to 59	1.03	0.93;1.14		1.05	0.94;1.17	
60 to 69	1.21	1.11;1.33		1.22	1.10;1.36	
Ethnicity****			0.03			0.06
Non-white	1			1		
White	1.09	1.00;1.19		1.09	1.00;1.18	
Marital status****			0.05			0.12
Cohabiting	1			1		
Married	0.98	0.89;1.09		0.93	0.83;1.03	
Single	0.94	0.83;1.05		0.93	0.83;1.04	
Separated	0.87	0.75;1.01		0.83	0.71;0.96	
Widowed	1.04	0.92;1.17		0.95	0.83;1.09	
Smoking*****			<0.01			0.03
Non-smoker	1			1		
Ex-smoker	0.94	0.87;1.02		0.92	0.85;1.00	
Current smoker	0.9	0.84;0.97		0.92	0.86;0.99	
Alcohol consumption			0.63			
Does not drink	1					
Drinks < 30 g/day	1.02	0.96;1.09				
Drinks ≥ 30 g/day	0.96	0.80;1.14				

To be continued

Table 3 continuation

Variable	Crude analysis			Hierarchical multivariate analysis		
	Prevalence ratio	95%CI	p-value	Prevalence ratio	95%CI	p-value**
BMI (Kg/m²)*****			0.07			0.37
Overweight	1			1		
Normal	0.95	0.89;1.00		0.97	0.91;1.04	
Self-reported diabetes******			<0.01			<0.01
Yes	1			1		
No	0.85	0.79;0.91		0.89	0.83;0.97	
Arterial hypertension******			<0.01			0.05
Yes	1	0.85;0.96		1	0.88;1.00	
No	0.9			0.94		
Minor psychiatric disorders			0.87			
Yes	1					
No	0.99	0.93;1.05				
Chronic bronchitis			0.57			
Yes	1					
No	0.95	0.84;1.08				
Hospitalization*******			<0.01			<0.01
Yes	1			1		
No	0.81	0.78;0.85		0.81	0.77;0.85	

* Linear tendency test
** Wald test
*** Analysis adjusted for age, ethnicity and marital status
**** Analysis adjusted for age, level of education and per capita family income
***** Analysis adjusted for age, per capita family income, smoking and MBI
****** Analysis adjusted for age, per capita family income, smoking, self-reported diabetes, and arterial hypertension.
******* Analysis adjusted for age, per capita family income, smoking, self-reported diabetes and hospitalization

facilitate utilization by those who most need it, reducing the burden of diseases. Thus, health services can be promising locations for policies aimed at equality and interventions to reduce impoverishment, due to health care costs, and to prevent decrease in social class due to diseases.[24]

Among men, obesity was associated with a higher frequency of medical visits in the previous year, as observed by Capilheira & Santos.[4] In this study, for both sexes, the diabetes mellitus reference was associated with higher frequency of medical visits. The association between the presence of chronic diseases and higher health service utilization has been reported by other authors.[1] These findings were positive, revealing that people with recognized needs seek health services.[6]

Individuals of both sexes, who had been hospitalized, had used health services more frequently. Guerra & Ramos-Cerqueira[7] observed comparable behavior in the city of São Paulo (Southeastern Brazil), with a frequency of hospitalizations 75% higher among individuals with higher prevalences of medical visits in the year prior to interview.

The present study described characteristics of the population that visited doctors during one year. However, the reasons that led these individuals to use health services could not be pinpointed. Some suppositions may justify these differences, such as difficulty to access these services, self-perception of health, flawed health care model, and the presence or absence of the family health program.

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