

Use of prescription drugs and self-medication among men

Uso de medicamentos prescritos e automedicação em homens

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ABSTRACT: *Objective:* To estimate the prevalence, investigate factors associated with the use of medication according to prescription, identify the main pharmaceuticals consumed through self-medication, and the reason for this use among adult men. *Methods:* This cross-sectional population-based study with stratified clustered two-stage sampling was conducted in Campinas, São Paulo, Brazil, in 2008/2009. *Results:* Of the 1,063 men, 45.3% reported using at least 1 drug in the last 3 days. From them, 32.9% reported using exclusively prescribed medication, and 11.2% reported self-medication. The results revealed different profiles among subgroups. Positive associations with the use of prescription medication was found for age (40 – 59 and ≥ 60 years), failure to perform paid work, body mass index (25 – 30 kg/m²), having sought health services over the last 15 days, dental care in the last year, morbidity, and chronic diseases. Lower use of prescription medication was found among men who reported doing physical activities in their leisure time. Independent and positive associations with the use of nonprescription medications in the 15 days prior to the survey were found for reported morbidity and frequent headaches/migraine. Furthermore, there was an independent and inverse association for hospitalization within the last year. Over-the-counter medications consumed by men were dipyron, paracetamol, acetylsalicylic acid, and diclofenac. *Conclusion:* The findings of this study provide information that can guide actions aimed at promoting the rational use of medication in a poorly investigated population subgroup regarding this topic.

Keywords: Medication use. Prevalence. Men's health. Self-medication. Pharmacoepidemiology. Epidemiological surveys.

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RESUMO: *Objetivo:* Estimar a prevalência, verificar os fatores associados ao uso de medicamentos segundo prescrição e identificar os principais fármacos consumidos sem indicação, frente ao motivo do uso, em homens adultos. *Métodos:* Estudo transversal de base populacional, com amostra por conglomerados e em dois estágios realizado em Campinas, São Paulo, em 2008/2009. *Resultados:* Dos 1.063 homens, 45,3% referiram uso de ao menos 1 medicamento nos 3 dias que antecederam a pesquisa e, desses, 32,9% referiram uso exclusivamente prescrito e 11,2% relataram automedicação. Os resultados revelaram diferentes perfis entre os subgrupos. Associações positivas com o uso de medicamentos prescritos foram verificadas para idade (40 a 59 anos e ≥ 60 anos), não realização de atividade ocupacional, índice de massa corporal (25 a 30 kg/m²), procura de serviço de saúde nas últimas duas semanas, consulta odontológica no último ano, morbidade referida e presença de doenças crônicas. Menor uso de medicamentos prescritos foi verificada nos homens que referiram prática de atividade física no lazer. Associações independentes e positivas com o uso de medicamentos sem prescrição foram encontradas também para morbidade referida nas duas semanas anteriores à pesquisa, e para dor de cabeça frequente/enxaqueca. Ainda, verificouse associação independente e inversa para internação hospitalar no último ano. Os fármacos sem prescrição mais consumidos foram: dipirona, paracetamol, AAS e diclofenaco. *Conclusão:* Os achados do presente estudo oferecem subsídios para o direcionamento de ações voltadas para a promoção do uso racional de medicamentos em um subgrupo populacional ainda pouco investigado quanto a essa temática.

Palavras-chave: Uso de medicamentos. Prevalência. Saúde do homem. Automedicação. Farmacoepidemiologia. Inquéritos epidemiológicos.

INTRODUCTION

Men constitute the population subgroup with the highest risk of death¹. The gender differences in the risk of becoming sick are modified according to lifestyle and biological, socioeconomic, cultural, and behavioral factors^{1,2}. Still, health perception can vary owing to factors connected to the social experiences of the individual, access to health services, the form in which people notice symptoms, evaluate the gravity of the sickness, and decide what to do regarding their health problems^{3,4}. Sawyer et al.⁵ analyzed the user profile for health services in Brazil and found that, when sick, younger men initially seek pharmacies and emergency services.

Excess mortality among male is reported in various places around the world. In Brazil, Laurenti et al.¹ investigated the profile of morbidity and mortality among men and found higher mortality for all ages and for all cause groups. In Campinas, São Paulo, a similar pattern was observed, with significant inequality in mortality in relation to gender, a fact that is partially explained by male behavior, which is molded by sociocultural factors⁶. Regarding health conditions and the use of services, despite the female excess morbidity, men are more vulnerable to severe chronic illnesses, which impose limitations and are an important cause of death^{1,7}.

In 2008, after identifying that men present low access to the actions for health promotion and prevention and that they access the health system for specialized care, the Ministry of

Health implemented a National Policy for Integral Attention to Men's Health. This policy was created with the intention of promoting health actions that reduce morbidity and mortality owing to preventable causes, considering the male singularity in the sociocultural, political and economic contexts and the different levels of development and organization of the local health systems. One of its guidelines is to give full attention to the quality of life and education as important strategies in the promotion of behavioral changes⁷.

Medication is a necessary therapeutic instrument, responsible for the increase in the population's life expectancy and quality⁸. Its use is influenced by sociodemographic and cultural factors, morbidity profile, characteristics of the pharmaceutical market, and the government policies⁹⁻¹¹. As a form of self-care in search of health, self-medication is understood as the selection and use of medication for health maintenance, illness prevention, and treatment of noticed sicknesses and symptoms, without the prescription, guidance, or follow-up of a doctor or dentist¹².

A Spanish study found a prevalence of 57.7% for the use of medication and of 14.5% for self-medicating in men (≥ 16 years), considering the use of any medication (with/without prescription) and a recording period of 2 weeks. Age, consumption of alcohol, hours of sleep, and the absence of a visit to the doctor's, among other factors, were associated with self-medication¹³. In the population from Campinas, São Paulo, in 2001/2002, for a recall period of 3 days, self-medication was highest among women of all ages, except for the 20 to 39 age group, where the prevalence among men in this age subgroup was of 43.3%¹⁴.

The need to investigate these health conditions and the conduct related to the health of men justifies the assessment of the use of medication in this population. In addition, the identification of the pharmaceuticals consumed without a prescription is important in guiding actions that promote health and prevent the worsening of conditions, in favor of an approach that includes the rational use of medication among men. The objective of this study was to estimate the prevalence, find the factors associated with the use of medication according to prescription, identify the main pharmaceuticals consumed without indication, and the reason for this use, among adult men living in the urban area of Campinas, São Paulo, Brazil.

METHODS

This is a population-based cross-sectional study, which included 1,063 noninstitutionalized men (≥ 20 years), living in the urban area of the city of Campinas, São Paulo, between 2008 and 2009. Data from the Health Survey in the city of Campinas ("*Inquérito de Saúde no município de Campinas*" – ISACamp) were utilized, a questionnaire conducted by the Collaborating Center in Health Situation Analysis (*Centro Colaborador em Análise de Situação de Saúde* – CCAS) from the Department of Public Health from the College of Medical Science at Universidade Estadual de Campinas (UNICAMP).

The survey sample was obtained through probabilistic sampling by clusters and in two stages: census tracts and household. In the first stage, 50 census tracts were selected with probability proportional to size (number of households). In the second stage, households were selected through systematic sampling applied to the frame of existing households in each of the selected tracts. The number of people in the sample was obtained considering the situation corresponding to the maximum variability for the frequency of events studied ($p = 0.50$), confidence level of 95% in the determination of the confidence intervals (score $z = 1.96$), sample error between 4 and 5%, and design effect equal to 2, totaling 1,000 individuals in each age group: adolescents (10 – 19 years), adults (20 – 59 years), and elderly men (≥ 60 years). A response rate of 80% was expected; so, the sample was corrected to 1,250 and, in order to reach it in each age group, after updating the selected tracts and compiling the list of addresses, households for adolescents, adults, and elderly men were selected respectively: 2,150, 700, and 3,900. All of the inhabitants of the age group were interviewed in the households, as reported at: http://www.fcm.unicamp.br/fcm/sites/default/files/plano_de_amostragem.pdf. The information was obtained through a structured questionnaire that had been previously tested during a pilot study, conducted in household interviews by trained and supervised interviewers.

In this study, the data utilized from the questionnaire referred to the adult (≥ 20 years) male ($n = 1,063$) population, and the dependent variable was created according to the following questions:

1. *Have you utilized some sort of medication in the last 3 days?* (yes or no). If yes, the following questions were asked:
2. *How many? Which?* And for each medication utilized, the following was asked:
3. *Who indicated this medication to you?*
4. *What health problem was this medication used for?*

Next, based on the answers obtained, the participants were allocated into three groups: those who did not use medication (reference category), those who reported having used medication prescribed by a doctor or dentist, and those who consumed exclusively nonprescribed medication (self-medication). The records relative to those who reported the simultaneous use of prescription and nonprescription were excluded from the analyses. The use of medication without a prescription of a trained professional (doctor or dentist) refers to the pharmaceuticals utilized through the indication of a pharmacist/pharmacy attendant, layperson (relative, friend, or neighbor), consumed on their own, or leftover from a treatment prior to the survey. Within this concept, responsible self-medication is discussed, which is the treatment of diseases, signs, and symptoms utilizing “over-the-counter” medication (OTCs), which should have proved efficacy and safety when utilized rationally¹².

For the identification of the medication, the package and/or the prescription was solicited in order to minimize possible errors when recording the data. The medication

was classified utilizing the five levels of the Anatomical Therapeutic Chemical Code (ATC). This classification was often used for comparing national and international data and takes into consideration the anatomical group or the system in which it acts, its chemical, therapeutic, and pharmacological characteristics¹⁵. The Dictionary of Pharmaceutical Specialties (*Dicionário de Especialidades Farmacêuticas* – DEF 2008/2009) was utilized to identify the composition of the pharmaceuticals¹⁶. For the medication whose name the interviewee was unable to report, a code on nonidentification was given; for those that were not listed in the ATC, codes were created to identify them; and for those that did not present a specific code in the ATC, a code was utilized that allowed the identification of the group, class, and therapeutic action. In the codification of the reported morbidity, the International Classification of Diseases version 10 (ICD10)¹⁷, was utilized.

In the analysis of the factors associated with the use of medication according to a prescription, the following independent variables were selected:

- demographic and socioeconomic: age group, marital status, skin color, education level, number of residents in the household, family income per capita (minimum wages), and paid work;
- health status indicators, health behaviors, having private health insurance, and using health services: self-assessment of health, body mass index (BMI = kg/m²) calculated using reported weight and height, tobacco use (percentage of individuals who smoked at the time, regardless of the frequency and intensity of use), excessive use of alcohol (Alcohol Use Disorders Identification Test — AUDIT), practice of physical activities during leisure time, having sought out medical professionals or services for health problems in the last two weeks, hospitalization in the last year, dental care in the last 12 months, and having private health insurance (medical and dental).
- morbid conditions: reported morbidity in the two weeks prior to the study, presence of chronic disease found with the following question: *Has a doctor or other health-care professional ever told you that you have one of the following diseases?* — which includes the following checklist: arterial hypertension, diabetes, cardiovascular disease, tumor/cancer, rheumatism/arthritis/arthrosis, osteoporosis, asthma/bronchitis/emphysema, tendinitis/repetitive strain injury (RSI)/work-related musculoskeletal disorder (WMSD), vascular problems, and other chronic diseases; and has reported the following health problems (symptoms): headaches/migraines, back pain/back problems, dizziness/vertigo, and insomnia.

In the data analysis, initially the association was found between the many variables and the consumption of medication according to a prescription, through the RaoScott test with a significance level of 5%. Next, a multiple analysis was conducted through a multinomial logistic regression, adequate to the variable polytomous response with mutually exclusive categories that have no implicit order between them¹⁸, to obtain an estimate of the odds ratio (OR) and their respective confidence intervals of 95% (95%CI). The initial logistic model

included all the variables that presented an association at a level of $p < 0.20$ in the bivariate analysis and those that presented a p value lower than 0.05 remained in the final model.

In this analysis, the groups were simultaneously compared with the reference category, that is, the group that did not consume medication in the 3 days prior to the survey. Moreover, all pharmaceuticals consumed through self-medication were identified, regarding the reason for use, and the percentage of frequency were presented. The analyses were conducted utilizing the program Stata 11.0, whose analysis procedures for population surveys incorporate features of complex sampling. The project was approved by the Ethics Committee of Universidade Estadual de Campinas (Addendum to Opinion n° 079/2007). All of the respondent/legal guardians signed the Term of Free and Informed Consent, and there is no conflict of interests.

RESULTS

The study included 1,063 individuals of the male sex, ≥ 20 years, with responses (yes or no) for the use of medication in the 3 days prior to the survey. The average age of the population studied was 41.6 years (95%CI 40.3 – 42.9). Regarding the consumption of medication, 45.3% (95%CI 41.3 – 49.4) reported having consumed at least 1 medication in the 3 days prior to the interview: 521 (32.9%) had consumed exclusively prescription medication; 80 (11.2%) reported only nonprescribed medication; and 26 (1.3%) reported having consumed simultaneously prescribed and nonprescribed medication. Regarding the average number of medication used according to a prescription, a significant statistical difference was observed for the ≥ 80 years age group ($p < 0.05$).

The prevalence of medication use following a prescription, according to the sociodemographic characteristics of men, is presented in Table 1. Age group, marital status, education level, and paid work presented significant association to the use of medication in the bivariate analysis ($p < 0.05$). Among the men who perform paid work, 13.3% reported the use of nonprescribed medication during the survey.

Regarding the prevalence of the use of medication and behavior related to health, having health insurance and using health services, the BMI index, tobacco use, practicing physical activities during leisure time, seeking out medical professionals or health services in the last two weeks, and hospitalization in the last year were all significantly associated with the use of medication following a prescription. Among smokers, the prevalence of self-medication was of 12.4% (95%CI 7.5 – 20.0) (Table 2).

In Table 3, the prevalence of use of medication according to a prescription is presented for the health status indicators. The prevalence of self-medication was of 17.6% among men who reported morbidity in the two weeks prior to the survey and around 22% in those who reported frequent headaches/migraines.

The results of the multinomial analysis of the factors associated with the use of medication according to a prescription are presented in Table 4. A higher use of prescription medication

was found for age (40 – 59 years and ≥ 60 years), not doing paid work, BMI (25 to 30 kg/m²), seeking medical professionals or services within the last 15 days, dental care in the last year, reported morbidity, and the presence of chronic diseases. Among the men who reported doing physical activity in their leisure time, a lower use of prescription medication was observed. Regarding self-medication, a higher OR was found for reported morbidity in the two weeks prior to the survey, and for frequent headaches/migraines, (OR=3.18; 95%CI 1.82-5.58). Moreover, an independent and negative association was found for hospitalization within the last year for this subgroup.

Table 5 presents the percentage frequency found for the sample design of the questionnaire, of the medication consumed without a prescription, and the reasons reported for the use

Table 1. Prevalence of the use of medication in men according to prescription and sociodemographic characteristics. ISACamp, 2008 – 2009.

Variables and categories	Did not use medication (n = 436)	Use of prescription medication (n = 521)	Use of medication without a prescription (n = 80)	p-value*
	95%CI	95%CI	95%CI	
Age group (years)				
20 – 39	68.5 (61.8 – 74.5)	17.8 (13.5 – 23.1)	13.7 (9.3 – 19.9)	< 0.001
40 – 59	47.4 (40.3 – 54.6)	41.9 (34.2 – 50.0)	10.7 (6.1 – 18.0)	
≥ 60	28.8 (25.0 – 32.9)	66.9 (62.0 – 71.5)	4.3 (2.4 – 7.5)	
Marital status				
With a partner	50.4 (45.3 – 55.5)	37.4 (31.7 – 43.4)	12.2 (8.4 – 17.6)	0.009
Without a partner	64.3 (56.9 – 71.0)	26.1 (20.6 – 32.4)	9.7 (6.0 – 15.2)	
Skin color				
White	54.4 (49.8 – 58.9)	34.8 (29.8 – 40.1)	10.8 (7.3 – 15.6)	0.470
Nonwhite	58.2 (49.1 – 66.7)	28.9 (22.9 – 35.8)	12.9 (7.3 – 21.9)	
Education level (years)				
0 – 4	39.5 (31.4 – 48.1)	52.5 (43.9 – 60.9)	8.0 (4.7 – 13.5)	0.001
5 – 8	58.5 (48.1 – 68.1)	30.6 (22.3 – 40.3)	10.9 (5.1 – 21.8)	
≥ 9	59.4 (54.1 – 64.4)	28.1 (23.2 – 33.6)	12.5 (8.4 – 18.2)	
Number of people in the household				
1 – 2	49.4 (42.2 – 56.7)	38.8 (32.5 – 45.4)	11.8 (6.4 – 20.6)	0.244
≥ 3	57.6 (52.9 – 62.2)	31.2 (26.5 – 36.5)	11.1 (7.6 – 16.0)	
Monthly income per capita (MW**)				
≤ 1	57.4 (51.7 – 62.8)	32.3 (27.4 – 37.6)	10.3 (5.8 – 17.5)	0.858
$> 1 \text{ e } \leq 3$	55.4 (48.2 – 62.3)	32.9 (26.8 – 39.6)	11.7 (7.4 – 18.0)	
> 3	51.5 (42.7 – 60.2)	36.0 (27.1 – 46.1)	12.5 (7.8 – 19.2)	
Paid work				
Yes	60.2 (55.0 – 65.1)	26.6 (21.9 – 31.8)	13.3 (9.5 – 18.2)	< 0.001
No	38.2 (31.0 – 46.1)	57.4 (49.6 – 64.8)	4.4 (2.0 – 9.2)	

n: number of individuals in the sample prior to analysis; *RaoScott's test; MW: minimum wage salary; **minimum wage salary effective at the time of the study: January–April/2008 = R\$ 415.00; May/2008–April/2009 = R\$ 450.00.

as well. For sodium dipyron, paracetamol, and acetylsalicylic acid (ASA), the frequency is given by its occurrence in monodrugs or in combination drugs. Thus, it could be noted that analgesics and anti-inflammatories were predominant among the most consumed medication without a prescription.

DISCUSSION

This study assessed the prevalence of use of medication and associated factors, according to prescription. Regarding the identified profile for prescribed use, the effect of age observed

Table 2. Prevalence of the use of medication in men according to a prescription and habits related to health, having health care, and healthcare use. ISACamp, 2008 – 2009.

Variables and categories	Did not use medication	Use of prescription medication	Use of medication without a prescription	p-value*
	95%CI	95%CI	95%CI	
Body mass index (kg/m ²)				
< 25	61.2 (54.9 – 67.1)	28.6 (24.2 – 33.4)	10.2 (6.7 – 15.2)	0.008
25 – 30	49.7 (44.1 – 55.3)	35.6 (29.3 – 42.4)	14.7 (10.2 – 20.7)	
> 30	49.4 (40.6 – 58.2)	43.4 (33.1 – 54.2)	7.2 (3.2 – 15.6)	
Tobacco use				
Smoker	62.2 (52.6 – 70.9)	25.3 (18.1 – 34.3)	12.4 (7.5 – 20.0)	< 0.001
Nonsmoker	58.3 (53.5 – 62.9)	31.9 (26.7 – 37.5)	9.8 (6.3 – 15.0)	
Former smoker	31.9 (22.6 – 43.0)	52.2 (41.8 – 62.5)	15.8 (9.4 – 25.4)	
Excessive use of alcohol				
Nondependent	55.4 (51.1 – 59.6)	34.3 (30.2 – 38.8)	10.3 (7.0 – 14.7)	0.116
Dependent	56.2 (43.6 – 68.0)	26.3 (17.9 – 36.8)	17.5 (10.2 – 28.4)	
Practices physical activity				
No	51.6 (46.3 – 57.0)	37.5 (32.5 – 42.7)	10.9 (6.9 – 16.7)	0.053
Yes	60.7 (55.1 – 66.0)	27.3 (22.9 – 32.3)	11.9 (7.7 – 18.1)	
Seeks health services				
No	60.7 (56.6 – 64.7)	27.2 (23.4 – 31.3)	12.1 (8.5 – 16.8)	< 0.001
Yes	25.0 (15.4 – 38.1)	67.8 (57.0 – 77.1)	7.1 (3.3 – 14.5)	
Hospitalization				
No	56.6 (52.6 – 60.6)	31.2 (27.5 – 35.1)	12.2 (8.8 – 16.8)	< 0.001
Yes	40.8 (28.5 – 54.4)	58.3 (44.8 – 70.7)	0.9 (0.2 – 3.6)	
Odontological care				
No	59.6 (54.0 – 64.9)	29.3 (24.8 – 34.3)	11.1 (6.8 – 17.6)	0.161
Yes	51.4 (46.7 – 56.0)	37.0 (31.5 – 42.9)	11.5 (7.6 – 17.2)	
Health insurance				
Yes	53.3 (47.3 – 59.1)	36.0 (29.7 – 42.8)	10.8 (7.3 – 15.5)	0.484
No	57.0 (51.0 – 62.7)	31.3 (26.8 – 36.1)	11.7 (7.7 – 17.5)	

95%CI: confidence interval of 95%; *RaoScott test.

in the higher use of medication is described in various studies^{8,9,19}. Comparisons among the subgroups investigated revealed an older age among men who reported the exclusive use of prescription medication in comparison to the others. Regarding average use, the profiles were similar, except for the age group ≥ 80 years, in which a lower use of nonprescribed medication was observed. This subgroup, in general, is more vulnerable, presents a lower level of health status, higher frequency of hospitalization, higher prevalence of chronic diseases and other health problems, and seeks health services more often. Perrone et al.¹⁴ point to the probable reasoning in the practice of self-medication in the more vulnerable age groups — children and elderly people —, who present health problems more frequently and are routinely monitored by a health professional.

Higher prevalence was observed for use of prescription medication in those who did not perform paid work. A population-based study conducted in Spain, with a recall period of 2 weeks and records from 1,799 men between the ages of 25 and 64 years, found a more elevated use among retired men²⁰. A health survey conducted in Fortaleza, Ceará, with a recall of 15 days, pointed to higher prevalence of medication use and self-medication among those who were unemployed⁸.

Table 3. Prevalence of the use of medication in men according to a prescription and health status indicators. ISACamp, 2008 – 2009.

Variables and Categories	Did not use medication	Use of prescription medication	Use of medication without a prescription	p-value*
	95%CI	95%CI	95%CI	
Perception of own health				
Excellent/very good/good	57.5 (53.1 – 61.9)	30.5 (26.4 – 34.9)	12.0 (8.4 – 16.7)	< 0.001
Bad/very bad	17.8 (6.6 – 40.0)	75.7 (56.4 – 88.2)	6.5 (1.8 – 20.4)	
Morbidity in the last 2 weeks				
No	62.0 (57.4 – 66.3)	27.8 (23.7 – 32.4)	10.2 (6.8 – 15.1)	< 0.001
Yes	19.0 (12.0 – 28.8)	63.4 (51.3 – 74.0)	17.6 (10.2 – 28.4)	
Presence of chronic diseases				
No	72.5 (67.8 – 76.8)	14.2 (10.7 – 18.5)	13.3 (9.4 – 18.6)	< 0.001
Yes	27.1 (20.9 – 34.4)	64.7 (56.8 – 71.9)	8.1 (4.2 – 14.9)	
Health problems (symptoms)**				
Frequent headaches/migraines	42.7 (33.6 – 52.2)	35.6 (27.1 – 45.1)	21.7 (15.0 – 30.3)	< 0.001
Back aches/back problems	44.0 (35.9 – 52.5)	41.7 (34.0 – 49.7)	14.3 (8.5 – 23.2)	0.006
Dizziness/vertigo	25.4 (14.0 – 41.6)	62.1 (47.3 – 75.0)	12.5 (4.1 – 32.2)	0.002
Insomnia	27.7 (17.2 – 41.5)	60.7 (47.5 – 72.5)	11.6 (4.7 – 26.0)	< 0.001

95%CI: confidence interval 95%; *RaoScott test; **percentage of those who replied yes (reference class: negative response).

More prescription medication use was noted among overweight men. An important health determinant, excess weight is associated with adverse metabolism alterations—increase in arterial pressure, cholesterol, and resistance to insulin²¹.

Table 4. Final results of the Multinomial Logistic Regression analysis of the factors associated with the use of medication according to a prescription. ISACamp. 2008 – 2009.

Variables and categories	Use of prescription medication		p-value	Use of medication without a prescription		p-value
	OR	95%CI		OR	95%CI	
Age group (in years)						
20 – 39	1			1		
40 – 59	2.12	1.15 – 3.90	0.017	1.06	0.52 – 2.14	0.876
≥ 60	2.41	1.37 – 4.24	0.003	0.82	0.32 – 2.08	0.673
Paid work						
Yes	1			1		0.453
No	3.64	2.00 – 6.63	< 0.001	0.69	0.26 – 1.84	
Body mass index (kg/m²)						
< 25	1			1		
25 – 30	1.69	1.04 – 2.75	0.035	1.71	0.98 – 3.00	0.059
> 30	1.15	0.53 – 2.51	0.712	0.83	0.33 – 2.08	0.684
Physical activity in leisure time						
No	1			1		0.898
Yes	0.54	0.34 – 0.86	0.011	0.96	0.49 – 1.88	
Seeks health services						
No	1			1		0.603
Yes	4.69	2.15 – 10.21	< 0.001	0.77	0.29 – 2.09	
Hospitalization in the last year						
No	1			1		0.001
Yes	1.28	0.65 – 2.52	0.463	0.07	0.01 – 0.33	
Odontological care						
No	1			1		0.858
Yes	1.61	1.05 – 2.48	0.031	1.07	0.50 – 2.29	
Morbidity in the last 2 weeks						
No	1			1		< 0.001
Yes	6.34	2.51 – 16.02	< 0.001	6.15	2.48 – 15.29	
Presence of chronic diseases*						
No	1			1		0.247
Yes	10.32	6.08 – 17.52	< 0.001	1.61	0.71 – 3.64	
Headaches/migraines						
No	1			1		< 0.001
Yes	1.01	0.59 – 1.74	0.955	3.18	1.82 – 5.58	

OR: odds ratio; 95%CI: confidence interval of 95% estimated by the Multinomial Logistic Regression method, considering the group of nonusers of medication as the category of reference; *hypertension, diabetes, cardiovascular disease, tumor/cancer, rheumatism/arthritis/osteoarthritis, osteoporosis, asthma/bronchitis/emphysema, tendinitis/repetitive strain injury (RSI), work-related musculoskeletal disorder (WMSD), and vascular problems.

Seeking health services and having dental care were positively associated to the use of prescription medication in the multiple regression analysis, as observed in other studies^{19,22}. In this study, from the men who reported having sought some health service, 97% received treatment, which reflects the access to services in the city. It should be noted that the access depends on the perception of health needs and its conversion into demands³.

An independent association was found between reported morbidity and the use of prescription medication. The illnesses, acute and chronic, are predictors of the use of medication^{8,9,19}. This finding is, in part, explained through the higher use of services within this subgroup (data are not presented).

Self-medication was positively associated with reported morbidity and headaches/migraines and inversely associated with hospitalization in the last year. A common practice within the population^{8,23,24}, self-medication is influenced by the familiarity with the medication, positive prior experiences, difficulty in accessing services, and the symbolic role that medication plays on the population^{8,24,25}. It should be noted that headaches are a very frequent complaint among the adults and can be related to other health problems²⁶. In Porto Alegre, Rio Grande do Sul, in the assessment for the reason for using nonprescribed medication, the most reported were headaches and the flu²⁴. As for independent and inverse association with hospitalization, a hypothesis would be that individuals with a history of severe problems would be more attentive and careful with the use of medication without guidance or would already be using an elevated number of prescription drugs. In this study, an association was observed between the presence of chronic diseases and self-medication, as found in Spain by CarrascoGarrido et al.¹³ for a recall period of 2 weeks.

In the assessment of pharmaceutical specialties used without a prescription, the main were: sodium dipyron, paracetamol, ASA (in monodrugs or combination drugs), and

Table 5. Main active ingredients consumed without a prescription. Reported reasons for use and the proportion of consumption. ISACamp. 2008/2009.

Active ingredient	Reported reasons for use	n = 80	%*
Sodium dipyron or combination**	Cephalea; flu; and unspecified migraine	20	29.5
Paracetamol or combination**	Cephalea; flu; unspecified migraine; myalgia; and common cold	16	23.5
ASA or combination**	Cephalea; flu; common cold; and alcohol use	14	18.2
Diclofenac**	Cutaneous abscess; boil on unspecified location; cephalgia; throat ache; unspecified back pain; and unspecified adult osteomalacia	9	12.3
Others***	Various reasons	21	16.5

n: number of individuals in the sample prior to analysis; *percentage in the analyzed sample;**Over-the-counter medication; ***amoxicillin, atenolol, azithromycin, benzocaine¹, chlorphenamine¹, furosemide, antacid with sodium bicarbonate¹, *Ginkgo biloba*¹, aluminum hydroxide¹, lidocaine¹, loperamide¹, loratadine¹, naproxen¹, orphenadrine¹, oxymetazoline, sildenafil citrate¹, multivitamins¹, natural nonherbal, among others.

¹Over-the-counter medication (OTCs).

diclofenac. Sodium dipyrrone presented the highest frequency of use for cephalgia/migraines and the flu. This higher proportion, which has been highlighted since the 1980s in Brazil¹⁰, does not occur in European countries or in the United States owing to allergic reaction and idiosyncrasies²⁶. Owing to its similar antithermal and analgesic efficacies compared with other pharmaceuticals, its use should be based on evidence²⁷. A multicenter case – control study, which assessed the incidence and the risk factors for agranulocytosis and aplastic anemia (AA), did not find any association with dipyrrone in the causative factor of AA²⁸.

Paracetamol and ASA, used separately or in combination, also presented an elevated proportion of use for cephalgia, fever, and common cold management. Both hold analgesic and anti-thermal properties, but the anti-inflammatory and antiplatelet are not shared by paracetamol and dipyrrone. In this study, the prevalence of the use of ASA without a prescription, reported for disorders of the circulatory system, was only 0.2%. According to Ong et al.²⁷, paracetamol is the first choice agent for the treatment of light to moderate pain, acute and chronic, associated with peripheral inflammatory reaction or otherwise, showing itself to be efficient and the safest profile, in comparison to the other nonopioid analgesics, making it the most prescribed drug for acute pain in the United States²⁹. ASA presents analgesic efficacy equal to paracetamol, but its use requires caution owing to the adverse side effects of salicylates in susceptible people²⁶. In addition, even at a single oral dose for pain treatment, gastric irritation can occur.³⁰

Diclofenac was the most used nonprescribed anti-inflammatory, especially for cephalgia and back pain. Ibuprofen presents less gastrointestinal risk, while diclofenac and naproxen hold intermediate risk²⁷.

Among the disadvantages of self-medication, several issues can be highlighted such as delay in diagnosis and adequate therapy, drug interactions, adverse reactions, and intoxication^{22,24}. Men often adopt a behavior that denies fragility^{31,32}, and incurring in not seeking help, even in situations related to health³³. The risk of practicing self-medication is related to the level of education, the information the users have about medicines, and their access to a health system. National Policy for Integral Attention to Men's Health (*Política Nacional de Atenção Integral à Saúde do Homem*) has aligned with the National Primary Care Policy (*Política Nacional de Atenção Básica*) and the principles of the Public Health System (*Sistema Único de Saúde – SUS*), strengthening the actions and services in care networks, highlighting the necessity to amplify the access to primary care⁷.

For Viacava et al.³⁴, access is defined as people's capacity to obtain necessary services, while adequacy is conceptualized as the degree with which care and interventions are based on existing technical knowledge. Thus, access to medical and pharmaceutical care does not necessarily imply in better health conditions, as bad prescription habits, dispensing errors, inadequate self-medication, failure of use of medication according to the indicated dosage and administration, among other factors, can lead to inefficient and unsafe treatments^{35,36}. Particularly, regarding pharmaceutical assistance, insufficient financial resources and the need for better training of the professionals who work in the processes and their managers can be highlighted^{11,36}. Medicalization as the one and main representation of health needs

should be deconstructed among its users³³. Nevertheless, it should be highlighted that the possibility of receiving adequate treatment, when necessary, is fundamental to the reduction of morbidity and mortality^{35,36}.

Among the limitations of this study, it should be considered that the recall period of 3 days can influence in the prevalence of the use of medication^{9,19,22}. The use of medication can be underestimated due to the short period being considered, however, this period amplifies the possibility of obtaining information regarding the use of any drug (occasional or chronic/prescribed or nonprescribed). The unusual recall period makes the comparability to other findings difficult. The information regarding the use and the prescription were reported by the interviewees, and the memory bias can alter its precision¹⁹; however, the period used can improve the information regarding the nonprescribed pharmaceuticals²². It can be emphasized that although the size of the sample has been calculated for the adult and elderly cluster, and this study has included only men, a design effect was obtained (*deff*) — a parameter that indicates the estimative precision obtained through complex sampling in comparison to simple random sampling — around 1.8 for the association tests.

It should be pointed out that the sociodemographic and cultural characteristics related to the medication, the recall period, and the definitions of the event studied, among other aspects, should be considered in comparative analyses. In this study, before the definition adopted for self-medication, the necessity for prescription for medication was not assessed. The dispensing of medication, free from prescription or otherwise, should be understood as a process of medical care. When dispensing is followed by adequate guidance, the risks related to inadequate use decrease. In this study, the proportion of medication indicated by pharmacists was inferior to 4%. Still, it should be considered that differences observed for use according to prescription can be partially attributed to the specificities of the population studied, the health status, the use of services, and the model of medical care.

This study utilized data from an ample health survey, which prevents detailing of questions that can be further investigated in a more specific study on the topic. However, the population-based health survey allowed for information to be obtained, which was unavailable in other databases, such as the secondary source of information for health³⁸, and is fundamental for the planning and assessment of health policies.

CONCLUSION

In the assessment of the use of prescription medication, a chance of use can be pointed out, starting at 40 years, which is statistically similar to the elderly persons, overweight men, and those who have sought health professionals or services in the last two weeks. For those who reported self-medication, a higher chance of use was found to be among those who complained of frequent headaches/migraines.

Self-medication can be seen as a form of relieving the public health system, which is desirable; however, it is necessary that it be a responsible self-medication so that individuals can treat symptoms and ailments safely.

The use of medication according to prescription, observed for men living in Campinas, São Paulo, offers benefits for the direction of the actions and the development of critical awareness in the adult male population and in health professionals, contributing to the promotion of the rational use of medication and the improvement of health conditions among men.

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