**DOI:** 10.1590/1980-549720200025

**ORIGINAL ARTICLE /** *ARTIGO ORIGINAL*

# Use of medicines by adults in primary care: Survey on health services in Minas Gerais, Brazil

## *Uso de medicamentos por adultos na atenção primária: inquérito em serviços de saúde de Minas Gerais, Brasil*

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**ABSTRACT:** ***Introduction:*** Inappropriate use and increase of health care spending reinforce the need to extend our knowledge about the quality of medication use. ***Objectives:*** To describe and evaluate the profile of medication use in a representative sample of adult users of primary care services in the Unified Health System (SUS) of Minas Gerais. ***Method:*** Cross-sectional study, with 1,159 interviewees in 104 municipalities and 253 health care services. Data on sociodemographic characteristics, health conditions and use of medicines were collected, and these variables were stratified by age group. Univariate and multivariate analyses, using logistic regression, were conducted to identify predictors of self-medication. We set a significance level of 5% for all tests. ***Results:*** The prevalence of medication use was 81.8%, with an average of 2.67 medicines per user, which increased with age. The most used drugs were losartan, hydrochlorothiazide and simvastatin, which differed between age groups. Significant self-medication was observed not only in young adults but also in the elderly. The predictors of self-medication were: being a young adult, having a higher level of education, not having chronic diseases, having worse self-perception of health and not adhering to prescription drugs. Young and elderly adults showed characteristics that made them more vulnerable in relation to the rational use of medicines. ***Conclusion:*** This study can contribute to improving primary care, where it identified problems related to the extent of medication use, especially among young adults and the elderly in Minas Gerais.

***Keywords:*** Use of medicines. Self-medication. Pharmacoepidemiology. Primary health care. Public health.

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**Conflict of interest:** nothing to declare – **Financial support:** none.

**RESUMO:** ***Introdução:*** O uso inadequado e o crescimento dos gastos em saúde reforçam a necessidade de ampliar o conhecimento sobre a qualidade de uso de medicamentos. ***Objetivos:*** Descrever e avaliar o perfil de utilização de medicamentos em uma amostra representativa de usuários adultos da atenção primária do Sistema Único de Saúde (SUS) de Minas Gerais. ***Método:*** Estudo transversal, com 1.159 entrevistados em 104 municípios e 253 serviços de saúde. Foram coletados dados sobre características sociodemográficas, condições de saúde e uso de medicamentos, sendo essas características estratificadas por faixas etárias. Análises univariada e multivariada, por meio de regressão logística, foram conduzidas para identificar preditores de automedicação. Para todos os testes, foi adotado o nível de significância de 5%. ***Resultados:*** A prevalência de uso de medicamentos foi de 81,8%, com média de 2,67 medicamentos por usuário, que aumenta com a faixa etária. Os medicamentos mais utilizados foram losartana, hidroclorotiazida e sinvastatina, com diferenças entre as faixas etárias. Observou-se automedicação significativa não só em adultos jovens, mas também entre idosos. Os preditores de automedicação foram: ser adulto jovem, ter maior nível de escolaridade, não apresentar doenças crônicas, ter pior autopercepção de saúde e não aderir a medicamentos prescritos. Adultos jovens e idosos apresentaram características que os tornaram mais vulneráveis em relação ao uso racional de medicamentos. ***Conclusão:*** O estudo pode contribuir para melhorar o cuidado na atenção primária, pois identificou problemas relevantes relacionados à qualidade do uso de medicamentos, especialmente entre adultos jovens e idosos em Minas Gerais.

***Palavras-chave:*** Uso de medicamentos. Automedicação. Farmacoepidemiologia. Atenção primária à saúde. Saúde pública.

## INTRODUCTION

Medicines are essential to health and play a significant role in improving quality of life and life expectancy[1], but its improper use can have consequences for the individual, society and health care systems[2], which is a global problem[3] and of interest to public health. This reinforces the need for research on the use and quality of use of medicines.

In most countries, medicines have been the fastest growing health cost component. This is partly due to the continued launch of expensive new drugs, stricter clinical goals and demographic changes[4].

Since it is a social process, the use of medicines is influenced by several factors[1,5,6], such as demographic structure, morbidity profile and socioeconomic, behavioral and cultural characteristics of the pharmaceutical market and government policies directed at the sector[7], aspects that are constantly changing.

Thus, periodic assessment of a population's way of using medicines helps identify possible changes in use and provides up-to-date information on medication use and the related factors. This information can assist in the planning of health services and future research[8], in addition to help decide on priorities in public health policies[9] relevant to the needs of society.

More specifically, the assessment of drug use among age groups provides an epidemiological view of the disease landscape, current treatment standards and pharmacotherapeutic

approaches in each age group. In addition, changes associated with age, body function and body composition, justify a more rigorous monitoring of the therapeutic regimen, to ensure the effective and safe use of medicines among older individuals[10].

The evaluation of medication use by the population cared for in primary health care (PHC) of the Unified Health System (SUS) analyzes health care itself[11], bearing in mind that PHC plays an essential role in comprehensive care, organizing and coordinating the health care process, including pharmaceutical care.

The state of Minas Gerais is very extensive and has a diverse population composition. Also, the state has a well-defined and organized SUS-PHC system, and pharmaceutical care is connected with the Pharmacy Network of Minas. Accordingly, the aim of the present study was to determine the profile of medication use in a representative sample of users of SUS-PHCs in Minas Gerais, aged 18 years or older, seeking to identify trends in medicine use according to age group. In addition, the factors associated with the practice of self-medication among PHC users were identified. Studies like this are scarce, and the information thus obtained allows filling gaps in our knowledge of the frequency and quality of medication use at this level of care, especially with regard to its inappropriate use and the risks arising from this practice.

## METHOD

We conducted a cross-sectional study with state coverage, between September 2014 and May 2015. The units of analysis were the individuals cared for by the services of SUS-PHCs, aged 18 or older using medications, and the medications themselves. The information was obtained in person, in the health units, using a semi-structured questionnaire that was previously validated. The present study used the same methodological course and instruments as the Services component of the National Survey on Access, Use and Promotion of Rational Use of Medicines (PNAUM)[12].

The sample size, representative of users aged 18 years or older, was estimated using the following steps: first, the representative sample size of the municipalities in Minas Gerais was calculated, and then the representative sample of the APS-SUS health services in the state of Minas Gerais, based on the selected municipalities; finally, the representative sample of users was selected, given the previously chosen health services. Details of the procedure for calculating the sample size of municipalities (104) and health services (253) are described elsewhere[13].

In each primary care health service, the number of users was proportional to the population of the municipality: municipalities with less than 30 thousand inhabitants, two to five users interviewed; municipalities with 30 to 80 thousand inhabitants, three to six users; and municipalities with 80 thousand inhabitants or more, four to seven users. The estimated sample size was 1,254 users, but with losses, 1,159 interviews were conducted.

SUS-PHC users were randomly selected according to a predefined order, when they were at a clinic visit on the days of the field research. The criteria stipulated for this selection occurred in such a way that interviewers were not allowed to choose users when composing the sample, to get a close as possible random draw[12]. The interview was conducted before the clinic visit, and the information regarding the use of medicines was collected through the following question: In the past 30 days, did you use any medicines? The self-report of this response was checked, when possible, with the user's possession of the prescription of the drugs.

Medicines were classified according to the third and fifth levels of the Anatomical Therapeutic Chemical Classification System (ATC)[14], corresponding respectively to pharmacological subgroup and chemical substance.

The exploratory variables analyzed were as follows. Sociodemographic variables were: sex, age group (18 to 44, 45 to 64 and ≥65 years), education (incomplete primary and complete primary or more), economic class and having private health insurance. The economic class was according to the Brazil Economic Classification Criterion of 2014, of the Brazilian Association of Research Companies.

The characteristics of medication use evaluated were polypharmacy (use of five or more medicines simultaneously, by the same individual), self-medication and adherence to the prescribed medication, the last two being determined through the following questions, respectively: Considering all the times using medicines, do you generally use any medicine without a prescription?; Do you ever stop using any medicine prescribed by the doctor? With positive answers, the individual was asked in which situations.

Regarding the variables associated with health status indicators, the following were analyzed: self-perceived health, number of self-reported chronic diseases (none, one or two or more, i.e., multimorbidity) and main self-reported chronic diseases, and hospitalization and emergency room care in the last year. These exploratory variables were described by simple absolute and relative frequencies, and Pearson's $\chi^2$ test or Fisher's exact test were used to assess the differences between age groups. For the mean and median number of drugs, analysis of variance (ANOVA) and the Jonckheere-Terpstra test were applied. A significance level of 5% was used in all tests.

Finally, to assess the association of self-medication with the explanatory variables, univariate and multivariate analyses were performed using logistic regression, calculating the odds ratio (OR), with a 95% confidence interval (95%CI). In the univariate analysis, variables that were associated with the outcome with $p \leq 0.20$ were included in the multivariate analysis. The backward method was chosen to arrive at the final model, ending with variables showing $p \leq 0.05$. The quality of the adjustment was verified by the Hosmer-Lemeshow test, and statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) program, version 22.

The ethical guidelines for conducting research were met (with approval by the National Research Ethics Commission, process No. 398.131/2013). All participants signed an informed consent form.

# RESULTS

Among the 1,159 APS-PHC users interviewed, 949 (81.8%) reported having used medicines in the last 30 days. Sociodemographic characteristics related to health and medication use are presented in Table 1, showing significant differences between age groups. The majority of medication users (80.1%) were women, but the proportion of men increased with age, reaching 34.7% in the age group of 65 years or older. Almost half (47.0%) of these users had incomplete primary education, and the elderly (≥65 years) had the lowest levels of education. Regarding the economic class, most users belonged to class C (62.2%), followed by class D or E (20%). Among the elderly, largest

Table 1. Sociodemographic characteristics, health condition and use of medicines of users of primary health care services in the Unified Health System, Minas Gerais, September 2014–May 2015 (n = 949).

| Variable | Age group (years) | | | | p |
|---|---|---|---|---|---|
| | 18 to 44 n (%) | 45 to 64 n (%) | ≥65 n (%) | Total n (%) | |
| Sex | | | | | |
| Female | 356 (87.5) | 310 (77.9) | 94 (65.3) | 760 (80.1) | < 0.001* |
| Male | 51 (12.5) | 88 (22.1) | 50 (34.7) | 189 (19.9) | |
| Schooling | | | | | |
| Incomplete primary | 96 (24.0) | 235 (59.0) | 115 (80.0) | 446 (47.0) | < 0.001* |
| Complete primary or + | 311 (76.0) | 163 (41.0) | 29 (20.0) | 503 (53.0) | |
| Economic class | | | | | |
| A or B | 86 (21.2) | 66 (16.6) | 17 (11.8) | 169 (17.8) | < 0.001** |
| C | 268 (65.8) | 242 (60.8) | 80 (55.6) | 590 (62.2) | |
| D or E | 53 (13.0) | 90 (22.6) | 47 (32.6) | 190 (20.0) | |
| Chronic diseases | | | | | |
| None | 183 (45.0) | 49 (12.3) | 4(2.8) | 236 (24.9) | < 0.001* |
| One or + | 224 (55.0) | 349 (87.7) | 140 (97.2) | 713(75.1) | |
| Uses non-prescription medicines (yes) | 235 (57.7) | 176 (44.2) | 46 (31.9) | 457 (48.2) | < 0.001* |
| Stops using medicines prescribed by doctor (yes) | 116 (28.5) | 90 (22.6) | 14 (9.7) | 220 (23.2) | < 0.001* |

*Pearson's $\chi^2$ test; **Fisher's exact test.

proportion of individuals were in economic class D or E (32.6%), and the great majority (78.5%) reported multimorbidity (data not shown in table). Approximately half of medication users reported having multimorbidity (49.5%), with a significant difference between age groups ($p < 0.001$).

Regarding the characteristics of medication use, self-medication was found in almost half of the users (48.2%), with a higher proportion among the younger users (57.7%) and a substantial proportion among the elderly (31.9%). Among the reasons for self-medication (data not shown in table), the most reported were "having the medicine at home" (89.1%) and "previous use of the medicine" (86.7%). The latter reason showed significant differences ($p = 0.003$) between the age groups.

When investigating the non-adherence to prescribed medications, a greater proportion was also found in those aged 18–44 years (28.5%). The main reasons for this non-use (data not shown in table) were previous negative experience with the use the medicine (71.4%) and belief that the medicine was very strong or weak (60.5%). The latter reason showed significant differences ($p = 0.017$) between age groups, with a greater proportion among users aged 45–64 years (65.6%).

Considering the total number of users, the mean number of drugs used was $2.67 \pm 1.89$ (SD). This mean varied significantly ($p < 0.001$) for each age group: ($1.94 \pm 1.28$) for the age group between 18 and 44 years; ($3.04 \pm 2.04$) for those aged 45 to 64; and ($3.72 \pm 2.10$) for those ≥65 years. The median number of drugs used was 2.00 (interquartile range, (1.00 - 4.00) and also varied significantly ($p < 0.001$) between age groups (data not shown in table).

Among the 2,536 drugs self-reported by users, 2,372 active ingredients were identified according to the fifth level of the ATC. The most used were losartan (7.0%), hydrochlorothiazide (6.6%), simvastatin (5.4%), omeprazole (4.8%) and metformin (4.2%) (Table 2), which was observed in higher proportions in the age group of 65 years or older. Unlike most medications, which had a higher proportion of use among the elderly, clonazepam and fluoxetine showed a higher proportion of use in the younger adults (18–44 years). In this age group, the most used drugs were: ferrous sulfate (5.6%), hydrochlorothiazide (4.6%), folic acid (4.3%), omeprazole (4.3%) and clonazepam (4.0%).

In general, the profile of the most used drugs matched the most prevalent diseases in the population studied: hypertension (50.3%), dyslipidemia (31.2%), depression (28.0%), arthritis/arthrosis or rheumatism (20.4%) and diabetes mellitus (16.5%). The medicines most often used by the elderly were clonazepam, diazepam, fluoxetine and ibuprofen, which are considered potentially inappropriate for use in this age group[15].

The most used pharmacological subgroups (Table 3), considering the third level of ATC, were "angiotensin II antagonists" (7.1%), "low potency diuretics/thiazides" (6.7%) and "lipid-modifying agents" (6.1%). The proportion of consumption of the pharmacological subgroups was, in general, higher in the age group ≥65 years. The subgroup "other analgesics and antipyretics" showed a higher proportion in those 18–44 years old. In addition, the second and third groups of medicines most used in this age group were

hormonal contraceptives (7.8%) and antidepressants (7.2%), respectively. We found that the pharmacological subgroups most used, in relation to the general sample, were for the cardiovascular and nervous system, particularly antihypertensive and psychotropic drugs, respectively.

Table 4 presents the results of the univariate and multivariate logistic models for the predictors of self-medication, which was associated with age group. Young adults (18 –44 years old) were 1.83 times more likely to practice self-medication compared to the elderly (≥65 years old). In addition, an association was observed between self-medication and individuals with higher education (OR = 1.58; 95% CI 1.17 – 2.14), without chronic diseases (OR = 1.67; 95%CI 1.19 – 2.37), with worse self-perceived health (OR = 1.70; 95%CI 1.26 – 2.28), and also those not adhering to prescription drugs (OR = 1.98; 95%CI 1.43 – 2.73).

Table 2. Medicines most used by users of the primary health care services of the Unified Health System, stratified by age group, considering the fifth level of the Anatomical Therapeutic Chemical Classification System (ATC), Minas Gerais, September 2014–May 2015 (n = 949).

| Medicine | Fifth level ATC code | N (%) Total | n (%)* Age group 18 to 44 years | n (%)* Age group 45 to 64 years | n (%)* Age group ≥65 |
|---|---|---|---|---|---|
| Losartan | C09CA01 | 167 (7.0) | 22 (2.9) | 95 (8.4) | 50 (10.1) |
| Hydrochlorothiazide | C03AA03 | 156 (6.6) | 34 (4.6) | 81 (7.2) | 41 (8.3) |
| Simvastatin | C10AA01 | 127 (5.4) | 13 (1.7) | 73 (6.5) | 41 (8.3) |
| Omeprazole | A02BC01 | 113 (4.8) | 32 (4.3) | 56 (5.0) | 25 (5.1) |
| Metformin | A10BA02 | 100 (4.2) | 16 (2.1) | 57 (5.0) | 27 (5.5) |
| Clonazepam | N03AE01 | 77 (3.2) | 30 (4.0) | 38 (3.4) | 9 (1.8) |
| Atenolol | C07AB03 | 70 (3.0) | 11 (1.5) | 37 (3.3) | 22 (4.4) |
| Enalapril | C09AA02 | 63 (2.7) | 13 (1.7) | 40 (3.5) | 10 (2.0) |
| Captopril | C09AA01 | 51 (2.2) | 12 (1.6) | 25 (2.2) | 14 (2.8) |
| Ferrous sulfate | B03AA07 | 47 (2.0) | 42 (5.6) | 4 (0.4) | 1 (0.2) |
| Fluoxetine | N06AB03 | 46 (1.9) | 22 (2.9) | 21 (1.9) | 3 (0.6) |
| Ibuprofen | M01AE01 | 41 (1.7) | 21 (2.8) | 16 (1.4) | 4 (0.8) |
| Folic acid | B03BB01 | 36 (1.5) | 32 (4.3) | 4 (0.4) | 0 (0.0) |
| Diazepam | N05BA01 | 33 (1.4) | 5 (0.7) | 23 (2.0) | 5 (1.0) |

*Absolute values and percentages of total medicines in each age group; 18–44 years: 746 medicines; 45–64 years: 1,131 medicines; ≥65 years: 495 medicines.

## DISCUSSION

The results of this survey showed a high prevalence of medication use, which increased with age group. The most used drugs were losartan, hydrochlorothiazide, simvastatin, omeprazole and metformin. Frequent self-medication was observed among young adults and the elderly. Predictors of self-medication were: being a young adult, having a higher level of education, not having chronic diseases, having worse self-perceived health and not adhering to prescription drugs. In addition, the elderly were more vulnerable because of the poorer quality of medication use.

The overall prevalence of medication use observed in this study (81.8%) was higher than that of other studies carried out in PHCs in Brazil[11,16-18] and those with a national[1,6-8,19,20] and international[21,23] population base. Specifically, the prevalence of medication use in the age group of 65 years or older (90%) was similar to that of national studies in PHCs[16]

Table 3. Medicines most used by users of the primary health care services of the Unified Health System, stratified by age group, considering the third level of the Anatomical Therapeutic Chemical Classification System (ATC), Minas Gerais, September 2014–May 2015 (n = 949).

| Pharmacological subgroup | Third level ATC code | n (%) total | n (%)* Age group 18 to 44 years | n (%)* Age group 45 to 64 years | n (%)* Age group ≥65 |
|---|---|---|---|---|---|
| Angiotensin II antagonists | C09C | 169 (7.1) | 22 (2.9) | 97 (8.6) | 50(10.1) |
| Low-potency diuretics, thiazídes | C03A | 159 (6.7) | 34 (4.6) | 82 (7.3) | 43 (8.7) |
| Lipíd-modifying agents | C10A | 145 (6.1) | 16 (2.1) | 84 (7.4) | 45 (9.1) |
| Hypoglycemic drugs, excluding insulins | A10B | 139 (5.9) | 20 (2.7) | 76 (6.7) | 43 (8.7) |
| Antidepressants | N06A | 135 (5.7) | 54 (7.2) | 68 (6.0) | 13 (2.6) |
| Antiepileptics | N03A | 124 (5.2) | 45 (6.0) | 66 (5.8) | 13 (2.6) |
| Beta-blockers | C07A | 123 (5.2) | 18 (2.4) | 70 (6.2) | 35 (7.1) |
| Angiotensin-converting enzyme inhibitors | C09A | 115 (4.8) | 25 (3.4) | 66 (5.8) | 24 (4.8) |
| Other analgesics and antipyretics | N02B | 110 (4.6) | 65 (8.7) | 35 (3.1) | 10 (2.0) |
| Anxiolytics | N05B | 60 (2.5) | 10 (1.3) | 40 (3.5) | 10 (2.0) |

*Absolute values and percentages of total medicines in each age group; 18–44 years: 746 drugs; 45–64 years: 1,131 drugs; ≥65 years: 495 drugs.

and population-based studies[20,24], but higher than that found in studies conducted exclusively with the elderly both in PHCs[25,26] and in population-based setting[19,27,28]. The mean number of drugs consumed per individual (2.67) was similar to that of studies carried out in PHCs in Brazil[16] and in other countries[29], but higher than that of other studies[7,8,17,22,30], whose averages ranged between 1.5 and 2.2. These higher prevalences and

Table 4. Factors associated (odds ratio — OR) with self-medication in users of primary health care services, Minas Gerais, September 2014–May 2015 (n = 949).

| Variable | Univariate | | p | Multivariate | | p |
|---|---|---|---|---|---|---|
| | OR | 95%CI | | OR | 95%CI | |
| Age group (≥65 years)* | | | | | | |
| 18–44 | 2.91 | 1.95 – 4.35 | < 0.001 | 1.83 | 1.16 – 2.89 | 0.010 |
| 45–64 | 1.69 | 1.13 – 2.53 | 0.011 | 1.40 | 0.92 – 2.12 | 0.115 |
| Sex (female)* | | | | | | |
| Male | 1.46 | 1.05 – 2.01 | 0.023 | - | - | - |
| Schooling (incomplete primary)* | | | | | | |
| Complete primary or + | 1.82 | 1.41 – 2.36 | < 0.001 | 1.58 | 1.17 – 2.14 | 0.003 |
| Economic class (D or E)* | | | | | | |
| A or B | 1.91 | 1.25 – 2.91 | 0.003 | - | - | - |
| C | 1.69 | 1.21 – 2.36 | 0.002 | - | - | - |
| Health insurance (no)* | | | | | | |
| Yes | 1.29 | 0.94 – 1.77 | 0.118 | - | - | - |
| Number of chronic diseases (1 or +)* | | | | | | |
| None | 1.91 | 1.42 – 2.58 | < 0.001 | 1.67 | 1.19 – 2.37 | 0.003 |
| Hospitalization/emergency room (no)*[a] | | | | | | |
| Yes | 1.53 | 1.17 – 2.00 | 0.002 | - | - | - |
| Self-perception of health (very good/good)* | | | | | | |
| Very bad/bad/not bad/not good | 1.30 | 1.00 – 1.70 | 0.047 | 1.70 | 1.26 – 2.28 | < 0.001 |
| Polypharmacy (no)*[b] | | | | | | |
| Yes | 1.77 | 1.21 – 2.60 | 0.003 | - | - | - |
| Adherence to prescription medicines (yes)* | | | | | | |
| No | 2.22 | 1.63 – 3.03 | < 0.001 | 1.98 | 1.43 – 2.73 | < 0.001 |

*Reference category; Hosmer-Lemeshow test = 0.886; [a]self-reporting for the 12-month period prior to the interview; [b]polypharmacy: use of five or more medicines, simultaneously, by the same individual; 95%CI: 95% confidence interval.

means observed may be related to the nature of the sample and to the advances in the provision of health services that SUS and the Family Health Strategy have provided to the country[31] and Minas Gerais.

The tendency of increasing number of medications with age group is in accordance with the literature[7,16,20], and the use of multiple medicines is common in older adults, due to the greater number of morbidities. However, this requires greater attention, since it is an important risk factor for prescription and adherence problems, adverse drug events and other adverse health effects[32].

Psychopharmaceuticals were among the pharmacological groups most used in this survey, as shown in another survey conducted in the SUS-PHC[16]. This may reflect the increase in the use of these drugs in recent decades[33]. In addition, the most prevalent class of antidepressants is in line with the trend towards increasing the prescription of antidepressants seen in primary care[34]. Therefore, it is necessary to develop strategies in the PHC to better understand this high use of psychotropic drugs, especially among young adults, and to intervene to reduce their use.

Low schooling was observed in a greater proportion among the elderly (65 years old or older), as well as multimorbidity and belonging to the lower economic classes (D/E). These characteristics make the elderly more vulnerable with regard to the use of medications and may represent problems in decision making regarding prescribed antihypertensive medications[35]. The elderly have peculiar physiological and clinical conditions associated with more complex treatment regimens, such as polypharmacy[28], and together with the aforementioned characteristics, they become weaker in understanding, adhering to and following the prescribed therapeutic regimen.

Among the drugs most used by individuals 65 and over, there were some potentially inappropriate medicines (PIM) for the elderly[15], a reality observed in other national studies[24,36,37]. The higher proportion of medication use and the occurrence of a cascade of inappropriate prescription of drugs in this age group[38] characterize a relevant public health problem, given its association with morbidity and mortality, and also with the costs to health care services due to adverse reactions[38,39]. Thus, multidisciplinary health teams are recommended to identify and possibly mitigate the inappropriate use of medications to ensure patient safety and improve the quality of care provided.

Regarding self-medication, about half of the interviewees answered that they had used some medicines without a prescription. This prevalence was higher than that reported by other national[16,40-42] and international[22,43] studies. Young adults (18–44 years old) showed greater use of self-medication, a common feature among studies in the literature[16,22,40]. This age group was 1.8 times more likely to self-medicate than individuals aged 65 or older. However, among the elderly, there was a significant portion of self-medication, and this requires greater attention, since it is a practice little explored in the literature[44].

It was also observed that the higher level of education and the absence of chronic diseases were predictors for self-medication among the participants. Greater access to information

can contribute to the practice among the more educated[45]. With regard to chronic diseases, both a reduction[45,46] and increase [40] in self-medication has been noted among patients. On the other hand, users with worse self-perceived health, more often in those with multimorbidity, showed a greater chance of self-medication[47].

Thus, such results are worrisome, because when self-medication is not responsible, there is the possibility of worsening health problems and spread of communicable diseases[48]. Self-medication is a common phenomenon, but it requires attention mainly among the elderly, who are more susceptible to adverse events. This reaffirms the importance of better monitoring and guidance to PHC users on the use of medicines, to reduce inappropriate self-medication and its consequences.

Compliance with the prescribed therapeutic regimen is one of the steps proposed by the World Health Organization for the rational use of medicines, and it is important to investigate the non-adherence of medicines prescribed by the doctor. In the present study, the highest proportions of this practice were found in the 18–44 age group, as observed in another national study in PHCs[16]. The main reason for non-adherence was previous negative experience with the use of a medication. It is noteworthy that non-adherent individuals were almost twice as likely to self-medicate when compared to those who were adherent. A possible explanation is that this was due to the failure of effective communication between users and prescribers or to the lack of trained drug dispensers, such as pharmacists, as well as to inadequate pharmacotherapeutic monitoring by health services. The interaction of the pharmacist with the users of health services, during the dispensing of medicine, constitutes a decisive and opportune moment for guidance and support regarding the occurrence of problems related to their use and which can result in non-adherence to therapy or its recurrence.

The primary strength of the study can be highlighted by the collection of primary data and the state representation of users aged 18 years or older from SUS-PHCs, which allowed us to outline an overview of the global use of medicines in Minas Gerais. Furthermore, the stratification by age groups made it possible to characterize differences between groups and trends in the population studied, useful information in view of the demographic transition going on in the country.

However, it is important to consider some research limitations, such as the self-reporting of the information and the 30-day recall period, subject to memory bias. In addition, the results obtained in this study reflect the population aged 18 years or older using public health services, and not the general population.

## CONCLUSION

The characteristics observed and analyzed demonstrated the presence of vulnerable groups in relation to the rational use of medicines, such as young adults, with low adherence to the prescribed therapeutic regimen and the practice of self-medication, and the

elderly, who had a lower level of education and economic class, greater use of medicines, some of which were MPI for the age group, in addition to considerable self-medication and more multimorbidities.

This information can be of help in public health decisions, and the findings of high consumption and inappropriate use of medicines serve as a warning to multiprofessional teams and managers of public health systems. PHC teams are advised to always pay attention to the identification and development of measures to confront low adherence to the prescribed regimen and the common practice of self-medication among young adults, as well as the use of PIM and self-medication among the elderly. In this sense, it is advisable to reinforce the presence of pharmacists at the PHC level, since when fulfilling their role, essential in pharmaceutical assistance and dispensing medications, they contribute to the appropriate confrontation of problems related to drug use.

It is important to note that, as a whole, the results corroborate the complexity of the social process that involves the use of medicines, which may become more pronounced over the years, given the demographic and epidemiological transition underway in the country. Thus, the findings identify relevant issues regarding the use of medicines in the state of Minas Gerais, in different age groups. From the perspective of public health, they constitute guidelines for the development of actions and programs in favor of improving the quality of the use of medicines in the scope of primary care.

## ACKNOWLEDGMENTS

We are grateful for the financial support from Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG), Conselho Nacional de Desenvolvimento Científico (CNPq) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).

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**Received on: 10/03/2019**
**Revised on: 12/03/2019**
**Approved on: 01/09/2020**

**Authors' contributions: Thais de Abreu Moreira: analysis and interpretation of data and drafting of manuscript; Juliana Alvares-Teodoro: conception and design of study, acquisition of data, analysis and interpretation of data, and drafting of manuscript; Mariana Michel Barbosa: analysis and interpretation of data; Augusto Guerra: conception of study and acquisition of data; and Francisco de Assis Acurcio: conception and design of study, analysis and interpretation of data and drafting of manuscript. All authors reviewed the final version of the manuscript and contributed to it.**