

USE OF MEDICINES BY PEOPLE BEARING ARTERIAL HYPERTENSION AND/OR DIABETES WHO WERE ASSISTED BY A FAMILY HEALTH STRATEGY*

Utilização de medicamentos por hipertensos e/ou diabéticos cadastrados em uma estratégia saúde da família

Utilización de medicamentos por hipertensos y/o diabéticos cadastrados en una estrategia de salud de la familia

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ABSTRACT

Objective: to analyze the profile of drug use by hypertensive and diabetic people from a Family Health Strategy of Southern Mato Grosso. **Methods:** this is a quantitative and cross-sectional research with users registered at a Basic Health Unit. The data were collected in home visits. **Results:** the users consumed an average of 2.9 drugs. There was no statistical difference in the mean consumption between men and women. The elders used more drugs. The most used drugs were the ones that work in the cardiovascular system. **Conclusion:** the results show the need for promoting the rational use of drugs, especially in the elderly population.

Descriptors: Diabetes mellitus; Hypertension; Drug utilization; Epidemiology.

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RESUMO

Objetivo: analisar o perfil de utilização de medicamentos por hipertensos e/ou diabéticos de uma Estratégia de Saúde da Família do Sul de Mato Grosso. **Métodos:** trata-se de uma pesquisa quantitativa e transversal com usuários cadastrados em uma Unidade Básica de Saúde. Os dados foram coletados em visitas domiciliares. **Resultados:** os usuários consumiram uma média de 2,9 medicamentos. Não houve diferença estatística no consumo médio de medicamentos entre homens e mulheres. Os idosos utilizavam mais medicamentos. Os fármacos que atuam no sistema cardiovascular foram os mais consumidos. **Conclusão:** os resultados apontam para a necessidade da promoção do uso racional de medicamentos, sobretudo na população idosa.

Descritores: Diabetes mellitus; Hipertensão; Uso de medicamentos; Epidemiologia.

RESUMEN

Objetivo: analizar el perfil de utilización de medicamentos por hipertensos y/o diabéticos de una Estrategia de Salud de la Familia del Sur de Mato Grosso. **Métodos:** se trata de una investigación cuantitativa y transversal con usuarios registrados en una Unidad Básica de Salud. Los datos fueron colectados en visitas domiciliarias. **Resultados:** los usuarios consumieron una media de 2,9 medicamentos. No había diferencia estadística en el consumo medio de medicamentos entre hombres y mujeres. Los ancianos utilizaban más medicamentos. Los fármacos que actúan en el sistema cardiovascular fueron los más consumidos. **Conclusión:** los resultados apuntan a la necesidad de la promoción del uso racional de medicamentos, sobre todo en la población anciana.

Descriptores: Diabetes mellitus, Hipertensión, Utilización de medicamentos, Epidemiología.

INTRODUCTION

Systemic arterial hypertension is a multifactorial clinical condition, frequently associated with functional and/or structural changes in the target organs (heart, brain, kidneys and blood vessels) being aggravated by the presence of risk factors such as dyslipidemia, abdominal obesity, intolerance to glucose and diabetes mellitus.¹ In Brazil, systemic arterial hypertension affects 32.5% (36 million) of adult individuals, more than 60% of the elderly, contributing directly or indirectly to 50% of deaths from cardiovascular disease.² The USA data in 2015 revealed that this pathology was present in 69% of patients with the first episode of acute myocardial infarction, 77% of stroke, 75% with heart failure and 60% with peripheral arterial disease.³

Diabetes mellitus is characterized by a heterogeneous group of metabolic disorders that have hyperglycemia in common, resulting from defects in action and or insulin secretion. The classification proposed by the World Health Organization and the American Diabetes Association includes four clinical classes: type 1 diabetes mellitus, type 2 diabetes mellitus, other specific types of diabetes mellitus and gestational diabetes mellitus.⁴ In 2013, the National Health Survey estimated that in Brazil, 6.2% of the population aged 18 years old or older had a medical diagnosis of diabetes.⁵

The health care of hypertensive and diabetic individuals constitutes one of the main pillars of primary care in the

country, considering the high prevalence of these diseases and the number of comorbidities associated with them.⁶ Hypertensive and diabetic patients are consumers of a large number of medicines, which, although necessary in many situations, when misused can cause serious health complications, in addition to an increase in individual and government costs.⁷ Another aggravating factor is that, as they provide numerous benefits, pharmaceutical products are now used indiscriminately and irrationally.⁸ Bearing this in mind, epidemiological studies on the profile of medication use by hypertensive and diabetic patients contribute to the implementation of health services that treat these users, as well as, to propose the reorganization of services in healthcare networks, the from the lines of care necessary for these users. Considering this framework, the present study meant to assess the consumption of medications by hypertensive and/or diabetic patients in a Family Health Strategy (FHS) in the South of *Mato Grosso* State, with an emphasis on the differences between men and women.

METHODS

It is a descriptive-exploratory and cross-sectional study with a quantitative approach, which was performed in a FHS, *Rondonópolis* city, *Mato Grosso* State. This unit was chosen because it is the place where the project researchers work, who are linked to a Multiprofessional Residency Program in Family Health. The study included all users registered as hypertensive and/or diabetic in the FHS considered, who had the capacity for verbal expression, voluntariness and who accepted to participate in the research by signing the Informed Consent Form. There were excluded the users who expressed a desire not to participate in the research, or who were not found in their homes after three attempts at contact, at alternate times and days of the week. The research was approved by the Ethics Committee of Hospital Júlio Mueller under protocol No. 1,113,303 and the participants were guaranteed anonymity, the right to confidentiality and data confidentiality, and the Resolution 466/2012 from the National Health Service was considered and respected.

Data collection took place through a structured and pre-tested form, which was composed of closed and open questions related to sociodemographic aspects, health conditions, the use of health services and the consumption of medicines. The interviews were conducted through home visits, from March 7 to June 8, 2017.

Study participants were asked about all medications in use, previously defined as those used by the respondent in the last seven days before the interview.⁹ the concomitant use of five or more medications was considered polypharmacy.¹⁰ The active principles present in each specialty were listed and organized according to Anatomical Therapeutic Chemical (ATC) Classification System.¹¹ Drugs with more than one active ingredient were classified in the therapeutic class of the main component; products with different pharmacological

actions were classified taking into account their therapeutic indication.

The variables studied were related to sociodemographic characteristics (age, gender, education, ethnicity, family income, affiliation to a private health plan), presence of comorbidities, use of health service services (consultation in the last 3 months, hospitalizations in the last year, use of urgent and emergency services in the last year) and consumption of medicines.

The data were entered twice and compared to obtain the definitive database. The statistical significance of the differences between the proportions was tested using the Chi-Square test or Fisher's exact test, as appropriate. The differences between the means of the number of drugs consumed were analyzed using the Mann-Whitney test. For all tests, the significance level of 5% was used. Statistical analyses were performed using the Epi-Info program version 7.2.1.0.

RESULTS

The sample consisted of 110 participants, of whom 79 (71.82%) were hypertensive, 10 (9.09%) diabetic and 21 (19.09%) hypertensive and diabetic. The majority of the population was female (58.19%), within the age group from 23 to 87 years old (average=55.20 ± 13.97), had up to 8 years of study (75.45%), had an income family member less than or equal to two minimum wages (73.65%) and were not affiliated with a health plan (92.72%). Considering the ethnicity, 24.55% declared themselves as black and 75.45% white, yellow, indigenous and brown skin color (Table 1).

When analyzing health-related characteristics, it was found that 65.45% of respondents reported the occurrence of at least one comorbidity related to hypertension and or diabetes, 62.73% consulted within three months before the date of the interview, 10.91% were hospitalized and 30.90% used emergency services in the last year (Table 1). The most prevalent comorbidities were anxiety (41.81%), angina (21.81%) and vision disturbances (15.45%).

Table 1– Sociodemographic and health characteristics of hypertensive and/or diabetic patients assisted by a Family Health Strategy. *Rondonópolis* city, *Mato Grosso* State. (2017)

Variable	Total n=110 n(%)	Men n=46 n(%)	Women =64 n(%)
Age (years old)			
18-59	72 (65.45)	28(60.87)	44(68.75)
≥60	38 (34.55)	18(39.13)	20(31.25)
Education			
0 to 8 years	83(75.45)	38(82.61)	45(70.31)
≥9 years	27(24.54)	08(17.39)	19(29.69)
Race (skin color)			
Black	27(24.54)	08(17.39)	19(29.69)
Others	83(75.45)	38(82.61)	45(70.31)
Income			
Up to 2 minimum wages	81(73.65)	33(71.74)	48(75.00)
More than 2 minimum wage	29(26.35)	13(28.26)	16(25.00)
Comorbidities			
Yes	72(65.45)	27(58.70)	45(70.31)
No	38(34.55)	19(41.30)	19(29.69)
Hospital admission in the last year			
Yes	12(10.91)	2(4.35)	10(15.63)
No	98(89.09)	44(95.65)	54(84.38)
Urgency/Emergency in the last year			
Yes	34(30.90)	9(19.57)	25(39.06)
No	76(69.10)	37(80.43)	39(60.94)

The prevalence of medication use by hypertensive and/or diabetic patients was 98.18%. Study participants reported using a total of 327 medications in the 7 days prior to the interview (average=2.9). Men consumed 122 drugs, with an average of 2.67

(± 1.64) medications, women 205 medications and an average of 3.19 (± 1.70), however, there was no statistical difference for the average consumption of drugs between men and women (p=0.1078). A total of 98 (89.09%) users used drugs to treat

systemic arterial hypertension, 29 (26.36%) to control diabetes and 3 (2.72%) did not use any type of medication.

Polypharmacy was observed in 20% of hypertensive and/or diabetic patients. A frequency of 82.73% of the research participants purchased drugs through the *Sistema Único de Saúde (SUS)* [Brazilian Unified Health System]

and 92.73% reported that they were instructed regarding the use of medicines (Table 2). A percentage of 46.37% of those surveyed received guidance on the use of medicines by the physician, 33.65% by the physician and pharmacist and 8.20% only by the pharmacist, 7 (6.36%) users did not receive any type of guidance.

Table 2 – Characteristics addressing the medicine consumption by hypertensive and/or diabetic patients assisted by a Family Health Strategy. *Rondonópolis* city, *Mato Grosso* State. (2017)

Variable	Total n=110 n(%)	Men n=46 n(%)	Women n= 64 n(%)
Getting medicines through the SUS			
Yes	91(82.73)	37(80.43)	54(84.38)
No	19(17.27)	9(19.57)	10(15.63)
Polypharmacy			
Yes	22(20)	9(19.57)	13(20.31)
No	88(80)	37(80.43)	51(79.69)
Receiving guidance concerning the use of medicines			
Yes	102(92.73)	45(97.83)	57(89.06)
No	8(7.27)	1(2.17)	7(10.94)

When comparing the differences between the average consumption of drugs for the population studied, we observed that the only variable that showed a statistical difference was age ($p=0.029$), with higher average use of drugs for the elderly (average= 3.47 ± 1.76). The analysis of the average consumption of medications among men

revealed a statistical difference for the variable health insurance ($p=0.04$), with higher consumption among individuals without health insurance. In the women's group, the statistical difference was identified among those who had a medical consultation in the last three months ($p=0.01$) (Table 3).

Table 3 – Average of medicines taken by hypertensive and/or diabetic patients assisted by a FHS from the city of *Rondonópolis*, *Mato Grosso* State, and the probability of significance of the differences between the averages according to sociodemographic and clinical variables.

Variable	Total n=110 Average (SD)	Men n=46 Average (SD)	Women n=64 Average (SD)
Age (years old)			
18-59	2.70(1.60)	2.42(1.75)	2.88(1.49)
≥60	3.47(1.76)	3.05(1.43)	3.85(1.98)
	$p= 0.02$	$p= 0.11$	$p= 0.05$
Education			
0 to 8 years	3.06 (1.81)	2.68(1.67)	3.37(1.87)
≥9 years	2.70 (1.26)	2.62(1.59)	2.73(1.14)
	$p=0.49$	$p=0.97$	$p=0.22$
Race (skin color)			
Black	2.77(1.60)	2.50(1.69)	2.89(1.59)
Others	3.03(1.72)	2.71(1.65)	3.31(1.75)
	$p= 0.47$	$p=0.74$	$p= 0.32$
Income			
Up to 2 minimum wages	3.11(1.83)	2.69(1.75)	3.39(1.85)
More than 2 minimum wage	2.58(1.15)	2.61(1.38)	2.56(0.96)
	$p= 0.261$	$p= 0.92$	$p= 0.12$

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Variable	Total n=110 Average (SD)	Men n=46 Average (SD)	Women n=64 Average (SD)
Health insurance			
Yes	2.12(1.55)	1.00(0.00)	2.80(1.64)
No	3.03(1.69) p=0.09	2.79(1.64) p= 0.04	3.22(1.72) p= 0.60
Comorbidities			
Yes	3.09(1.83)	2.59(1.67)	3.40(1.87)
No	2.73(1.38) p=0.41	2.78(1.65) p= 0.76	2.68(1.10) p=0.16
Hospital admission in the last year			
Yes	3.08(1.08)	4.00(1.41)	2.90(0.99)
No	2.95(1.75) p=0.52	2.61(1.64) p= 0.21	3.24(1.81) p= 0.73
Medical consultation in the last 3 months			
Yes	3.11(1.73)	2.53(1.61)	3.56(1.71)
No	2.73(1.61) p= 0.24	2.53(1.61) p= 0.44	2.60(1.55) p= 0.01
Urgency/Emergency in the last year			
Yes	3.05(1.49)	3.22(1.85)	3.00(1.38)
No	2.93(1.78) p= 0.55	2.54(1.59) p= 0.29	3.30(1.89) p= 0.58

SD: Standard Deviation, Mann-Whitney test.

The medications most used by the studied population belong to the class of drugs that work on the cardiovascular system (58.17%), alimentary tract and metabolism (18.34%) and nervous system (14.06%), this predominance is maintained when data are compared by gender (Table 4). Regarding the cardiovascular system, the most consumed therapeutic subgroups were agents with action on the renin-

angiotensin system, diuretics, and beta-blockers. The most frequent medicines with action on the alimentary tract and metabolism were for the treatment of diabetes and peptic ulcer and those that act on the nervous system were analgesics and antipyretics. These pharmacological groups and subgroups also predominated when analyzing the consumption of medicines by men and women (Table 4).

Table 4 – Distribution of medicines consumed by users of a Family Health Strategy in the last seven days, according to the ATC classification system. Rondonópolis city, Mato Grosso State, 2017.

Anatomical and therapeutic group	Total		Men		Women	
	n	%	n	%	n	%
Cardiovascular system	190	58.17	75	61.47	115	56.10
Agents acting on the renin-angiotensin system	75	23	32	26.24	43	20.98
Diuretics	51	15.6	18	14.75	33	16.1
Beta-blockers	44	13.45	14	11.47	30	14.64
Lipid-modifying agents	15	4.6	07	5.75	08	3.9
Cardiac Therapy	04	1.22	03	2.45	01	0.48
Calcium channel blockers	01	0.3	01	0.81	0	0
Alimentary tract and metabolism	60	18.34	23	18.85	37	18.05
Medicines used in diabetes	45	13.76	19	15.57	26	12.7
Medicines for peptic ulcer and gastroesophageal reflux disease	08	2.44	02	1.64	06	2.93
Intestinal anti-inflammatory agents	02	0.61	0	0	02	0.97
Antiemetics and anti-nauseating agents	02	0.61	0	0	02	0.97
Antacids	01	0.30	0	0	01	0.48
Vitamins	02	0.61	02	1.64	0	0

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Anatomical and therapeutic group	Total		Men		Women	
	n	%	n	%	n	%
Nervous system	46	14.06	17	13.93	29	14.15
Analgesics and antipyretics	26	7.95	08	6.55	18	8.78
Dizziness preparations	06	1.84	01	0.81	05	2.43
Psycholeptics, anxiolytics and benzodiazepines	04	1.22	02	1.65	02	0.97
Psychoanaleptics, antidepressants	03	0.91	02	1.65	01	0.5
Antiepileptics	06	1.84	03	2.46	03	1.47
Antiparkinsonian	01	0.30	01	0.81	0	0
Agents of the musculoskeletal system	11	3.36	02	1.65	09	4.5
Anti-inflammatory and antirheumatic	10	3.06	02	1.65	08	4
Medicines for treating bone diseases	01	0.30	0	0	01	0.5
Blood and hematopoietic organs	05	1.52	04	3.29	01	0.48
Antithrombotic agents	03	0.92	02	1.65	01	0.48
Antianemic preparations	01	0.30	01	0.82	0	0
Anti-hemorrhagic	01	0.30	01	0.82	0	0
Genito-urinary system and sex hormones	04	1.22	0	0	04	1.95
Sex hormones and modulators of the genital system	04	1.22	0	0	04	1.95
Systemic hormonal preparations	04	1.22	0	0	04	1.95
Thyroid therapy	04	1.22	0	0	04	1.95
Respiratory system	04	1.22	0	0	04	1.95
Antihistamines for systemic use	03	0.91	0	0	03	1.46
Agents against obstructive airway diseases	01	0.31	0	0	01	0.49
Others	03	0.91	01	0.81	02	0.96

DISCUSSION

The analysis of the profile of medication use by hypertensive and/or diabetic individuals provides important information about the medications consumed, who consumes them, how and for what purpose. The results of these studies are useful for planning Pharmaceutical Assistance and health regulation policies and for promoting the rational use of these products, and the pharmacist plays an important role in this area, with more active participation, contributing to the promotion of health in communities.

The prevalence of medication intake by hypertensive and/or diabetic patients registered in the studied Family Health Strategy (FHS) was 98.18%, this data is similar to the study carried out in the city of *Teixeira, Minas Gerais* State, in which 96.6% of hypertensive and/or diabetic people used at least one medication.¹² Brazilian epidemiological surveys point to prevalence of medicine consumption in the adult population from 49.1 to 67.1%.^{9,13,14} The highest prevalence of medication use observed in the present study is justified by the fact that the target population is made up of individuals who have chronic diseases, requiring continuous drug therapy. The average number of medications consumed by the studied population was 2.9, being 2.67 for men and 3.19 for women. Higher values were described in a study that determined the profile of medication use by individuals with hypertension and/or diabetes, in municipalities of the

Minas Pharmacy Network, the authors found an average of 3.8 medicines consumed by the population, being 3.5 by men and 4 by women.¹⁵ The heterogeneity observed in studies on the prevalence of medications is the result of regional differences (income and access to services), measurement of the outcome, population, year and/or period of the year in which the research was conducted and refusal rate.¹⁴

The statistical analysis did not indicate a difference in the average consumption of medicines between men and women. A similar result was observed in a survey conducted with adult users of three Family Health Strategies in the city of *Santa Rosa, Rio Grande do Sul* State, in which there was no association between sex and medicine intake, nonetheless, a study developed in the city of *Campinas, São Paulo* State, found that belonging to the female sex was one of the factors associated with the use of medications.^{16,17} Women are more concerned with health, seek health services more than men, and are thus more subject to medicalization.¹⁵

The use of a large number of medications is widely observed among elderly individuals, mainly due to the presence of comorbidities in this age group.¹⁸ Herein, the average consumption of medications was higher among elderly individuals, corroborating with the literature that indicates that old age is a factor associated with medication consumption.¹⁷ In the Brazilian population, from the age of 30 years old and considering only treatments for chronic

diseases, there is an increasing increase in medication and the older age group (80 years old or more) uses 5.3 times more drugs than the 30-39 years old group.¹⁹ In this circumstances, the health professional must take an active role in favor of this portion of the population, making treatment more effective and enabling the elderly to know how to deal with possible side effects and drug interactions.²⁰

The frequency of polypharmacy among hypertensive and/or diabetic patients who participated in the study was 20%, higher than the research carried out with hypertensive and/or diabetic patients, assisted by a FHS, in the city of *São Luís, Maranhão* State, in that 9.94% of individuals had polypharmacy.²¹ Polypharmacy is not always a preventable event, as hypertension and diabetes mellitus usually require the use of drug combinations to manage various health changes resulting from these pathologies. The main challenge to qualify health care is to ensure that the prescription of multiple medications is appropriate and safe, because, if not performed properly and carefully, it can compromise the patient's health and quality of life.^{21,22}

One of the limitations of this study is that it included only hypertensive and/or diabetic patients registered at the basic health unit, not including the possible patients who are not followed up by the FHS. Furthermore, because it is a cross-sectional study, it does not allow the identification of the cause and effect relationship. Another limiting factor is that there is no consensus in the literature regarding the ideal recall period to investigate the use of medicines by a population, nevertheless, this study used the period of 7 days, in addition to requesting the presentation of the packages and prescriptions of the medicines during data collection, seeking to minimize errors.

The therapeutic groups most consumed by the studied population were drugs that act on the cardiovascular system and alimentary tract and metabolism, these classes being the most consumed by individuals with hypertension and/or diabetes from previous studies.^{15,23} These classes were expected once which include the medications used in the pharmacological treatment of systemic arterial hypertension and diabetes.

One of the indicators of quality and resoluteness of the health system is access to medicines.²⁴ The majority (82.73%) of those surveyed acquired their medicines through the SUS, a similar result in a survey conducted in municipalities of the Minas Pharmacy Network, who found that 74.3% of the studied hypertensive and/or diabetic patients obtain their medications at pharmacies in the SUS.¹⁵ Herein, 92.73% of the participants were instructed in the use of medications, as well as in a consumption study of medication, carried out in three units of the FHS from *Santa Rosa* city, *Rio Grande do Sul* State, identifying that 96.07% of adults attended, received guidance on the use of medication, offered mainly by a physician.¹⁶ Systemic arterial hypertension and/or diabetes mellitus are configured as risk factors for other cardiovascular diseases, thus the FHS has a relevant role in the management of these pathologies, with offers of guidance and monitoring of pharmacological

treatment, then contributing to the rational use of medicines and adherence to pharmacological treatment.^{13,16}

CONCLUSIONS

The hypertensive and/or diabetic patients of a FHS in the South of *Mato Grosso* State consumed an average of 2.9 medications, there were no differences in the consumption of medicines between men and women. The medications that act on the cardiovascular system and metabolism were the most consumed. A high frequency of polypharmacy was observed in the studied population. The results point to the need to adopt measures that promote the rational use of medicines, these actions should be aimed at both users and the FHS team. The larger use of medications by the elderly population observed here justifies the importance of implementing pharmaceutical care strategies intended to this group.

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