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Medication consumption in a Brazilian area covered by the Family Health Strategy: Prevalence and associated factors

Consumo de medicamentos na área de abrangência de uma Estratégia de Saúde da Família: Prevalência e fatores associados

Consumo de medicamentos en el área de alcance de una Estrategia de Salud de la Familia: Prevalencia y factores associados

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Abstract

Objective: The aim of the present study was to determine the prevalence and factors associated with the medication consumption among users registered in the Family Health Strategy (FHS) of Rondonópolis, Mato Grosso State, Brazil. **Method:** The population was constituted of all adult residents in the area covered by the FHS. The Poisson regression model with robust variance was used to the statistical analysis. **Results:** There were included 553 participants, of which 72% were women. The mean age was 48 years. The prevalence of medication consumption was about 74.9% (n = 414). The most consumed class medication was drugs that act on the cardiovascular system (42.2%). The factors associated with medication consumption were female gender (PR = 1.21; CI95%: 1.07 - 1.38), diagnosed morbidity (PR = 1.83; CI95%: 1.61 - 2.08) and be bedridden in the last month (PR = 1.14; 95% CI95%: 1.02 - 1.26). Moreover, 72.7% of the interviewees obtained the medicines in public pharmacies. **Conclusion and implications for practice:** Women, people diagnosed with morbidities and those participants who were bedridden during the last month showed the highest levels of drug consumption. Nursing professionals in promoting the rational use of medications can contribute to integral care to FHS users.

Keywords: Drug; prevalence; risk factors; Family Health Strategy; primary health care.

Resumo

Objetivo: O objetivo deste estudo foi determinar a prevalência e os fatores associados ao consumo de medicamentos em usuários cadastrados em uma Estratégia de Saúde da Família (ESF) de Rondonópolis, Mato Grosso, Brasil. **Método:** A população foi constituída por todos os moradores adultos da área de abrangência da ESF. Para análise estatística foi empregado o modelo de regressão de Poisson com variância robusta. **Resultados:** Foram incluídos 553 participantes, dos quais 72% foram mulheres. A idade média foi de 48 anos. A prevalência do consumo de medicamentos foi de 74,9% (n=414). A classe medicamentosa mais consumida foi dos fármacos que atuam no aparelho cardiovascular (42,2%). Os fatores associados ao consumo de medicamentos foram sexo feminino (RP = 1,21; IC95%: 1,07 - 1,38), morbidade diagnosticada (RP = 1,83; IC95%: 1,61 - 2,08) e estar acamado no último mês (RP = 1,14; IC95%: 1,02 - 1,26). Uma frequência de 72,7% dos entrevistados obtém os medicamentos em farmácias públicas. **Conclusão e implicações para a prática:** Mulheres, indivíduos com diagnóstico de morbidade e participantes que estiveram acamados no último mês apresentaram maiores prevalências de consumo de medicamentos. Os profissionais de enfermagem ao promoverem o uso racional de medicamentos podem contribuir para um cuidado integral aos usuários da ESF.

Palavras-chave: Medicamento; fatores de risco; estratégia de saúde da família; atenção primária à saúde.

Resumen

Objetivo: El objetivo de este estudio fue determinar la prevalencia y los factores asociados al consumo de medicamentos en los usuarios registrados en una Estrategia de Salud de la Familia (ESF) de Rondonópolis, del estado de Mato Grosso (Brasil). **Método:** El público fue formado por todos los adultos residentes en la zona de alcance de la ESF. Para el análisis estadístico fue utilizado el modelo de regresión Poison con varianza robusta. **Resultados:** Se incluyeron 553 participantes, de los cuales el 72% fueron mujeres. El promedio de edad fue de 48 años. La prevalencia de consumo de medicamentos fue de 74,9% (n = 414). La clase de medicación más consumida fue la de los fármacos que actúan en el sistema cardiovascular (42.2%). Los factores asociados al consumo de medicamentos fueron: género femenino (RP = 1,21; IC95%: 1,07-1,38), morbilidad diagnósticada (RP = 1,83; IC95%: 1,61-2,08) y estar encamado en el último mes (RP = 1,14; IC95%: 1,02-1,26). Además, 72,7% de los entrevistados obtiene los medicamentos en farmacias comerciales. **Conclusión e implicaciones para la práctica:** Mujeres, personas diagnosticadas con morbilidad y participantes que estaban encamados en el último mes, presentaron mayor prevalencia de consumo de medicamentos. Los profesionales de enfermería al promover el uso racional de medicamentos pueden contribuir para un cuidado integral a los usuarios de la ESF.

Palabras clave: Medicamento; prevalencia; factores de riesgo; estrategia de Salud Familiar; atención primaria de salud.

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INTRODUCTION

The medications represent relevant health instruments, which aim to reduce the suffering and disrupting illness process, in addition to contributing to the improvement in the quality of life of individuals with chronic conditions.[1] With the scientific and technological advances, obtained over the past decades, in the area of health, the use of medication has become essential in the treatment and prevention of diseases.[2] At the same time, it is possible to consider the appropriate consumption of medications as highly cost-effective technology, since it can contribute significantly to the care and health care of the population.[3]

In the last years, it has seen increasing interest in the use of medication by the population, as well as the factors associated with this practice. This interest can be justified by the increasing use of drugs in the different social levels, by the expansion of public policies focused on the access to medications and the complexity of the pharmaceutical market.[4] Epidemiological enquiries indicate that the medication consumption may be influenced by sex, age, income, self-health perception, diagnostic of chronic disease, affiliation to health insurance, number of medical consultations[5,6].

Studies of medications use meet important purposes, such as: description of patterns of medications, assessment of educational measures effects, detection of inadequate use, estimate of a society´s needs of medications, among others.[7] The data generated by these researches can orient towards the integrality of the care and the actions of health promotion, especially at the primary health care [8]. The set of elements that characterize the pharmaceuticals consumption also enable the assessment and improvement of policies and programs aiming at promoting the rational use of medications.[9]

This rational use involves a set of actors that influences directly and indirectly the promotion of the adequate use of medications. The actors involved in this context are the State, the pharmaceutical market, the health professionals and the health care service user.[10] In this context, the medication consumption should also be rethought in the attention to health. The fields of basic attention are health assistance scenarios, including the Family Health Strategy units (ESF), and should carry out the health promotion and diseases prevention. The multi and inter-disciplinary teams in the ESF must contribute to promote the rational use of medications.[11] In this context, the present study searched to evaluate the prevalence and the factors associated with medications consumption by users of a ESF.

METHODS

This is a cross-sectional outpatient-based study carried out in the coverage area of a Family Health Strategy Unit (ESF) of the city of Rondonopolis, Mato Grosso, situated 215 Km from the capital Cuiabá, to the south of the state. Rondonopolis, currently, has a population estimated in 22, 316 inhabitants.[12]

The population of this study constituted of all adult residents, aged 18 or older in the coverage area of the ESF Vila Cardoso. This unit was chosen because it´s where the project researchers actuate which are linked to the Health Multiprofessional Residence Program in Family Health of the Federal University of Mato Grosso, University Campus of Rondonopolis.

Data was collected during the period between July 2015 and April 2016, through home visits, being included all the residences of the coverage area of the unit. The residents who were not found in up to three attempts to contact them on different schedules and days of week were considered as losses. The researchers responsible for data collection have received training for carrying out the home visits. We conducted a pilot study with the purpose of testing the adequacy of the questionnaire and the procedures proposed. It was used as instrument a semi-structured form composed of 21 questions relating to the sociodemographic aspects, health conditions and medication consumption. The economic level was classified according to the Brazilian Criteria for Economic Classification, developed by the Research Companies Brazilian Association (ABEP).[13]

At the time of data collection, the participants informed which were the medications in use, being considered a reminder period of seven days.[5] With the objective of avoiding oversight, omission or confounding, and consequently, ensure the veracity of the pharmaceutical products informed, the researched were requested to show the packaging, recipe, package leaflet or *blister* of the medications consumed [14]. The concomitant use of five or more medications in the last 7 days was considered polypharmacy.[15]

The present active principles in each specialty were listed and organized in accordance with the *Anatomical Therapeutic Chemical* classification (ATC)[16], developed by the *Nordic Council on Medicines* and recommended by the *Drug Utilization Research Group* (DURG) of the World Health Organization (OMS) for use of medications studies. Medications that had more than an active principle were listed on the therapeutic class of the main component; medications with different pharmacological actions were classified according to its therapeutic indication.[5]

All participants signed the informed signed the informed consent form, and were informed about the objectives, risks, benefits and of the confidentiality of the collected data. The project was approved by the Ethics Research Committee of the Julio Muller Hospital under protocol number 1,113,303.

The dependent variable of this study was the medication consumption. The independent variables were sex, age, schooling variables were sex, age, education, situation in the labor market, socioeconomic level, health self-perception, bedridden in the last month, consultation with a doctor on the last three months, hospitalization in the last twelve months and diagnosed disease. The information was double-typed in the databases, which after validation generated the final databases. For study of associations, we employed gross adjusted ratios, using the simple and multiple Poisson regression with robust variance, respectively. All variables that presented $p < 0.20$ were included in the multiple regression model, adjusted by the confounding variables such as age group and sex. The statistical significance

of prevalence ratios obtained in the Poisson regression models was evaluated by the Wald test. We used the Stata version 12.0 (Stata Corp LP, College Station, USA) to analyze the data.

RESULTS

Five hundred fifty-three individuals participated in the study, of which 72.7% were female and the age group varied from 18 to 92 years, with an average age of 48 years. Regarding the level of education, 55.9% studied up to complete primary school. The users who said that they did not work, retirees and pensioners formed a group corresponding to a 60.2% of those interviewed. Most (70%) participants of the study were classified as B and C stratum for ABEP classification. Table 1 shows the socio-demographic, health and use of the health services characteristics of the population under study.

Table 1. Socio-demographic, health and use of the health services characteristics of the users registered in an ESF. Rondonópolis, MT. (2016)

Variables	n	%
Sex		
Male	151	273
Female	402	72.7
Age in years		
18-59	403	72.9
≥60	150	27.1
Schooling		
Illiterate/Incomplete or complete primary school	309	55.9
Incomplete or complete high school level /higher	244	44.1
Work situation		
Retiree/pensioner/does not work	333	60.2
It Works	220	39.8
Economic Level*		
Classes A and B	166	30.0
Classes C and D	387	70.0
Self-perception of health		
Very good/good	319	57.7
Regular/bad	234	42.3
Bedridden during the last month		
Yes	56	10.1
No	497	89.9
Consultation in the last 3 months		
Yes	337	60.9
No	216	39.1
Hospitalization in the last year		
Yes	76	18.7
No	477	86.3
Morbidity diagnosed		
Yes	284	51.4
No	269	48.6

* *Classification according the Research Companies Brazilian Association (ABEP)

As can be seen in Table 1, 57.7% of residents in the coverage area of the ESF have considered that its proper general state of health was good or very good; 89.9% were not bedridden in the last 30 days prior to the research; 86.3% denied hospitalization in the last year; 60.9% informed medical consultation in the last 3 months and 51.4% stated that they had any diagnosed disease.

The prevalence of medications consumption was 74.9 %, and 940 were identified. Polipharmacy was verified in (10.7%) users.

In the bivariate analysis it evidenced association of some socio-demographic and health condition with the use of medications (Table 2). According to the results, elderly women ((≥ 60 years) , individuals with low schooling (illiterate/incomplete or complete primary school), economically inactive (retiree/pensioner/does not work) presented the highest prevalence of consumption, self-reported that presented morbidity diagnosis, have good, regular/bad health, who were recently bedridden and under medical consultation ($p<0.05$).

Table 2. Gross prevalence ratio of medications consumption, concerning socio-demographic aspects, indicators of health conditions and access to health services of users registered in an ESF. Rondonópolis, MT. (2016)

Variable	Gross PR	CI95%	p Value
Sex			
Male	1.00	1.10 - 1.46	0.001
Female	1.27		
Age in years			
18-59 years	1.00	1.19 - 1.43	<0.001
≥60 years	1.30		
Schooling			
Illiterate/complete or incomplete primary school	1.00	0.76 - 0.95	0.004
Complete or incomplete high school level / higher	0.85		
Work Situation			
Retiree/pensioner/ does not work	1.26	1.12 - 1.41	0.004

Variable	Gross PR	CI95%	p Value
It Works	0.85		
Economic Level			
Classes A and B	1.00	0.94 - 1.17	0.409
Classes C and D	1.05		
Self-perception of health			
Very good/good	1.00		
Regular/bad	1.21	1.09 - 134	<0.001
Bedridden in the last month			
Yes	1.25	1.11 - 1.40	<0.001
No	1.00		
Consultation in the last 3 months			
Yes	1.09	0.96 - 1.25	0.195
No	1.00		
Hospitalization in the last year			
Yes	1.26	1.12 - 1.42	<0.001
No	1.00		
Morbidity diagnosed			
Yes>	1.88	1.67 - 2.14	<0.001
No	1.00		

* CI 95%: Confidence interval of 95%; PR: prevalence ratio.

After control of confusion factors through logistic regression, the variables that remained significantly associated were sex, diagnosed disease and bedridden in the last month (Table 3). Women (PR: 1.21, CI 95%: 1.07 - 1.38), individuals with diagnosed morbidity (PR: 1.83, IC 95%: 1.61 - 2.08) and participants who were bedridden in the last month (RP: 1.14, IC 95%: 1.02 - 1.26) presented higher prevalence of medications use.

The medications that act in the cardiovascular system (42.2%), nervous system (19.9%) and skeletal muscle system (13%) were the most consumed. Pharmaceuticals that act on the renin-angiotensin system, diuretic, anti-inflammatory and anti-rheumatic were the most used therapeutic sub-classes (Table 4).

The participants were asked about which professionals they sought in case of doubts regarding the use of medications, the most indicated the doctor (44.3%) and the pharmacist (36.5%). On the purchase or obtaining the medications, 72.7% informed they make use of public pharmacies.

DISCUSSION

Population-based epidemiological studies can provide a true profile picture of medications use, and are useful to guide local

Table 3. Poisson multiple regression model for medications consumption of users registered in an ESF. Rondonópolis, MT. (2016)

Variable	Adjusted PR*	CI95%	p Value
Sex			
Male	1.00		
Female	1.21	1.07 - 1.38	0.002
Age group			
18-59 years	1.00		
60 years	1.04	0.96 - 1.12;	0.372
Diagnosed morbidity			
Yes	1.83	1.1 - 2.08	
No	1.00		<0.001
Bedridden in the last month			
Yes	1.14	1.02 - 1.26	0.015
No	1.00		

CI 95%: Confidence interval of 95%; PR: prevalence ratio. *All the values adjusted by the variables of the model, including age group and sex.

Table 4. Distribution of medications used in the last seven days, according to the ATC classification, of users from a Family Health Strategy. Rondonópolis, MT. (2016)

Therapeutic class	n	Total	%
A – Digestive tract and metabolism		115	12.2
A10 – Medications used in diabetes	56		
A02 – Antacids, medications for the treatment of peptic ulcer and flatulence	23		
A11 – Vitamins			
Others			
B – Blood and blood-forming organs		20	21
B03 – Anti-anemic preparations	10		
B01 – Antithrombotic medications	6		
Others	4		
C – Cardiovascular system		397	42.2
C09 – Renin-angiotensin--system-acting agents	130		
C03 – Diuretic	105		
C02 – Anti-hipertensives	55		

Therapeutic class	n	Total	%
C10 – Lipid-lowering medication	25		
Others	82		
G –Genitourinary system and sexual hormones		24	2.5
G03 – Sexual hormones and modulators of the genital system	24		
H –Systemic hormonal preparations, excluding sexual hormones		20	2.1
H03 – Thyroid therapeutic	17;		
Others	4		
J – General anti-infective for systemic use		21	2.2
J03 – Antibacterial drugs for systemic use	17		
Others	4		
sM – Skeletal muscle system		122	13.0
M01 – anti-inflammatory and antirheumatic	109		
Others	13		
N – Nervous system		187	19.9
N02 – Analgesics	82		
N05 – Psycholeptics	43		
N06 – Psychoanaleptics	24		
Others	38		
Others		34	3,6
D – Dermatologic medications	11		
L – Antineoplastic and immunomodulators	4		
R – Respiratory system	14		
S – Sensitive organs	5		
TOTAL		940	100

actions public policies and also new researches in this area.[2] The frequency of medications consumption in the population studies was 74.9 %, result similar to that observed in Florianopolis, SC (76.5%)[10], however, these values are higher than the national data that point to a prevalence of 50.7% in the Brazilian population and 51.8% in the center-west region[17]. The use of medications observed in this study was also superior to the researches carried out in Fortaleza, CE (49.7%2)[6], Pelotas, RS (65.9%)[18] and in Ponta Grossa, PR (67.1%)[5].

It is important to highlight some limitations of this research, as the fact that users of the coverage area from a single ESF to be included, then, a future population-based study should be conducted. I was analyzed the consumption of medications during the last 7 days, however, despite this procedure happenening quite often in epidemiological studies, the comparations with other researches should always take into consideration that the data can differ according to the reminder period of use.[2] Added to these factors, it should take into consideration that in cross-sectional studies, the capture of information about all the variables is simultaneous, and its most limitation is the absence of guarantees about the time relation between the expositions and the outcomes. Such limitation is, in part compensated by the estimates in the successive studies, which strengthens the validity of the results.[19]

In this study, association was observed between medication consumption and female sex, corroborating with other national epidemiological investigations.[17,20-22] Several factors make the women more likely to use medications, among them, the exclusive contraceptive use, her greater concern for health, the healthcare for the members of her family and a greater demand for health services.[20] The specific programs focused on woman health as the prenatal, breast and cervical cancer prevention contribute to health services provide more assistance to this portion of the population.[4]

The ESF elderly patients in study were found to present the highest prevalence of medication use. Population studies conducted in Brazil show that the advanced age is one of the main factors associated with the medications use.[6,17,21,22] With the growing aging population and the success in the drugs access policy, there is a trend toward increasing the medications use by older people, indicating that this subject should be a priority on the Public Health System agenda (SUS)[23]. The medications use among the older people constitutes an important therapeutic strategy, in order to compensate changes related to the aging process or control the most common chronic diseases in the third age, thus, the pharmacotherapeutic follow-up in older people is essential for promoting rational medications use [24].

In this study it was identified that individuals with lower schooling and economically inactive (retiree/pensioner/ does not work) consumed more medications. Costa et al. observed greater use of medications among fewer educated individuals, when compared to those with higher schooling level [22]. In general, a higher schooling level is associated with a greater knowledge and discernment about the health-disease process[6]. Galvão et al. reported that the medications consumption was significantly greater in unemployed and retiree in Brasília, DF[21]. Francisco et al. described higher prevalence of medications use among unemployed men, however, this association was not observed in women [20].

The medications consumption in the study population was also associated with presence of morbidity and being bedridden during the last month, an expected result, since the medications constitute important tools for health, which aim to minimize, in-

terrupt the process of illness and improve the individuals´ quality of life with chronic conditions [1]. Similar result was described in a population-based study carried out in the city of Campinas, SP, in which, in the final statistical analysis, after the adjustment for age and sex, the variables morbidity in the last 15 days and number of chronic diseases remained associated with the medications use. According to the authors, persons in these health conditions often search for the services and the medication is one of the therapeutic interventions used [4].

The medications that act on the cardiovascular and nervous system were the most consumed by the users researched. Similar results are described in the literature [4,5,17]. Bertoldi et al. evaluated the generic medications consumption in Brazil, through the National Survey on Access, Use and Promotion of Rational Use of Medicines (PNAUM) data and identified that the medicines for the cardiovascular system (35.9%), for the nervous system (18.6%) and for the alimentary tract and metabolism (16.0%) were the most used.[25] Regarding the therapeutic sub-groups, the highest prevalence of generic medicines occurred for the agents that act on the renin-angiotensin system, corroborating with our study.[25]

The studied population indicated the doctor (44.31m%) and the pharmacist (36.46%) as the main responsible professionals for providing orientations on the use of medications. In Ponta Grossa, PR, the doctor was the main advisor on the use of drugs (76.2%).[5] In the city of Santa Rosa, RS, the doctor (55.94%), the nurse (16.40%) and the nursing technicians (14.14%) were the professionals who provided the greatest contribution with pharmacological orientations. [26] In Medelin, Colombia, the sources of information about the most used medications were the doctor (73%), the internet (44 %) and the pharmacist (43 %).[27] The population must be oriented on how to proceed with the use of medications, in order to guarantee a safe action and with lower risks to health.[27] It is essential that the ESF team be able to guide users about the rational use of medications, aiming at the adhesion to the drug therapy, reduction of adverse effects, self-medication and drug interactions. It should be emphasized that the professional nurse should perform not only the orientation about the medications use, but also the prescription. In this context, therapeutic protocols should be developed, in order to help the category perform prescription actions on daily primary health care services.[28]

The achievement of medications in public pharmacies was observed in 72.7% of the studied population. In the study of Vosgerau et al., with adults of the coverage area of a ESF, the commercial pharmacy (63,6%) was the main local of access to medications.[5] Bertoldi et al., evaluated the use and access of medications in a population covered by the ESF and identified that 51% of medications were made available by the SUS.[29] In the study of Costa et al., 30% of interviewees obtained all the medications who needed by means of public pharmacies, indicating that the most part of the population had to bear the costs of medications. [22] In Brazil, the classes with the greater consumption level (A/B) acquire the generic medications, primarily, in private pharmacies (46.3%), while in classes C and D/E (lower consumption level), about 50,0% of generic medications are obtained in public pharmacies (SUS).[25] Collectively, these data point to a need for enhancement actions of pharmaceutical assistance, enabling the population to have better access to pharmacies and SUS medications programs.

CONCLUSION

Women, individual with diagnosis morbidity and participants who were bedridden in the last month showed the greatest prevalence of medications consumption. The information generated by this research constitute indicators that can subsidize public health policies actions and pharmaceutical assistance in the municipality of Rondonopolis, MT. The high medications consumption observed in the studied population suggests a need to carry out a multidisciplinary approach focused on the promotion of the rational medications use. The nursing professionals, as essential part of the ESF should take integral care for the users, which includes the promotion of the rational medications use, contributing then, to an effective and safe pharmacological treatment.

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