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Older people's knowledge of the purpose of drugs prescribed at primary care appointments

Romana Santos Gama[1]*, Luiz Carlos Santana Passos[1], Welma Wildes Amorim[2], Renato Morais Souza[3], Hévila Maciel Queiroga[4], Jéssica Caline Macedo[5], Larissa Gusmão de Oliveira Nunes[6], Marcio Galvão Oliveira[5]

SUMMARY

OBJECTIVE: This study aimed to assess older people's knowledge of the purpose of drugs prescribed at medical appointments in primary care units and the possible factors related to their level of knowledge about their medications.

METHODS: This was a cross-sectional study conducted in 22 basic health units in Brazil. Patients aged ≥60 years were included in this study (n=674). Knowledge of prescribed medications was assessed by comparing the responses to the questionnaire and the medication and prescription information. Multivariate analyses were conducted using the Poisson regression with robust variance.

RESULTS: The mean age of the sample was 70.1 (standard deviation: ±7.1) years. Among 674 patients, 272 (40.4%) did not know the indication of at least 1 of their prescribed drugs; among them, 78 (11.6%) did not know the indication of any of their prescribed drugs. In the final multivariate analysis, polypharmacy, illiteracy, and cognitive impairment were found to be associated with misunderstanding the purpose of at least one prescribed drug. Moreover, illiteracy and cognitive impairment were associated with a greater misunderstanding of the purpose of all prescribed drugs.

CONCLUSIONS: In the studied sample, patients demonstrated a high rate of misunderstanding of the purpose of prescribed drugs. Therefore, it is necessary for health services and professionals to implement strategies that increase the quality of the guidance and instructions given to older people in order to promote adherence to treatment.

KEYWORDS: Aged. Primary health care. Older adults. Medication adherence. Patient education. Polypharmacy.

INTRODUCTION

A prescription for medication typically results from a consultation with a physician[1]. Prescribing the correct therapy for older people is difficult compared with that for younger adults, due to differences in pharmacodynamics and pharmacokinetic profiles, potential drug side-effects, and the chronic use of drugs[2]. The majority of this population lives with multimorbidity as a result of physiologically declining functional organ reserve caused by the natural process of aging. Therefore, they are frequently prescribed more than one drug[2].

Older people are more likely to have visual, hearing, and memory impairments[3]. Each type of impairment impacts the quality of life in a particular way, and when combined, they can cause extensive incapacities in an individual[3]. These impairments

[1]Universidade Federal da Bahia, Programa de Pós-Graduação em Medicina e Saúde –Salvador (BA), Brazil.
[2]Universidade Estadual do Sudoeste da Bahia, Faculdade de Medicina, Departamento de Ciências Naturais – Vitória da Conquista (BA), Brazil.
[3]Universidade Federal da Bahia, Hospital Maternidade Climério de Oliveira – Salvador, (BA), Brazil.
[4]Hospital Santa Izabel – Salvador (BA), Brazil.
[5]Universidade Federal da Bahia, Instituto Multidisciplinar de Saúde, Programa de Pós-Graduação em Saúde Coletiva – Vitória da Conquista (BA), Brazil.
[6]Farmácia Popular – Jequié (BA), Brazil.
*Corresponding author: romanasgama@gmail.com
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are associated with other factors, such as environmental, social, and financial support, and are usually the causes of medication non-adherence among older people[3]. Consequently, they are more likely to have problems in reading, listening to, and understanding medical instructions; taking the correct drugs at the correct time; and following the treatment plan[3].

Patient adherence to treatment is related to successful pharmacotherapy. Many patients do not take their medications as prescribed because they lack knowledge about them[4]. Non-adherence, prescription adjustments, adverse drug reactions, and pharmacotherapy complications have been associated with this lack of knowledge, as well as poor perceptions about drugs in general, which may result in the increased use of health services[5].

Therefore, this study aimed to assess older people's knowledge of the purpose of drugs prescribed at medical appointments in primary health units in Brazil and to identify the possible factors related to their levels of knowledge.

METHODS

This cross-sectional study used the baseline data from a randomized clinical trial titled "Development and evaluation of a mobile application for supporting the prescription of appropriate medications to the elderly." This study was conducted in 22 public primary healthcare units in Brazil.

Data were collected from September 2016 to March 2019 using a multidimensional questionnaire adapted from an instrument used in a previous project named "Health, Wellbeing, and Aging in Latin America and the Caribbean[6]." A digital data collection platform (Kobotoolbox® [Harvard Humanitarian Initiative, Cambridge, MA, USA]) was used to administer the questionnaire. Eligible patients consisted of people aged 60 years or above, who were waiting for medical consultations in the study facilities. Individuals who left the medical consultations without receiving a medical prescription and those who had hearing impairments and/or severe cognitive impairments and were not accompanied by a person who could answer questions related to the participant's functional status in the interview process were excluded. The participant interviews were conducted before and after their medical consultations at the primary care facilities previously mentioned.

Measurement tools

Dependent variables

The level of knowledge of prescribed medications was assessed using two questions: "Do you know the purpose of this medication?" (yes/no). If the patient answered "yes," then they were asked, "What is the purpose?" The patient's understanding of the drug's purpose was assessed after the consultation and was determined by comparing their responses with the information in the medication prescription. Popular terms such as "lowering blood sugar" or "improving diabetes" were classified as correct responses. Patients were classified into two groups as follows: lower insight of drug's purpose (not knowing at least one purpose of their medications) and absent insight of drug's purpose (not knowing the purposes of any of their medications).

Independent variables

The questionnaire contained variables related to sociodemographic characteristics, clinical and functional characteristics, and medical characteristics. The sociodemographic data included information on sex, skin color, age, marital status, work situation, personal income, and literacy. The clinical and functional data included information on self-rated health, self-rated memory, cognitive impairment (assessed using the Mini-Mental State Examination (MMSE) with different cutoff points according to the education level)[7], functional status (assessed using the Katz Index of Independence in Activities of Daily Living)[8], sensory deficits (assessed using self-perceived visual and hearing impairments), insomnia (defined as difficulty in falling or staying asleep), clinical and self-reported diseases, chronic use of medications (continuous use of drugs), and hospitalization (any hospital admission within the past 12 months). The medical data included information on polypharmacy (prescriptions for ≥5 medications)[9], medical consultation time (the length of time was recorded for each appointment), and prescribed drugs and pharmacotherapeutic complexity (assessed using the medication regimen complexity index [MRCI]). The MRCI cutoff points used to distinguish complexity were as follows: values of <2.7 were considered as very low; 2.7–5.0 as low; 5.0–12.0 as average; 12.0–24.5 as high; and >24.5 as very high[10].

Statistical analyses

The descriptive analyses of the variables were performed. Two analytical models were created, and the dependent variables were determined based on the patient's knowledge of the drug's purpose. The associations between categorical variables were assessed using the chi-squared test, and the prevalence ratio (PR) was measured to estimate the strength of the association. A multivariate analysis (Poisson regression) was used to adjust for potential confounders. All variables included in the bivariate analysis were associated with the dependent variables at a significance level of <20%. A significance level of 5% was used for all tests and to identify variables for the final model. R statistical software (R Foundation for Statistical Computing, Vienna, Austria) was used to calculate the PR while all other analyses were performed with the Statistical Package for the Social Sciences version 24 (serial number 10101161149; IBM; Armonk, NY, USA).

Ethics approval

This study was carried out according to the guidelines laid down in the Declaration of Helsinki and was approved by the appropriate institutional review board (number 38.198). Written informed consent was obtained from all participants included in this study.

RESULTS

Of the 854 older patients interviewed, 180 were excluded due to the absence of a prescription after the medical consultation. Ultimately, 674 interviewed individuals were included in this study. Their mean age was 70 years (±7.1 years). Overall, 11.6% of patients did not know the purpose of any of their prescribed drugs, and 40.4% did not know the purpose of at least one prescribed drug. The sociodemographic characteristics of the study population are described in Table 1.

Table 1. Sociodemographic characteristics of the study population (n=674).

Characteristics	Mean (SD)
Age	70 years (±7.1 years)
	% (n)
Sex	
Male	30.9 (208)
Female	69.1 (466)
Literacy	
Illiterate	42.3 (279)
Literate	57.7 (381)
Marital status	
Single, widowed, divorced	53.7 (362)
Married	46.3 (312)
Skin color	
White	23.9 (159)
Other (such as black and brown)	76.1 (507)
Personal income	
≤Minimum wage	91.6 (610)
>Minimum wage	8.4 (56)
Working currently	
Yes	27 (182)
No	73 (492
Cognitive impairment	
Yes	58.5 (393)
No	41.5 (279)
Visual impairment	
Yes	62.6 (418)
No	37.4 (250)
Hearing impairment	
Yes	34.2 (230)
No	65.8 (443)
Insomnia	
Yes	54.8 (368)
No	45.2 (304)
Poor self-rated memory	
Yes	53.5 (359)
No	46.5 (312)
Poor self-rated health	
Yes	70.1 (471)
No	29.9 (201)
ADL impairment	
Yes	29.1 (196)
No	70.9 (478)
Hospitalization in last year	
Yes	12.9 (87)
No	87.1 (587)
Polypharmacy	
Yes	18.8 (127)
No	81.2 (547)
Diagnose of hypertension and/or diabetes	
Yes	84.3 (568)
No	15.7 (106)
Length of consultation <10 min	
Yes	47.6 (321)
No	52.4 (353)
MRCI	
High to very high	27.9 (188)
Very low to average	72.1 (486)
Not knowing purpose of at least 1 prescribed drug	
Yes	40.4 (272)
No	59.6 (402)
Not knowing purpose of all prescribed drugs	
Yes	11.6 (78)
No	88.4 (596)
Not knowing purpose of at least 1 drug already used	
Yes	18.7 (126)
No	81.3 (548)
Not knowing purpose of at least 1 drug for diabetes or cardiovascular disease	
Yes	20.2 (136)
No	79.8 (538)

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ADL: activities of daily living; MRCI: medication regimen complexity index.

Regarding the prescriptions, the mean number of prescribed drugs was 2.93 (±1.8), and 18.8% of the patients had prescriptions for ≥5 drugs. The median value of the MRCI was 8, and 27.9% of patients had a high or very high MRCI score. Of the 1991 prescribed drugs, patients did not know the purpose of 537. The top 10 most prescribed drugs for which patients did not know the purpose are shown in Table 2.

Table 2. Top-10 most prescribed drugs for which patients did not know the purpose.

Ranking	Drug	% (n)
1	Hydrochlorothiazide	7.3 (39)
2	Salicylic acid	6.7 (36)
3	Losartan	5.6 (30)
4	Metformin	4.5 (24)
5	Simvastatin	4.3 (23)
6	Loratadine	3.4 (18)
7	Amlodipine	2.8 (15)
	Omeprazole	
8	Glyburide	2.0 (11)
	Enalapril	
9	Atenolol	1.9 (10)
	Ibuprofen	
10	Azithromycin	1.7 (9)
	Multivitamin	

In multivariate analysis, polypharmacy, illiteracy, and cognitive impairment were associated with not knowing the purpose of at least one drug (Table 3), and illiteracy and insomnia were associated with the misunderstanding of the purpose of all prescribed drugs (Table 4).

DISCUSSION

In this study, patients' knowledge of the purpose of drugs prescribed in primary care settings in Brazil was evaluated. The data showed that almost 60% of patients were able to report the purposes of all their drugs, while about 40% did not know the indication of at least one of their prescribed drugs, and more than 11% did not know the indication of any of their prescribed drugs. In the final multivariate analysis, polypharmacy, illiteracy, and cognitive impairment were identified as factors associated with a misunderstanding of the purpose of at least one prescribed drug. Moreover, illiteracy and cognitive impairment were associated with a greater misunderstanding of the purpose of all prescribed drugs.

Other studies have reported that 51% of older adults before geriatric consultation[11] and 20% of older adults admitted at geriatric unit[12] knew the purposes of their prescribed drugs. Those studies did not accept generalized terms, such as "lowering blood sugars," as correct answers, which could explain the differences in the results of this study and the previous studies. Another study that did accept generalized terms as correct

Table 3. Patient factors associated with not knowing the purpose of at least one prescribed drug.

	Yes % (n/N)	No % (n/N)	Univariate		Multivariate	
			PR (95%CI)	p-value	PR (95%CI)	p-value
Sex						
Female	39.3 (183/466)	60.7 (283/466)	0.92 (0.76–1.11)	0.39		
Male	42.8 (89/208)	57.2 (119/208)	1.0			
Literacy						
Illiterate	46.6 (130/279)	53.4 (149/279)	1.30 (1.08–1.56)	0.01	1.34 (1.12–1.60)	0.002
Literate	36 (137/381)	64 (244/381)	1.0		1.0	
Marital status						
Single, widowed, divorced	40.1 (145/362)	59.9 (217/362)	0.98 (0.82–1.18)	0.86		
Married	40.7 (127/312)	59.3 (185/312)	1.0			
Skin color						
Other (such as black and brown)	40.4 (205/507)	59.6 (302/507)	1.02 (0.82–1.27)	0.86		
White	39.6 (63/159)	60.4 (96/159)	1.0			
Personal income						
Yes	40.5 (247/610)	59.5 (363/610)	0.94 (0.69–1.30)	0.73		
No	42.9 (24/56)	57.1 (32/56)	1.0			

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Table 3. Continuation.

	Yes % (n/N)	No % (n/N)	Univariate		Multivariate	
			PR (95%CI)	p-value	PR (95%CI)	p-value
Working currently						
No	40 (197/492)	60 (295/492)	0.97 (0.79–1.19)	0.78		
Yes	41.2 (75/182)	58.8 (107/182)	1.0			
Cognitive impairment						
Yes	44.8 (176/393)	55.2 (217/393)	1.32 (1.08–1.60)	0.01	1.36 (1.12–1.65)	0.002
No	34.1 (95/279)	65.9 (184/279)	1.0		1.0	
Visual impairment						
Yes	43.1 (180/418)	56.9 (238/418)	1.25 (1.02–1.53)	0.03	1.19 (0.98–1.44)	0.087
No	34.4 (86/250)	65.6 (164/250)	1.0		1.0	
Hearing impairment						
Yes	43.5 (100/230)	56.5 (130/230)	1.12 (0.93–1.35)	0.24		
No	38.8 (172/443)	61.2 (271/443)	1.0			
Insomnia						
Yes	41.3 (152/368)	58.7 (216/368)	1.05 (0.87–1.26)	0.63		
No	39.5 (120/304)	60.5 (184/304)	1.0			
Poor self-rated memory						
Yes	43.5 (156/359)	56.5 (203/359)	1.19 (0.99–1.44)	0.07		
No	36.5 (114/312)	63.5 (198/312)	1.0			
Poor self-rated health						
Yes	41 (193/471)	59 (278/471)	1.06 (0.86–1.30)	0.60		
No	38.8 (78/201)	61.2 (123/201)	1.0			
ADL impairment						
Yes	43.4 (85/196)	56.6 (111/196)	1.11 (0.91–1.35)	0.31		
No	39.1 (187/478)	60.9 (291/478)	1.0			
Hospitalization in last year						
Yes	39.1 (34/87)	60.9 (53/87)	0.96 (0.73–1.28)	0.79		
No	40.5 (238/587)	59.5 (349/587)	1.0			
Polypharmacy						
Yes	70.1 (89/127)	29.9 (38/127)	2.09 (1.78–2.47)	<0.001	1.93 (1.60–2.33)	<0.001
No	33.5 (183/547)	66.5 (364/547)	1.0		1.0	
Diagnosis of cardiovascular disease and/or diabetes						
Yes	41 (233/568)	59 (335/568)	1.11 (0.85–1.46)	0.42		
No	36.8 (39/106)	63.2 (67/106)	1.0			
Length of consultation <10 min						
Yes	33.6 (108/321)	66.4 (213/321)	0.72 (0.60–0.88)	<0.001	0.83 (0.69–1.01)	0.054
No	46.5 (164/353)	53.5 (189/353)	1.0		1.0	
MRCI						
High to very high	51.6 (97/188)	48.4 (91/188)	1.43 (1.19–1.72)	<0.001	1.12 (0.92–1.36)	0.284
Very low to average	36 (175/486)	64 (311/486)	1.0		1.0	

PR: prevalence ratio; CI: confidence interval; ADL: activities of daily living; MRCI: medication regimen complexity index.

Table 4. Patient factors associated with not knowing the purpose of any prescribed drug.

	Yes % (n/N)	No % (n/N)	Univariate		Multivariate	
			PR (95%CI)	p-value	PR (95%CI)	p-value
Sex						
Female	10.3 (48/466)	89.7 (418/466)	0.71 (0.47–1.09)	0.12		
Male	14.4 (30/208)	85.6 (178/208)	1.0			
Literacy						
Illiterate	14.3 (40/279)	85.7 (239/279)	1.56 (1.02–2.39)	0.04	1.51 (0.99–2.32)	0.058
Literate	9.2 (35/381)	90.8 (346/381)	1.0		1.0	
Marital status						
Single, widowed, divorced	11.3 (41/362)	88.7 (321/362)	0.96 (0.63–1.45)	0.83		
Married	11.9 (37/312)	88.1 (275/312)	1.0			
Skin color						
Other (such as black and brown)	11.2 (57/507)	88.2 (450/507)	0.94 (0.58–1.53)	0.81		
White	11.9 (19/159)	88.1 (140/159)	1.0			
Personal income						
Yes	12 (73/610)	88 (537/610)	1.34 (0.57–3.18)	0.50		
No	8.9 (5/56)	91.1 (51/56)	1.0			
Working currently						
No	11.4 (56/492)	88.6 (436/492)	0.94 (0.59–1.50)	0.80		
Yes	12.1 (22/182)	87.9 (160/182)	1.0			
Cognitive impairment						
Yes	13.5 (53/393)	86.5 (340/393)	1.57 (0.99–2.48)	0.05		
No	8.6 (24/279)	91.4 (255/279)	1.0			
Visual impairment						
Yes	12 (50/418)	88 (368/418)	1.20 (0.76–1.88)	0.44		
No	10 (25/250)	90 (225/250)	1.0			
Hearing impairment						
Yes	12.6 (29/230)	87.4 (201/230)	1.14 (0.74–1.75)	0.55		
No	11.1 (49/443)	88.9 (394/443)	1.0			
Insomnia						
Yes	14.4 (53/368)	85.6 (315/368)	1.75 (1.12–2.75)	0.01	1.63 (1.04–2.57)	0.035
No	8.2 (25/304)	91.8 (279/304)	1.0		1.0	
Poor self-rated memory						
Yes	13.1 (47/359)	86.9 (312/359)	1.36 (0.88–2.10)	0.16		
No	9.6 (30/312)	90.4 (282/312)	1.0			
Poor self-rated health						
Yes	11.9 (56/471)	88.1 (415/471)	1.09 (0.68–1.73)	0.73		
No	10.9 (22/201)	89.1 (179/201)	1.0			
ADL impairment						
Yes	13.8 (27/196)	86.2 (169/196)	1.29 (0.83–2.00)	0.25		
No	10.7 (51/478)	89.3 (427/478)	1.0			

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Table 4. Continuation.

	Yes % (n/N)	No % (n/N)	Univariate		Multivariate	
			PR (95%CI)	p-value	PR (95%CI)	p-value
Hospitalization in last year						
Yes	11.5 (10/87)	88.5 (77/87)	0.99 (0.53–1.85)	0.98		
No	11.6 (68/587)	88.4 (519/587)	1.0			
Polypharmacy						
Yes	7.9 (10/127)	92.1 (117/127)	0.63 (0.34–1.20)	0.15		
No	12.4 (68/547)	87.6 (479/547)	1.0			
Diagnosis of hypertension and/or diabetes						
Yes	10.4 (59/568)	89.6 (509/568)	0.58 (0.36–0.93)	0.03	0.57 (0.35–0.93)	0.024
No	17.9 (19/106)	82.1 (87/106)	1.0		1.0	
Length of consultation <10 min						
Yes	11.5 (37/321)	88.5 (284/321)	0.99 (0.65–1.51)	0.97		
No	11.6 (41/353)	88.4 (312/353)	1.0			
MRCI						
High to very high	10.1 (19/188)	89.9 (169/188)	0.83 (0.51–1.36)	0.46		
Very low to average	12.1 (59/486)	87.9 (427/486)	1.0			

PR: prevalence ratio; CI: confidence interval; ADL: activities of daily living; MRCI: medication regimen complexity index.

answers found that 69.4% of their participants in home interview knew all drugs' purposes[13].

Polypharmacy was found in 18.8% of patient's prescriptions, similar to the results of a prior study[14]. Patients with polypharmacy were 93% less likely to report a drug's purpose correctly. Negative health outcomes, particularly in older adults, have been associated with polypharmacy[14], and knowledge of the purpose of all medications was inversely associated with this phenomenon[15]. Polypharmacy was also linked to non-adherence, and this association may be explained by the fact that patients who are unaware of a drug's purpose may be less likely to use it.

The understanding of pharmacotherapy was associated with literacy in previous studies of adults[16] and older adults[17]. Patients with lower levels of education have difficulties with reading, memorizing, and understanding instructions, as well as poor understanding of the information provided by healthcare workers[17]. The proportions of older people who did not recognize the purpose of at least one prescribed drug or of any prescribed drug were 34% and 56%, respectively, and were greater among illiterate patients. This finding can be explained by the fact that a successful therapeutic medication regimen depends on patient participation in the healthcare setting. Moreover, basic skills in reading, writing, and numeracy are crucial for this process[18].

Patients with insomnia are less likely to recognize a drug's purpose, which could be explained by the fact that insomnia affects the ability to accomplish complex and simple tasks, as well as working and episodic memory and problem-solving[19]. Additionally, patients with insomnia are more likely to perform poorly in complex tasks measuring reaction time, information processing, and selective attention[19]. Cognitive deficits and problems with medication management are relevant and underdiagnosed problems in older adults. Cognitive dysfunction and the lack of basic knowledge of the medication regimen coexist in a large number of patients[20]. The established cutoff points of the MMSE are higher than those of other proposed methodologies[21], which increases the sensitivity of the test, allowing early detection of cognitive impairment and decreases specificity[21].

Most patients (84.3%) had a diagnosis of cardiovascular disease and/or diabetes. Around 20% of them did not know the purpose of at least one drug for diabetes or cardiovascular disease. Additionally, the most frequently prescribed drugs for which patients did not know the purpose were typically used to treat these types of diseases. Similar to the findings of this study, the lack of knowledge of cardiovascular drugs was more common than with diabetic drugs[22]. In contrast, another study found less knowledge regarding those prescribed drugs for acute conditions[17]. However, having a diagnosis of diabetes or cardiovascular disease was a protective factor against not knowing all prescribed drugs' purposes. This could be explained by the

fact that patients with chronic diseases are more likely to use the same drugs for a long time; therefore, they are likely to be more familiar with their medications[4,17].

This study has several potential limitations. This study was a secondary analysis of the baseline data from a previous study, which was not designed for the specific objectives of this study. Furthermore, a non-probability sampling procedure was used, and some data were obtained through self-reporting. Therefore, some data were not optimally collected, making it impossible to answer all aspects of the study question fully, such as evaluating the patient's perception of instructions given by family physicians for prescribed drugs. Furthermore, health literacy was not evaluated and is directly associated with a lack of knowledge about medications and low educational levels.

CONCLUSIONS

This study demonstrated that there is a considerable lack of knowledge about prescribed medications among older Brazilian adults after a medical appointment. These results suggest that pharmacotherapy in older adults is complex. There was a high prevalence of older people who did not understand the purpose of or the instructions to use their medications, which may be associated with multiple factors. Health professionals need to be aware and assess patient's understanding of medication prescriptions. Misunderstanding of how to use medications leads to safety and efficacy issues.

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DATA AVAILABILITY STATEMENT

The datasets generated and analyzed during this study are available from the corresponding author upon reasonable request.

AUTHORS' CONTRIBUTIONS

RSG: Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **LCSP:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **WWA:** Conceptualization, Formal analysis, Investigation, Methodology. **RMS:** Conceptualization, Methodology, Investigation, Formal analysis, Writing – review & editing. **HMQ:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **JCM:** Conceptualization, Formal analysis, Investigation, Methodology. **LGON:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **MGO:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing.

REFERENCES

1. Oliveira MG, Amorim WW, Oliveira CRB, Coqueiro HL, Gusmão LC, Passos LC. Consenso brasileiro de medicamentos potencialmente inapropriados para idosos. Geriatr Gerontol Aging. 2016;10:1-14. https://doi.org/10.5327/Z2447-211520161600054
2. Vrdoljak D, Borovac JA. Medication in the elderly – considerations and therapy prescription guidelines. Acta Med Acad. 2015;44(2):159-68. https://doi.org/10.5644/ama2006-124.142
3. Heine C, Browning C. Dual sensory loss in older adults: a systematic review. Gerontologist. 2015;55(5):913-28. https://doi.org/10.1093/geront/gnv074
4. Akici A, Kalaça S, Uğurlu MU, Toklu HZ, Iskender E, Oktay S. Patient knowledge about drugs prescribed at primary healthcare facilities. Pharmacoepidemiol Drug Saf. 2004;13(12):871-6. https://doi.org/10.1002/pds.1020
5. Chan FWK, Wong FYY, So WY, Kung K, Wong CKM. How much do elders with chronic conditions know about their medications? BMC Geriatr. 2013;13:59. https://doi.org/10.1186/1471-2318-13-59
6. Lebrão ML, Laurenti R. Saúde, bem-estar e envelhecimento: o estudo SABE no município de São Paulo. Rev Bras Epidemiol. 2005;8(2):127-41. https://doi.org/10.1590/S1415-790X2005000200005
7. Brucki SMD, Nitrini R, Caramelli P, Bertolucci PHF, Okamoto IH. Sugestões para o uso do mini-exame do estado mental no Brasil. Arq Neuropsiquiatr. 2003;61(3B):777-81. https://doi.org/10.1590/S0004-282X2003000500014
8. Duarte YAO, Andrade CL, Lebrão ML. O índex de Katz na avaliação da funcionalidade dos idosos. Rev Esc Enferm USP. 2007;41(2):317-25. https://doi.org/10.1590/S0080-62342007000200021
9. Gomes MS, Amorim WW, Morais RS, Gama RS, Graia LT, Queiroga HM, et al. Polypharmacy in older patients at primary care units in Brazil. Int J Clin Pharm. 2019;41(2):516-24. https://doi.org/10.1007/s11096-018-00780-5
10. Ferreira JM, Galato D, Melo AC. Medication regimen complexity in adults and the elderly in a primary healthcare setting: determination of high and low complexities. Pharm Pract (Granada). 2015;13(4):659. https://doi.org/10.18549/PharmPract.2015.04.659
11. Burns E, Austin CA, Bax ND. Elderly patients' understanding of their drug therapy: the effect of cognitive function. Age Ageing. 1990;19(4):236-40. https://doi.org/10.1093/ageing/19.4.236
12. al Mahdy H, Seymour DG. How much can elderly patients tell us about their medications? Postgrad Med J. 1990;66(772):116-21. https://doi.org/10.1136/pgmj.66.772.116
13. Guénette L, Moisan J. Elderly people's knowledge of the purpose of their medicines. Am J Geriatr Pharmacother. 2011;9(1):49-57. https://doi.org/10.1016/j.amjopharm.2011.02.007

14. Nascimento RCRM, Álvares J, Guerra Junior AA, Gomes IC, Silveira MR, Costa EA, et al. Polypharmacy: a challenge for the primary health care of the Brazilian Unified Health System. Rev Saude Publica. 2017;51(suppl 2):19s. https://doi.org/10.11606/S1518-8787.2017051007136

15. Rahman FI, Aziz F, Huque S, Ether SA. Medication understanding and health literacy among patients with multiple chronic conditions: a study conducted in Bangladesh. J Public Health Res. 2020;9(1):1792. https://doi.org/10.4081/jphr.2020.1792

16. Cruzeta APS, Dourado ACL, Monteiro MTM, Martins RO, Calegario TA, Galato D. Fatores associados à compreensão da prescrição médica no Sistema Único de Saúde de um município do Sul do Brasil. Ciên Saúde Coletiva. 2013;18(12):3731–7. https://doi.org/10.1590/S1413-81232013001200029

17. Pinto IVL, Reis AMM, Almeida-Brasil CC, Silveira MR, Lima MG, Ceccato MGB. Avaliação da compreensão da farmacoterapia entre idosos atendidos na Atenção Primária à Saúde de Belo Horizonte, MG, Brasil. Ciên Saúde Coletiva. 2016;21(11):3469-81. https://doi.org/10.1590/1413-812320152111.19812015

18. Parker RM, Baker DW, Williams MV, Nurss JR. The test of functional health literacy in adults: a new instrument for measuring patients' literacy skills. J Gen Intern Med. 1995;10(10):537-41. https://doi.org/10.1007/BF02640361

19. Fortier-Brochu E, Beaulieu-Bonneau S, Ivers H, Morin CM. Insomnia and daytime cognitive performance: a meta-analysis. Sleep Med Rev. 2012;16(1):83-94. https://doi.org/10.1016/j.smrv.2011.03.008

20. Charlesworth CJ, Smit E, Lee DSH, Alramadhan F, Odden MC. Polypharmacy among adults aged 65 years and older in the United States: 1988–2010. J Gerontol A Biol Sci Med Sci. 2015;70(8):989-95. https://doi.org/10.1093/gerona/glv013

21. Bertolucci PHF, Brucki SMD, Campacci SR, Juliano Y. O mini-exame do estado mental em uma população geral: impacto da escolaridade. Arq Neuropsiquiatr. 1994;52(1):1-7. https://doi.org/10.1590/S0004-282X1994000100001

22. Persell SD, Heiman HL, Weingart SN, Burdick E, Borus JS, Murff HJ, et al. Understanding of drug indications by ambulatory care patients. Am J Health Syst Pharm. 2004;61(23):2523-7. https://doi.org/10.1093/ajhp/61.23.2523