

Polypharmacy and drug adherence in the elderly in the context of primary health care: cross-sectional study

Polifarmácia e adesão medicamentosa em idosos no âmbito da atenção básica de saúde: estudo transversal

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ABSTRACT

Objective: To evaluate drug adherence in elderly people who use polypharmacy in the context of primary care. **Method:** Cross-sectional study of quantitative character. The sample consisted of 231 elderly. **Results:** Of the 231 elderly who participated in the study, 36.4% were male and 63.6% were female. The mean age observed was 73.4 (\pm 8.7) years. There was a statistically significant difference among the variables "sex", "quantity of drugs" and "has caregiver". In addition, a positive statistical correlation was observed between age and the amount of drugs used by the elderly. The prevalence of polypharmacy identified was 16.0%. Most users of multiple drugs showed adherence to treatment (86.5%). **Conclusion:** It is assumed the need for a greater investigation of the relationship between the caregiver and the amount of medicines used by the elderly, in addition to professional training for the management of polypharmacy.

Descriptors: Polypharmacy; Medication Adherence; Aged.

RESUMO

Objetivo: Avaliar a adesão medicamentosa em idosos que fazem o uso de polifarmácia no âmbito da Atenção Básica. **Método:** Estudo transversal de caráter quantitativo. A amostra foi constituída por 231 idosos. **Resultados:** Dos 231 idosos que participaram do estudo 36,4% eram do sexo masculino e 63,6% do sexo feminino. A média de idade observada foi de 73,4 (\pm 8,7) anos. Houve uma diferença estatisticamente significativa entre as variáveis "sexo", "quantidade de medicamentos" e "possui cuidador". Ademais, observou-se a correlação estatística positiva entre a idade e a quantidade de medicamentos utilizada pelo idoso. A prevalência de polifarmácia identificada foi de 16,0%. A maior parte dos usuários de múltiplos fármacos apresentaram adesão ao tratamento (86,5%). **Conclusão:** Presume-se a necessidade de uma maior investigação da relação entre o cuidador e a quantidade medicamentos utilizados pelos idosos, além da capacitação profissional para o manejo da polifarmácia.

Descritores: Polimedicação; Adesão à Medicação; Idoso.

INTRODUCTION

Technological advances in the field of medicine and public health contribute to the increase in life expectancy, so that the most used medical technologies are represented by medicines⁽¹⁾. Thus, the elderly population is one of the most medicalized age groups in society, a condition resulting from epidemiological transition, in which Chronic Non-Communicable Diseases (CNCD) became more prevalent⁽²⁾.

According to the National Survey on Access, Use and Promotion of Rational Use of Medicines (PNAUM,2016), 22.0% of the elderly reported having two chronic diseases; 13% referred to three diseases, and 9% cited at least four diseases⁽³⁾. Another situation that justifies the medicalization of the elderly is senescence, since the decrease in the functional reserve is proper in this phase, so the treatments involve the association of numerous drugs, which can lead to polypharmacy⁽²⁾.

Although there is no consensus about the concept of polypharmacy, in a systematic review it was identified that this term was most frequently applied

to the concomitant use of five or more drugs, and therefore the definition used in this study⁽⁴⁾. According to PNAUM, the prevalence of polypharmacy in Brazilian elderly reached 18%⁽³⁾. Although it is necessary for the management of multimorbidities, the use of multiple drugs contributes to the incorrect use of them and the occurrence of negative outcomes such as drug interactions, intoxications, use of potentially inappropriate drugs (MPI), lack of adherence to treatment, increased need for hospitalization and mortality⁽⁵⁾.

Due to the multiple comorbidities affecting the elderly and the need for multiple drugs, this public is more prone to problems with adherence and abandonment of treatment than the young public. Adherence to medication is understood as the active, voluntary and collaborative participatory behavior of the patient, with the aim of achieving the therapeutic effect, so that a person is considered adherent when using 80% to 120% of the suggested therapy⁽⁶⁻⁷⁾.

Some factors are related to treatment abandonment, such as forgetting, difficulty in drug management, concerns about side effects and drug prices⁽¹⁾.

Unintentional non-adherence can be caused by forgetfulness. Several factors make it common in this age group, such as frequent cognitive and memory changes, which are related to dementia or depressive symptoms. The complexity of the therapeutic regime leads to difficulties in the management of the elderly, due to the lack of knowledge about the drugs, since some of them identify them by format and color, a method that can cause errors in the use. Thus, adherence is necessary to achieve therapeutic results, so as to ensure improvement in the health of the elderly⁽¹⁾.

In view of this, considering that Primary Care (AB) is responsible for the management and actions of promotion, prevention, protection, diagnosis, treatment, Rehabilitation, harm reduction, palliative care and health surveillance, in order to ensure the longitudinality of care, it is up to AB to identify and monitor the vulnerable elderly person; with multimorbidities or polypharmacy users. Therefore, AB takes care and follow-up of elderly people using polypharmacy and at risk of treatment abandonment⁽⁸⁻⁹⁾.

Polymedication can generate higher demands for AB, among them the operation of the system, unnecessary expenses with medications, the increase in cost per patient, due to iatrogenic

effects. Moreover, the act of polymedicating is contrary to quaternary prevention, which aims to protect the patient against negative outcomes of examinations, medications and other acts of the health team. In this perspective, the performance of the multiprofessional team, including physicians, nurses, nursing assistants or technicians, community health agents, dentists, oral health technicians, as well as other specialties, should emphasize quaternary prevention, seeking to identify elderly at risk of excessive medicalization and promoting health protection actions⁽¹⁰⁻¹²⁾. Thus, this study aimed to evaluate drug adherence in elderly people who use polypharmacy in the context of Primary Care. It is justified by the need to generate knowledge focused on education and safety, involving the use of multiple medicines. In addition, it is also justified to highlight aspects useful to the development of health promotion and protection strategies that promote better drug acceptability, awareness for treatment and quality of life of the elderly.

METHOD

It is a descriptive, cross-sectional study and quantitative approach, carried out in the municipality of Cuité (PB), located in the mesoregion of Agreste Paraibano and in the microregion of West Curimataú. The sample consisted of 231 elderly people living in the urban area of the city cited, selected from non-probabilistic sampling for convenience. For the location of the elderly, a survey of the address of their respective homes was carried out with the Basic Health Units (UBS) and Community Health Agents (ACS).

The sample size was calculated based on a finite population of 3,734 elderly of both sexes, considering a confidence interval of 95% and a margin of error of 5%. For the sample calculation, an estimated proportion of variability in the population of 20% was used, obtained through the application of a pilot instrument with 30 elderly people who were not part of the sample.

The study included elderly aged 60 years or older, registered in the Family Health Strategy (FHS) and considered cognitively fit, from the adaptation and application of questions related to temporal and spatial orientation (date of application of the instruments and address of residence), Extracted from the Mini-Mental State Examination (MMSE), together with memory evaluation (date of birth).

It was defined that each question would be equivalent to one point, so that the elderly who

correctly answered the three questions were considered eligible. The exclusion criteria included: being in treatment involving the use of chemotherapy, radiotherapy or presenting some health condition that would make it impossible to answer the questionnaires.

The recruitment of the participants for the collection was through access to information based on the areas of coverage of the UBSs, according to order of provision of this data by the management of the five health units selected to compose the study. Initially, the participants were informed about the aspects covered in the research project and how to collaborate so that, then, the Informed Free Consent Form (TCLE) was presented and signed, in two ways.

Data collection took place during the month of January 2021, subsidized by two instruments, applied by three students of the Bachelor's Degree in Nursing, duly instructed and qualified for the application. Instrument I consists of two parts: the first, with nine questions aimed at identifying the sociodemographic profile (age, gender, marital status, religion, income, etc.), and the second, with four issues related to the use of medicines and polypharmacy. Instrument II concerns the Treatment Adherence Measurement (MAT) test applied with the elderly who used polypharmacy, composed of seven questions, of which the answers vary in six scores: always (1), almost always (2), often (3), sometimes (4), rarely (5) and never (6).

For the proper interpretation of MAT was obtained the overall average of the items. The obtained value was converted into a dichotomous scale, and results between one and four were considered as *non-adherence* and results between five and six were considered as *adherence*⁽¹³⁾. It is an instrument developed and validated in Portugal, with adequacy for Brazilian Portuguese⁽¹⁴⁻¹⁵⁾.

Statistical analysis included descriptive methods for characterization of the sociodemographic profile. The inferential statistics were also used, from tests selected according to the nature of the variables and the distribution of the data, to this end, the significance level of 5% was calculated for all of them.

The independent variables of the study were represented by sociodemographic profile issues and polypharmacy. Whereas, the depen-

dent variables are the amount of drugs used by the elderly and adherence to therapy. To verify the normality of the data, the Kolmogorov-Smirnov test was applied together with the histogram analysis.

Subsequently, based on the findings of asymmetric distributions, the opportunistic non-parametric tests, such as the Mann-Whitney U and Kruskal-Wallis were selected. To correlate the quantitative variables, Spearman's correlation test was applied, considering the following coefficient strength values (ρ): small correlation - between 0.00 and 0.25; low correlation - between 0.26 and 0.49; moderate correlation between 0.50 and 0.69; high correlation between 0.70 and 0.89 and very high correlation - between 0.90 and 1.00⁽¹⁶⁾.

The research met the ethical aspects of Resolution 466/2012, of the National Health Council, because the collection was carried out after approval of the Research Ethics Committee of the Alcides Carneiro University Hospital (HUAC), in opinion no 4.487.645⁽¹⁷⁾. The TCLE was duly presented and signed in two ways by the elderly participants of the study. This study was guided by the recommendations of Strengthening the Reporting of Observational Studies in Epidemiology⁽¹⁸⁾.

RESULTS

The sociodemographic characterization was obtained from the I. Such information, in addition to the relationship of characteristics with the amount of medicines used by the elderly, are presented in Table 1.

Regarding the amount of drugs used, we chose to calculate the median in order to avoid inconsistency by extreme values, obtaining the value 2 (two), being 12 (twelve) the highest number found in the observations.

In time, there was a statistically significant difference between the variables sex and quantity of drugs ($p = 0.009$), "has caregiver" and the amount of drugs ($p = 0.001$).

Regarding the independent quantitative variables, it was verified that there was a statistical correlation between age and quantity of drugs used by the elderly, classified as positive and small ($\rho = 0.216$ and $p = 0.001$), as shown in Table 2.

Table 1 - Socio-demographic characterization and relationship between sociodemographic characteristics and the amount of medicines used. Cuité/PB, Brazil, January 2021 (n=231)

VARIABLES	f(%)	Quantity of medicines	Mean Ranks
		p-value	
Sex		0.009*	
Male	84 (36.4%)		101.03
Female	147 (63.6%)		124.55
Marital status		0.244†	
Married	106 (45.9%)		115.61
Divorced	17 (7.4%)		118.38
Single	22 (9.5%)		115.02
Common Law Marriage	21 (9.1%)		87.29
Widower	65 (28.1%)		125.62
With whom you live		0.100†	
Alone	37 (16.0%)		115.63
Spouse	73 (31.6%)		109.59
Spouse and children	43 (18.6%)		114.37
Only children	40 (17.3%)		134.43
Spouse, children and son-in-law/ daughter-in-law	6 (2.6%)		173.33
Just caregiver	2 (0.9%)		119.00
Others	30 (13.0%)		98.28
Religion		0.187†	
Catholic	176 (76.2%)		111.36
Evangelic	40 (17.3%)		136.34
None	11 (4.8%)		119.09
Another	4 (1.7%)		108.38
Skin Color		0.322†	
Yellow	4 (1.7%)		94.88
White	108 (46.8%)		123.37
Brown	98 (42.4%)		112.39
Black	21 (9.1%)		98.95
Know how to read and write		0.076*	
No	119 (51.5%)		108.56
Yes	112 (48.5%)		123.90
Has a caregiver		0.001*	
No	174 (75.3%)		107.52
Yes	57 (24.7%)		141.89
TOTAL	231		

Source: Elaborated by the authors, 2021.

*Mann-Whitney U test; † Kruskal-Wallis test

Table 2 – Correlation among the sociodemographic characteristics (age, years of study and income) and the amount of medicines used by the elderly. Cuité, PB, Brazil, 2021 (n=231)

Correlation	Quantity of medicines ρ (p -value)*
Age	0.216 (0.001)
Years of study	-0.085(0.395)
Income	0.117 (0.103)

Source: Elaborated by the authors, 2021.

* Spearman Correlation Test (ρ - Correlation Coefficient)

Thus, considering the sample of the study, the prevalence of polypharmacy was 16.0%, since, of the 231 elderly participants, 37 elderly people used five or more medications. Thus, this was the total number of elderly people with whom the Treatment Adherence Measurement Test (MAT) was applied, in order to characterize this adherence. Based on the MAT application, it was identified that 32 elderly (86.5%) had adherence to treatment and 5 (13.5%) did not adhere, according to the data in Table 3.

Table 3 - Characterization of drug adherence of elderly people in use of polypharmacy, based on the Instrument of Measure of Adherence to Treatment. Cuité, PB, Brazil, 2021 (n=37)

POLYPHARMACY	ACCESSION	
	Accession	Non-Accession
Yes	32 (86.5%)	5 (13.5%)
No	-	-

Source: Elaborated by the authors, 2021.

DISCUSSION

Based on the above, in this study it was observed that of the 231 participants, 147 (63.6%) were female, according to national surveys carried out from the projection calculations of the Brazilian population, made by the Brazilian Institute of Geography and Statistics (IBGE), in which women are the majority in this age group. Having said that, its life expectancy is greater than 7.3 years in relation to men⁽¹⁹⁾, so that the greatest longevity is related to female sex⁽²⁰⁻²¹⁾. Statistical significance was also identified between sex and the amount of medicines.

The mean age of the elderly studied was 73.4 (\pm 8.7) years, with statistical correlation between

the number of drugs and age. With the demographic change, the prevalence of CNCD was increased, so pharmacological treatments are necessary to prevent and control them. Thus, cumulative data show that belonging to an advanced age group is one of the risk factors for chronic drug use, although aging is not synonymous with illness^(3, 22).

In this sense, with aging occurs an increase in the clinical-functional vulnerability and the predisposition to CNCD, a condition that is established due to the alterations of this process, physiological, morphological, biochemical and psychological. The presence of more than one CNCD^{is} frequent in this age group (23). In relation to this type of data, another study identified the prevalence of 23.7% of multimorbidities in individuals aged 60 years or older in the Northeast, and the highest prevalence was observed in elderly over 80 years old, of which they had a 35% higher chance⁽²³⁾. This same study also found that one of the factors associated with multimorbidities was age group. Regarding the amount of drugs consumed by the elderly, the median was 2 (two), being 12 (twelve) the highest number of drugs used simultaneously. The median of 2 (two) in this study was possibly influenced by the number of elderly people who did not consume drugs. When assessing the prevalence of polypharmacy in diabetic elderly living in Frederico Westphalen/RS, it was observed that the mean number of drugs used by the elderly was 5.8⁽²⁰⁾. In a similar investigation, carried out in the population in Portugal, an average of 6.82 (\pm 2.03) of drugs prescribed by the elderly, with a median of 6 (six)⁽¹⁾.

A relevant aspect of this study refers to the level of education of the participants, since more than half (51.5%) of the elderly declared themselves illiterate. In Brazil, the illiteracy rate in people aged 60 years or older is 18%, and this condition is associated with age, considering that the older the population group, the higher the proportion of illiterate people. Moreover, the municipality where the investigation was undertaken (Cuité/PB), is located in the Northeast of the country, a region that presents the highest rate of illiteracy in the national territory, as a result, when considering regional inequalities, the illiteracy rate reaches 37.2% in the elderly Northeastern region⁽²⁴⁾.

Thus, the absence of literacy as the one identified in the elderly participants of this research, causing difficulties in the management of medicines and the lack of knowledge even of the name of

the drug, which causes the elderly the need to use strategies to identify them by the box, color or shape of the tablet. Therefore, the ability to read may set up a factor of impairment to drug adherence⁽¹⁾.

In continuity, it was identified that 75.3% did not count on the assistance of a caregiver. However, a significant statistical relationship was found between having caregiver and quantity of medicines, since it can be explained by the fact that the presence of a caregiver allows a better perception of the health conditions of the elderly, which can provide a greater search for health establishments and, therefore, the presence of a caregiver allows the better perception of the health conditions of the elderly, which can provide a greater search for health facilities and, consequently, an increase in the number of prescriptions and consumption of medicinal products⁽²⁵⁾. Another information investigated during this study was the prevalence of polypharmacy identified among the elderly (16%), an approximate value to that of the national prevalence that corresponds to 18%⁽³⁾. However, other studies observed prevalence higher than that identified in this study. In Rio Grande do Sul, in a study of the occurrence of polypharmacy in diabetic elderly it was identified that 85.8% used multiple drugs⁽²⁰⁾. In another investigation, when analyzing the medical records of the geriatric population registered in the UBS of Brazlândia, Federal District, it was observed that the use of five or more drugs was identified in 29.4% of the users⁽²⁶⁾. Already in a study on the occurrence of polypharmacy in the elderly attended at two UBS, in Belo Horizonte, Minas Gerais, identified an occurrence of 57.7%⁽²⁷⁾.

In view of this, although drugs are prescribed to treat the diseases and comorbidities that affect the elderly, polymedication is associated with the decline in functional status, cognitive impairment, falls, urinary incontinence and impairment of nutritional status, and the risk of the disease is associated with the decrease in functional status, cognitive impairment, falls, urinary incontinence and impairment of nutritional status, conditions that may cause non-adherence to drug therapy⁽²⁸⁾. An intervention for this problem is the comprehensive review of medication, an action that can result in the reduction of mortality and the use of potentially inappropriate medication in the geriatric population⁽²⁹⁾.

Regarding the characterization of adherence in polymedicated elderly, a value of 86.5% was

found in this research, a result distinct from those described in the literature, in which 47.7% of the elderly using polypharmacy were characterized as non-adherent⁽¹⁾. In previous research findings, it was evidenced that 61.1% of hypertensive patients were non-adherent, understanding that variations in treatment adherence rates may occur due to the population studied, the measurement method and the definition of adherence⁽³⁰⁾.

Factors such as lack of knowledge about the clinical condition itself and about the adverse effects are considered barriers to adherence. On the other hand, the understanding that non-adherence leads to negative results, that medication is necessary, as well as family and social support, as well as the adoption of routines and strategies such as the use of reminders⁽³¹⁾.

In this perspective, the increase in the number of elderly people is one of the challenges for AB, considering the consequent demand for specific health care for this population. Thus, the multiprofessional team faces obstacles in the care of elderly people who live alone or with dysfunctional family arrangement, with partial or total dependence, as well as difficulties related to the understanding of information about medicines. Therefore, it is necessary to organize health services in order to offer comprehensive care, focusing on quaternary prevention, aiming to reduce problems related to medications, in addition to encouraging the implementation of strategies aimed at increasing the quality of the guidelines provided to this public. In the meantime, the nurse professional stands out as a central figure, because it is in the forefront of care practices⁽¹⁰⁻¹²⁾.

As limitations of the study, it is appropriate to mention the instrument of evaluation of the measure of adherence used, elaborated and validated in Portugal and translated into Brazilian Portuguese, and therefore not validated in the country; and, although languages are similar, it is salutary to consider cultural differences. In addition, it is added that the questionnaire alluding to polypharmacy is also not validated, having been elaborated based on national and international studies involving the theme. Furthermore, it is noteworthy that during the pilot test, in which the MEEM was used, it was noticed an incompatibility between the test score and the actual mental state of the participant, which led to the need for an adaptation to the cognitive evaluation of the elderly.

CONCLUSION

Given the above, although aging has repercussions on the health of this population, the elderly participants of the research, who were in polymedication situation, were adherent to the treatment and showed that the amount of drugs is related to the variables sex and the existence of the caregiver figure.

Therefore, it is observed the need for a more comprehensive investigation, regarding the relationship between the caregiver and the amount of drugs used by the elderly, in order to strengthen the importance of shared care, however able to include and raise awareness of the drug user as the protagonist of their therapeutic process.

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Finally, it is understood that the health team should be qualified for the management of polypharmacy, as well as for the screening and therapeutic follow-up of non-adherent elderly. In addition, health education measures focusing on the rational use of medicines and the factors that lead to non-adherence to therapy should be carried out with the objective of raising awareness among the elderly population and their caregivers.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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