Original Article

FATORES COMPORTAMENTAIS ASSOCIADOS À ADESÃO MEDICAMENTOSA EM IDOSOS EM ATENDIMENTO AMBULATORIAL

BEHAVIORAL FACTORS ASSOCIATED TO MEDICATION ADHESION IN ELDERLY IN OUTPATIENT CARE

FACTORES CONDUCTUALES ASOCIADOS A LA ADHESIÓN DE FÁRMACOS EN LOS ANCIANOS EN ATENCIÓN AMBULATORIA

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RESUMO

Objetivo: avaliar a relação entre fatores comportamentais e adesão à terapêutica medicamentosa em idosos em atendimento ambulatorial. **Método:** estudo transversal com amostra de 107 idosos em atendimento ambulatorial em um hospital universitário. Os dados foram coletados por meio de entrevista. Aplicaram-se: instrumento de caracterização do idoso, Miniexame do Estado Mental e Medida de Adesão aos Tratamentos. Realizou-se análise estatística descritiva e inferencial dos dados. **Resultados:** 86,9% dos idosos eram aderentes à terapêutica medicamentosa. Houve associação entre a variável adesão e as variáveis comportamentais "acreditar que os medicamentos são importantes para manutenção da saúde" e "ter vontade de não tomar os medicamentos". Os idosos que não acreditavam na importância do uso dos medicamentos, não sabiam o nome destes, usavam-nos somente na quando apresentavam sintomas, esqueciam-se de utilizá-los ou não seguiam a prescrição conforme a indicação médica, tinham menor mediana de adesão do que os que não apresentavam esses comportamentos. **Conclusão:** fatores comportamentais apresentam associação com a adesão à terapêutica medicamentosa em idosos em atendimento ambulatorial. É importante identificar os fatores comportamentais que podem interferir no uso de medicamentos por idosos porque eles podem ser modificados, por meio de ações com vistas a promover a adesão medicamentosa.
Descritores: Adesão à medicação; Idoso; Saúde do idoso; Assistência ambulatorial; Enfermagem.

ABSTRACT

Objective: to evaluate the relationship between behavioral factors and adherence to drug therapy in elderly patients in outpatient care. **Methods**: an exploratory, descriptive, cross - sectional, and quantitative study was carried out with a sample of 107 elderly patients in outpatient care at a university hospital. The data were collected by means of interviews to evaluate: instrument of characterization of the elderly, mini-mental state examination, and measure of adherence to the treatment. A descriptive and inferential statistical analysis was performed. **Results:** a total of 86.9% of the elderly were adherent to the drug therapy. There was association between the adherence variable and the behavioral variables "believing that medicines are important for maintaining health" and "being willing to not take the medicines". The elders who did not believe in the importance of using medications did not know the medicine names; they used drugs only when there were the presence symptoms; they forgot to use the medicines or did not follow the prescription according to the medical indication; they had a lower average adherence rate than those who did not present these behaviors. **Conclusion:** behavioral factors are associated with adherence to drug therapy in the elderly in ambulatory care. It is important to identify the behavioral factors that might interfere in the use of drugs by the elderly since it can be modified through actions that would promote more adherence.
Descriptors: Medication adherence; Aged; Health of the elderly; Ambulatory Care; Nursing.

RESUMEN

Objetivo: evaluar la relación entre los factores conductuales y la adhesión al tratamiento farmacológico en los ancianos en la atención ambulatoria. **Método:** estudio exploratorio, descriptivo, transversal, cuantitativo, con muestra de 107 ancianos en atención ambulatoria en un hospital universitario. Los datos fueron recolectados por medio de una entrevista, cuando se aplicaron: instrumento de caracterización de los ancianos, mini examen del estado mental y medida de adhesión a los tratamientos. Se realizaron análisis estadísticos descriptivos e inferenciales de los datos. **Resultados:** 86,9% de los ancianos fueron adherentes a la farmacoterapia. Ha sido identificado una asociación entre la adhesión variable y las variables conductuales "creyendo que los fármacos son importantes para el mantenimiento de la salud" y "queriendo no tomar los fármacos". Los ancianos que no creían en la importancia del uso de fármacos, tampoco sabían sus nombres, sólo se los usaban en el momento en que mostraron síntomas, se olvidaron de usarlos o no siguieron la prescripción de acuerdo con la indicación médica, tuvieron menor media que los que no presentaron estos comportamientos. **Conclusión**: los factores del comportamiento presentan la asociación con la adhesión a la terapia con fármacos en los ancianos en atención ambulatoria. Es importante identificar los factores conductuales que pueden intervenir con el uso de fármacos por los ancianos porque pueden ser modificados a través de acciones con el fin de promover la adhesión.
Descriptores: Cumplimiento de la medicación; Anciano; Salud del anciano; Atención Ambulatoria; Enfermería.

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INTRODUCTION

Non-transmissible chronic conditions constitute a problem of remarkable magnitude, affecting all segments of older people. They represent approximately 80% of the burden of disease throughout the world, being responsible for two through three deaths, and account for more than 70% of the causes of deaths in Brazil[1].

The basic treatment for most chronic conditions consists of health education, changes in life habits and, if necessary, use of medications. In this sense, medication adherence is when the individual takes the prescribed medications according to the dose and the interval recommended by a healthcare provider[2].

Specifically in relation to medication adherence, studies indicate that, in Brazil, it is low in the population in a general way[3-4]. A study describing and analyzing the profile of people with DM in Brazil found a low percentage of adherence (2%) to oral hypoglycemic agents[3]. In a study conducted in a city in northwest Rio Grande do Sul, regarding the classification of adherence to the treatment of hypertension, 20% were noncompliant with treatment, and 67 (46.2%) are probable adherents[4]. In both studies, adherence was evaluated from the questions of the Brief Medication Questionnaire[3-4].

Elderly people usually have more than one chronic condition and need to use a larger number of medications to treat them. The use of multiple medications can hinder elders' medication adherence, being the indices of low medication adherence worst in the elderly population than in the general population, reaching more than 80%[5-6].

Adherence is a multidimensional phenomenon, determined by several factors, such as: socioeconomic factors, patient, disease, professionals and health system[2]. The factors related to the patient include behavioral ones, such as: beliefs regarding medicinal products; knowledge and understanding of their own health condition and drug and non-drug treatment[7-8]. Some of the consequences of non-adherence to prescribed medications are: worsening and prolonging the course of illness, increased morbidity and mortality; increased number of hospitalizations; increased health costs; feelings of frustration for health professionals; feeling of failure of patients, families and society in general[9-10].

International studies have reported the relationship between behavioral factors and medication adherence in the elderly population[7-8]. In Brazil, few studies address the behavioral factors[11-12]. In this way, knowing the behavioral factors associated with adherence to prescribed medications can facilitate the development of actions that promote adherence in the elderly, which justifies the development of this study.

Given the above, and in view of the knowledge gap in this theme, this study aimed to evaluate the relationship between behavioral factors and medication adherence in elderly patients in outpatient care.

METHOD

Cross-sectional study, originated from the project "Medication adherence and related factors in elderly patients in outpatient care", conducted in the outpatient units of Angiology, Cardiology, Pulmonology, Endocrinology, Gastroenterology and Urology of a university hospital in Rio Grande, Rio Grande do Sul, Brazil. The study was prepared according to the STROBE recommendations[13]. The research project was developed after approval by the Research Ethics Committee, with a favorable opinion number 164/2013.

The study sample consisted of elderly people, considered according to Byelaw of the Elderly[14] as those aged 60 years or more, in outpatient care, applying the following inclusion criteria: being in outpatient care in the university hospital; making use of at least one medication for at least 15 days prior to the day of the interview.

Exclusion criteria were: being in chemotherapy or radiotherapy, due their specific characteristics that can interfere with medication adherence[15]; senseless speech with significant losses of memory that prevented answering the questions of research instruments.

The sample was estimated according to the formula for infinite population in cross-sectional studies: $n = ((Z\alpha/2)^2 . P.Q)/E^2$. Where: $Z\alpha$ - level of significance in the study of 95% (1.96); P - prevalence of the event of 50% that maximizes the size of the sample when prevalence is unknown; Q - complement of the prevalence (1-P); E - sampling error of 10%. The result was n = 96, adding 20% of participants to control confounding factors and losses.

The data were collected in November 2013, through interviews, using the three instruments. The researcher developed the first one, whose objective was to characterize the elderly population regarding sex, age, marital status, educational level, income, chronic conditions, number of medications used and the behavioral variables (medications_doubt, medications_belief, medications_name, medications_purpose, medications_interruption, alcohol, medicating_symptoms, alternative_treatment, forgetfulness, medication_will, treatment_follow-up). The instrument was submitted to face and content validity along two professors who developed studies in the field of gerontology and were members of the Group of Studies and Research on Gerontology/Geriatrics, Nursing/Health and Education (GEP-GERON). After making the changes suggested by the professors, the instrument was applied in the form of pilot test in ten elders in conditions similar to those evaluated in the study. The test revealed no inadequacies, considering the instrument appropriate. The research sample did not include theses instruments.

The second instrument used in data collection, called Mini Mental State Examination (MMSE), served to assess elders' cognition. The MMSE used was validated in Brazil, in which the cutoff point used to indicate cognitive deficit was 18 points for illiterate and 23 points for those with more than one year of schooling[16].

The third instrument, called Treatment Adherence Measurement (TAM), was used to verify elders' adherence to therapy, with its development and validation in Portugal[17]. It consists of seven items, whose responses are in the form of a Likert scale, and the scores vary from always = 1 to never = 6. The answers to each item are added, and this value is divided by the total number of items. The value obtained is converted into a dichotomous scale in which the values between 1 and 4 are considered as non-adherence to treatment and between 5 and 6, as adherence. The Cronbach alpha of the scale was 0.66.[17].

Previously trained members of the GEP-GERON conducted the structured interviews. Each elderly patient was approached in the waiting room of the outpatient clinics by an interviewer before or after the medical appointment. Before the interview, his/her consent was requested, receiving clarifications on the research. Those who agreed to participate signed or put their fingerprint on two copies of the Informed Consent Form, with the participant receiving one copy and the researcher, the other. The participants also received information that the risk was considered minimal since there was no intervention and that they could benefit from the research, through the knowledge they would acquire from it. The study followed all the precepts of resolution 466/2012 that guides the development researches involving human beings[18].

To organize the data, a Microsoft® Excel 2007 spreadsheet was elaborated. Data were analyzed by using the Statistical Package for Social Sciences® (SPSS) version 20.0.

Procedures of descriptive statistics were used with the presentation of simple frequencies and percentages of categorical variables (sex, age, marital status, education and income) and measures of central tendency and dispersion for numerical variables (TAM and medications_number). In the inferential analysis, tests were performed to verify the association between the variables.

The Mann-Whitney test was used to verify the association between behavioral variables present in the instrument participants' characterization (medications_doubt, medications_belief, medications_name, medications_purpose, medications_interruption, alcohol, medicating_symptoms, alternative_treatment, forgetfulness, medication_will, treatment_follow-up) and the adherence median, obtained through the TAM instrument.

To verify the association between the adherence variable obtained through the TAM instrument (adherent or non-adherent) and the variables related to behavioral factors present in the instrument of participants' characterization (medications_doubt, medications_belief, medications_name, medications_purpose, medications_interruption, alcohol, medicating_symptoms, alternative_treatment, forgetfulness, medication_will, treatment_follow-up) and the MMSE, the Chi-Square test was used for expected frequencies higher than 5, and, for expected frequencies lower than 5, Fisher Exact test. The inferential analyses considered the significance level of $p < 0.05$.

RESULTS AND DISCUSSION

Of the 116 studied elderly patients, nine returned incomplete instruments, resulting in a final sample of 107 participants. Among the participants, there was a predominance of elderly females, aged 60-69 years; with a partner; between 1 and 4 years of study; with income between 1 and 3 minimum wages, as shown in Table 1.

Table 1 - Elders' distribution in ambulatory care according to demographic and socioeconomic variables. Rio Grande, RS, Brazil, 2013 (n=107).

Demographic and socioeconomic variables	N	%
Sex		
Female	74	69.2
Male	33	30.8
Age group		
60-69 years	71	66.4
70-79 years	28	26.1
80 years or more	8	7.5
Marital status		
With partner	64	59.8
No partner	43	40.2
Education		
Illiterate	10	9.3
1 - 4 years of study	45	42.1
5 - 8 years of study	35	32.7
Over 8 years of study	17	15.9
Income†		
Up to 1 minimum wage	29	27.1
1 - 3 minimum wages	63	58.9
Over 3 minimum wages	8	7.5
Uninformed	7	6.5

†Brazilian minimum wage in 11/2013 = R$ 672.00 (approximately US$ 287.18, considering US$ 1.00 = R$ 2,34)
Source: Research data.

The socioeconomic and demographic profile of the elderly participants was similar to that found in other studies on adherence, carried out with Brazilian elders[6,11,19]. It reflects the feminization of aging, the greatest presence of elders in initial age groups and their low education.

The result in the MMSE showed that 93 (86.9%) elders showed results considered normal in the evaluation and 14 (13.1%) exhibited outcome suggestive of cognitive deficit. The application of the MMSE aimed to assess whether the cognitive status was interfering with adherence, which could represent a bias in the study. However, there was no association between adherence and the MMSE result in the Fischer exact test (p = 1.000).

The most prevalent chronic conditions in the elderly interviewees were SAH, present in 85 (79.4%), DM in 61 (57.0%), Cardiopathies in 47 (43.9%), arthritis in 37 (34.6%). The elderly participants reported other chronic conditions, which were not described since they were present in less than 20% of the respondents. These conditions were also the most prevalent in another study carried out with the elderly population[20].

Of the 107 study participants, 93 (86.9%) obtained a value greater than or equal to 5 on the TAM scale, being considered adherent to the prescribed therapy. The adherence median in the MAT was 5.42 (P25 = 5.14 and P75 = 5.71). Studies conducted with elderly people in Brazil have demonstrated different results. In the same study in Cuiabá-MT, 82.7% showed a low degree of adherence[19]. Another study with hypertensive elderly patients in primary care in Ribeirão Preto - SP showed that 81.2% were less adherent[5].

Table 2 describes the prevalence of elderly participants adherent and non-adherent in relation to the behavioral factors and the p value obtained in the association test. The variable medications_belief showed a statistically significant association with the variable adherence (p=0.001). The variable medication_will also showed a statistically significant association with the variable adherence (p=0.004). The other behavioral variables showed no significant association with the variable medication adherence.

Table 2 - Elders' medication adherence prevalence in ambulatory care according to behavioral factors. Rio Grande, RS, Brazil, 2013 (n=107).

Behavioral factors	Adherence		P-value
	Yes n (%)	No n (%)	
Seeks to clarify doubts on health and medications			
Yes	84 (87.5)	12 (12.5)	0.635‡
No	9 (81.8)	2 (18.2)	
Believes medications are important			
Yes	92 (90.2)	10 (9.8)	0.001‡
No	1 (20.0)	4 (80.0)	
Knows the name of all medications used			
Yes	45 (91.8)	4 (8.2)	0.165§
No	48 (82.8)	10 (7.2)	
Knows the purpose of each medication used			
Yes	69 (89.6)	8 (10.4)	0.209‡
No	24 (80.0)	6 (20.0)	
Ever interrupted drug treatment without medical indication			
Yes	13 (72.2)	5 (27.8)	0.058‡
No	80 (89.9)	9 (10.1)	
Ever stopped taking medicines to consume alcoholic beverages			
Yes	3 (60.0)	2 (40.0)	0.127‡
No	90 (88.2)	12 (11.8)	
Use of medications only in the presence of symptoms			
Yes	10 (90.9)	1 (9.1)	1.000‡
No	83 (86.5)	13 (13.5)	
Ever stopped taking medicines due to an alternative treatment			
Yes	10 (83.3)	2 (16.7)	0.656‡
No	83(87.4)	12(12.6)	
Ever forgot to take the medicines			
Yes	50 (84.7)	9 (15.3)	0.461§
No	43 (89.6)	5 (10.4)	
Feels no desire to take the medicines			
Yes	59 (80.8)	14 (19.2)	0.004‡
No	34 (100.0)	0 (0.0)	
Follows the treatment according to prescription			
Yes	84 (89.4)	10 (10.6)	0.066§
No	9 (69.2)	4 (30.8)	

‡Fischer Exact Test §Chi-Square Test.
Source: Research data.

The Mann-Whitney test showed that elders who did not believe medicines are important did not know their names, used only in the presence of symptoms, forgot to use them or did not follow the prescription according to medical indication, had a lower median in the TAM than those who did not have these behaviors, and this difference was statistically significant, as shown in Table 3.

Table 3 - Median values of the Treatment Adherence Measurement of elders in ambulatory care according to behavioral factors. Rio Grande, RS, Brazil, 2013 (n=107).

Behavioral factors	TAM Median††	P-value‡‡
Seeks to clarify doubts on health and medications		
Yes	5.42	0.959

	TAM††	p‡‡
No	5.42	
Believes medications are important		
Yes	5.42	0.003
No	4.28	
Knows the name of all medications used		
Yes	5.57	0.006
No	5.35	
Knows the purpose of each medication used		
Yes	5.42	0.062
No	5.28	
Ever interrupted drug treatment without medical indication		
Yes	5.42	0.275
No	5.42	
Ever stopped taking medicines to consume alcoholic beverages		
Yes	5.42	0.489
No	5.42	
Use of medications only in the presence of symptoms		
Yes	5.28	0.047
No	5.42	
Ever stopped taking medicines due to an alternative treatment		
Yes	5.28	0.101
No	5.42	
Ever forgot to take the medicines		
Yes	5.28	0.000
No	5.71	
Feels no desire to take the medicines		
Yes	5.42	0.119
No	5.42	
Follows the treatment according to prescription		
Yes	5.42	0.019
No	5.14	

†† TAM = Treatment Adherence Measurement   ‡‡ Mann-Whitney Test.
Source: Research data.

In relation to the behavioral factors, most adherent elders sought to clarify their doubts about the medications. Patients with more knowledge about the prescribed drugs, as well as about the behaviors required for the follow-up of treatment seem to be more likely to adhere to the medication than those with less information[21].

In the present study, the belief that drugs are important for the maintenance of health was associated with adherence. Corroborating this finding, a research conducted in general outpatient clinic for adults of a university hospital in the countryside of the state of São Paulo also found this relationship[12]. The positive beliefs about medications may be related to the perception of these benefits, as elders use them and improve their health[6].

The adherent elders presented a greater knowledge about the name and purpose of the drugs they used than non-adherents did. Knowing the name, purpose, dosage and frequency of administration of medicines is of paramount importance for elders to avoid making mistakes in the use that may interfere with adherence. Furthermore, it favors elders' autonomy, as well as provides greater safety for the health treatment. The lack of knowledge about the chronic condition, treatment and medicines were related to non-adherence in other investigations[12,19].

Among the elderly interviewees, those who had already interrupted the treatment without indication presented higher prevalence of non-adherence. It is important to understand what led them to interrupt the treatment, because this behavior compromises adherence and can contribute to complications that occur in their health picture. A study conducted with 100 elderly outpatients, in a university hospital, in

countryside of São Paulo, found that stopping the use of drugs by feeling worse explained 12.8 and 13.5% of the variability of the proportion of adherence to anti-hypertensive drugs and oral antidiabetics/insulin, respectively[11].

The absence of symptoms of the chronic condition can also lead elders to interrupt the treatment because they think they do not need the medicines because they are feeling well. Some elderly people understand the absence of symptoms as the lack of health problems and, in consequence, may no longer use the prescribed medications, because they believe they are unnecessary[22].

Among the elderly participants, some took the drugs only when they presented with symptoms of chronic health condition. These had a lower level of adherence than those who followed the treatment continuously. The lack of awareness of the elderly patient on the importance of the follow-up of therapy may worsen the chronic condition[19]. In this sense, healthcare and nursing professionals need to perform health education activities for the elders and their family in relation to chronic conditions, treatment and medications.

Among the elderly interviewees, none made use of cigarettes and five (4.6%) made use of alcoholic beverages. In the present study, alcohol consumption had no association with adherence. Nevertheless, national and international studies have highlighted that the consumption of alcoholic beverages interfere in the adherence[20,23]. Health professionals must pay attention to the consumption of alcoholic beverages, because, in addition to interfering in medication adherence, it brings damages such as increased pressure, cholesterol, triglycerides and weight, which may aggravate the elderly person's health picture[20].

In the present study, the elders who had already stopped taking medicines due to an alternative treatment had a lower level of adherence than those who did not present this behavior. Nonetheless, there was no significant association between the use of alternative treatment and the variable adherence. A study with hypertensive and diabetic patients in a family health unit in the municipality of Itabuna-BA found the same finding[23].

Among the interviewees, those who had already forgotten to take the medicines presented lower TAM median than those who had never forgotten. Researches also reported forgetfulness as one of the main factors related to non-adherence to therapy[4,12]. Forgetfulness may occur due to polypharmacy, mental and cognitive disturbs, among other factors, which may hinder the recognition and memorization of times of administration of drugs[4].

Non-adherent elders reported not having the desire to take the medicines and the variable showed a significant association with the adherence variable. The nurse should seek to know the reasons that lead the elderly patient not to want to take the medicines so that he/she can plan actions that can minimize/prevent non-adherence.

In the present study, the elders who reported following the prescription according to medical guidance (dosage, frequency and time) showed TAM median greater than those who reported not following the prescription according to medical advice. The lack of information on chronic health conditions and low perception of the benefits of using the medications may generate doubts regarding the necessity and effectiveness of the drug treatment prescribed and can contribute to the non-adherence to medication[6].

A limitation of this study is the small sample size selected consecutively by convenience. A strong point is that the study identified that behavioral factors are associated with medication adherence, and should be considered by healthcare professionals/nurses while planning their actions along with the elderly patient.

CONCLUSION

There was an association between adherence and the belief that drugs are important for health maintenance and desire not to take the medicines. Elderly people who did not believe using medicines is important, did not know the name of the medications, used only when presented with symptoms, forgot to use the medicines or did not follow the prescription according to medical indication, had a lower TAM adherence median than those who did not have these conditions.

A significant contribution of the study to nursing practice is the importance of identifying the behavioral factors that may interfere with the use of drugs by the elderly patient, considering they are modifiable through actions aiming at encouraging adherence. In this sense, the results

of this study can help subsidize the nursing care planning to elderly outpatients using medications.

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