



ADHERENCE TO DRUG THERAPY IN DIABETIC ELDERLY*

ADESÃO À TERAPÊUTICA MEDICAMENTOSA EM IDOSOS DIABÉTICOS

ADHESIÓN AL TRATAMIENTO MEDICAMENTOSO EN ANCIANOS DIABÉTICOS

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Sectional and observational study, which investigates access to medicine, socioeconomic and demographic profiles and their association with drug adherence to drug therapy in diabetic elderly assisted in a gerontogeriatric public service. Data were collected from 126 participants through structured interviews between February and September 2011. The results reveal that 47.6% of the elderly received their drug from the public health system. The elderly women prevailed, in more than 9 years of studies, retired and income of 1-2 minimum wages. As for drug adherence, 93.7% reported using their medication regularly, but only 52.4% were considered compliant under the Test of Batalha. There was no association between socioeconomic and demographic variables and self-reported adherence. It is necessary to invest in educational initiatives targeted to the elderly patients to promote adherence to therapy.

Descriptors: Adherence to Medication; Elderly; Diabetes Mellitus.

Estudo observacional-seccional, que investiga o acesso aos medicamentos, perfil socioeconômico e demográfico e sua associação com a adesão terapêutica medicamentosa em idosos diabéticos assistidos em serviço público gerontogeriatrico. Os dados foram coletados com 126 participantes através de roteiro estruturado entre fevereiro a setembro de 2011. Os resultados revelam que 47,6% dos idosos recebiam o medicamento pelo sistema público de saúde. Prevaleram idosos do sexo feminino, com mais de 9 anos de estudos, aposentados e com renda familiar de 1 a 2 salários mínimos. Quanto à adesão medicamentosa 93,7% referiram usar o remédio regularmente, porém, apenas 52,4% foram considerados aderentes segundo o teste de Batalha. Não houve associação entre as variáveis socioeconômicas e demográficas e a adesão auto-referida. Faz-se necessário investir em ações educativas direcionadas à clientela idosa para promoção da adesão terapêutica.

Descritores: Adesão ao Tratamento Medicamentoso; Idoso; Diabetes Mellitus.

Estudio observacional-seccional, que investiga el acceso a los medicamentos, perfil socioeconómico y demográfico y su asociación con la adhesión de tratamiento medicamentoso en diabéticos ancianos atendidos en servicio público gerontogeriatrico. Los datos fueron recogidos de 126 participantes mediante entrevista estructurada entre febrero y septiembre de 2011. Los resultados revelan que 47,6% de los ancianos recibieron la droga por el sistema público de salud. Prevalcieron ancianos del sexo femenino, más de nueve años de estudios, jubilados, con ingresos uno a dos salarios mínimos. En cuanto a la adhesión a la medicación, 93,7% reportaron el uso de la medicación regularmente, pero 52,4% se consideraron compatibles bajo la prueba de Batalla. No hubo asociación entre las variables socioeconómicas y demográficas y adherencia auto reportada. Es necesario invertir en iniciativas educativas dirigidas al cliente anciano para promover adhesión al tratamiento.

Descritores: Adhesión a la Tratamiento Medicamentoso; Ancianos; Diabetes Mellitus.

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INTRODUCTION

The higher vulnerability to the occurrence of chronic diseases with old age requires, during his treatment, changes in the style of life and follow-up of evolution of the clinic profile which, if not adequately controlled, tends to aggravate the prognostic. The increase of the prevalence of these diseases at an old age places the elderly as the age group which takes more medicine in society, reaching the figure of more than 50% of the users of multiple medicine⁽¹⁾.

The Diabetes Mellitus, among the chronic diseases, is outstanding for its high rate of morbimortality among the elderly. The chronic complications which come from diabetes are generally associated to the inadequate control of the disease for a long period of time, resulting in lesions of several organs and systems of the body, especially heart, eyes, kidneys and nervous system, jeopardizing physical, psychological and social functionality of the patient, damaging his adaptation and productive life⁽²⁾.

The control of diseases is possible even in advanced ages. The basic treatment consists in the education, modifications of the habits of life (maintenance of adequate weight, regular practice of physical activity, quitting smoking, low consume of saturated fat and alcoholic beverages), and, if necessary, taking medicine⁽³⁾.

The adherence to therapeutical regime was recognized as Nursing diagnosis by the Comissão Internacional de Enfermeiros (International Committee of Nurses) defining it as: 'An action initiated by the patient himself in order to promote welfare, recovery and rehabilitation, according to orientation without deviations, concerned in a set of actions or behavior^(4:149).

Nevertheless, the absence of adequate instruments to validate the therapeutic measures is one of the biggest difficulties found in the researches, once the guarantee of trustworthy and reliability of the obtained results is crucial in this process. The measures of evaluation can be categorized as results of health treatments (blood pressure and hospitalization); direct indicators (evaluated through urine or blood exams, or through checking the loss of weight, for example); indirect indicators (counting the pills); subjective reports (from patients or from others); and the use of the health net (as the attendance to the doctor's appointments and the use of preventive services)⁽⁵⁾.

In the literature, it is considered adherence the compliance with at least 80% of the prescribed therapeutic regime⁽⁶⁾. However, it is known that approximately 50% of the patients with chronic diseases, such as the diabetes, do not adhere to the treatment and so they do not obtain improvement, in the context of the disease⁽⁷⁾.

Several variables have been proposed to explain the behavior of adherence to health therapies. The World Health Organization (WHO) through the *Adherence to long-term therapies*, including the diabetes, has established that the adherence is a multidimensional phenomenon, established by a set of five dimensions: socioeconomic, therapy, patient, disease, team and health system⁽⁷⁾.

Several factors interfere in the adherence to medicine therapy and consequent glycemic control. The complexity of therapy regime, the length of the treatment and the frequent changes lead to errors in following the therapy, even when the medicine is provided⁽⁵⁾. Cognitive and visual deficiency, common in the elderly, can make the recognition of the medicine

difficult and the compliance with the medical prescriptions. Besides that, the forgetfulness decurrent from his own process of aging, as well as the benign senescent forgetfulness, or due to pathological processes, such as in the several forms of dementia, it is one of the factors which can interfere in low adhesion⁽⁸⁾.

When considering that the medicine therapeutic adhesion suffers the influence of several factors which can interfere in good glycemic control and consequently prevention of the complications of the diabetes, some questions were proposed: How is the access of diabetic elderly to the medicine which controls the disease? Which are the sociodemographic characteristics of the diabetic elderly assistant by the gerontogeriatric public service? Do the sociodemographic profiles interfere in the adhesion to medicine therapy for diabetes?

So, this study aimed at investigating the access to the medicine, social economic and demographic profiles and their association to the medicine therapy adhesion in diabetic elderly assisted by gerontogeriatric public services, considering the process of aging and the particularities of the assisted population.

METHODS

It is a sectional observational study, developed in the Nucleus of Attention to the Elderly (NAI) of Universidade Federal de Pernambuco (UFPE), gerontogeriatric public service of ambulatory nature. The sample of census type was constituted by 244 people who attended the following criteria of inclusion: age 60 or older, from both sexes, with medical diagnosis of diabetes specified in the medical records and assisted in the service during the period of January 2006 to December 2010. A few criteria of exclusion were adopted: jeopardizing communication and/or cognition (6), difficulty in locomotion of the elderly which restrained the access to the ambulatory (15) and he could be a user of medicine for diabetes (35).

The registered death losses (12) refuse to participate in the study (16) and incorrect register of address and/or telephone number in the medical record (34) contributed for the final composition of the sample equivalent to 126 diabetic elderly.

The data collection happened during the months of February to September, 2001. For the identification of the diabetic elderly a survey with all the registered medical records was made at the NAI/UFPE, in the established period (January 2006 to December 2010). The interviews were arranged by telephone giving preference to the date and time that matched other appointments already arranged for the elderly.

The information was obtained by trained and supervised personnel, and the collected data obtained through a structured script with closed questions. The variables related to accessing the medicine corresponded to: acquisition of the medicine, percentage of the expenses with medicine in the total family income and degree of difficulty in getting the medicine. Among these socioeconomic and demographic characteristics, the following points were investigated: sex, age range, years of study, marital status, familiar grouping, social security situation, monthly income and contribution for the support of the house. The time living with the disease since its diagnosis and the use medical treatment were also questioned.

The adhesion of the diabetic elderly was evaluated by the self-reference of the regular use of the medicine and by the Test of Batalha⁽⁹⁾. This is composed of three questions, and measure adhesion through the knowledge of the patient on the disease, considering adherent the ones which answered the question correctly.

The quantitative analysis of the information was made through a systematized process in a statistical basis of data through the program *Statistical Package for Social Sciences* (SPSS) for Windows, version 17.0,

involving the application of descriptive and inferential statistics.

In the descriptive statistics, the frequencies of the variables (absolute and relative) were distributed. And the inferential one covered the analysis of the associations of the socioeconomic and demographic variables with the self-referred adhesion, using Fisher's Exact test. The hypothesis of association when the probability was smaller or equals to 0,05 ($p \leq 0,05$) is accepted.

The protocol of the research was approved by the Comitê de Ética e Pesquisa do Centro de Ciências da Saúde da Universidade Federal de Pernambuco (CAEE 0485.0.172.000-10). The interviewees signed or finger printed the Informed Consent Form, in which the objects of the research and the required information were explained, and the confidentiality of the information was guaranteed.

RESULTS

According to Table 1, out of the 126 diabetic elderly interviewed, 47.6% received the medicine through the Sistema Único de Saúde (Unified Health System) (SUS), 26.2% using their own resources, 24.6% obtained the medicine partially, by SUS, and just 1.6% through donation. Prevailing the provision by SUS, 46.0% of the interviewees did not have their family income used with medicine, followed by 31.0% which use less than 15% of the family income with medicine for glycemic control. Around 68% of the interviewees reported that it was easy to obtain the medicine, considering the availability in the service and accessibility.

Table 1 – distribution of the diabetic elderly regarding access to medicine. Nucleus of Attention to the Elderly – NAI/Recife, PE, Brazil, 2011.

Variables	No.	%
Acquisition of medicines		
SUS	60	47.6
Partially by SUS	31	24.6
Donation	2	1.6
Private	33	26.2
Percentage of the expenses with medicine in the total family income		
0% of family income	58	46.0
Below 15% of the family income	39	31.0
Between 15 to 25% of the family income	9	7.1
Above 25% of the family income	5	3.9
They did not know what to answer	15	12.0
Degree of difficulty in getting the medicine*		
Very difficult	4	3.1
Difficult	15	11.9
Average	22	17.5
Easy	85	67.5
Total	126	100.0

*Distance of their homes to the bus stop; difficulty or physical disability; availability of busses for transportation; availability of medicine.

As to the socioeconomic and demographic profile of casuistry, the women and the young elderly formed most of the group, corresponding respectively to 73.8% and 55.6%. Schooling corresponding to 9 years of studying also prevailed with 40.5% of the sample, as well as the married elderly with 52.4% and the ones who lived with the spouses and family members corresponded to 61.9%. As to economical aspects, 61.9% were retired, 51.6% had monthly family income

from 1 to 2 minimum wages and 64.3% supported the house completely. However, as to the profile of the diabetic elderly adherent to medicine, 97.4% were widows (ers), and also the ones who had family income above 4 minimum wages 95.2% of the elderly. However, the elderly that had had 9 or more years of schooling, which correspond to at least complete grade school, presented a lower rate of adhesion to the medicine treatment (Table 2).

Table 2 – Medicine adhesion in diabetic elderly according to socioeconomic and demographic factors. Nucleus of Attention to the Elderly – NAI/Recife, PE, Brazil, 2011.

Variables	No. (%)	Medicine Adhesion				Value of p
		Yes		No		
		n	%	n	%	
Sex						
Male	33 (26.2)	29	87.9	4	12.1	p ⁽¹⁾ = 0.205
Female	93 (73.8)	89	95.7	4	4.3	
Age range (years)						
60 to 69	70 (55.6)	66	94.3	4	5.7	p ⁽¹⁾ = 1.000
70 to 79	42 (33.3)	39	92.9	3	7.1	
80 or more	14 (11.1)	13	92.9	1	7.1	
Years of study						
None	12 (9.5)	12	100.0	-	-	p ⁽¹⁾ = 0.556
1 to 4	18 (14.3)	18	100.0	-	-	
5 to 8	45 (35.7)	42	93.3	3	6.7	
9 or more	51 (40.5)	46	90.2	5	9.8	
Marital Status						
Married	66 (52.4)	62	93.9	4	6.1	p ⁽¹⁾ = 0.238
Single	6 (4.8)	5	83.3	1	16.7	
Widow (er)	38 (30.2)	37	97.4	1	2.6	
Divorced	16 (12.7)	14	87.5	2	12.5	
Family Arrangement						
Lives alone	20 (15.9)	18	90.0	2	10.0	p ⁽¹⁾ = 0.669
Only with the spouse	28 (22.2)	26	92.9	2	7.1	
Spouse + family members	78 (61.9)	74	94.9	4	5.1	
Social Security situation						
Retired	78 (61.9)	71	91.0	7	9.0	p ⁽¹⁾ = 0.659
Pensioner	18 (14.3)	17	94.4	1	5.6	
Retired / Pensioner	15 (11.9)	15	100.0	-	-	
Not retired	15 (11.9)	15	100.0	-	-	
Monthly income of the elderly*						
< 1 MW	15 (11.9)	14	93.3	1	6.7	p ⁽¹⁾ = 0.948
1I– 2 MW	65 (51.6)	61	93.8	4	6.2	
2I– 4 MW	25 (19.8)	23	92.0	2	8.0	
4I– MW	21 (16.7)	20	95.2	1	4.8	
Contributes for the house support						
Yes, totally	81 (64.3)	73	90.1	8	9.9	p ⁽¹⁾ = 0.131
Yes, partially	33 (26.2)	33	100.0	-	-	
No	12 (9.5)	12	100.0	-	-	
Total	126 (100.0)	118	93.7	8	6.3	

*Amount of the Minimum Wage (MW) in 2011: R\$ 545,00 (1): Fisher's Exact test.

When questioned how long they had been living with the diabetes, 74.6% of the elderly reported a time of diagnosis superior to five years, and the average of the medicine treatment for the glycemetic control was correspondent to 11 years.

When investigating the adhesion to medicine therapeutic, 93.7% reported they use the prescribed medicine regularly for the control of diabetes. However,

according to table 3 only 52.4% of the interviewees could be considered adherent according to the knowledge on diabetes (Test of Batalha). Most of diabetic elderly answered to the first two questions correctly, but only 57.9% answered the third question, in which the interviewees should list the organs which were more affected by the diabetes, being eyes and kidneys the most reported organs.

Table 3 – Distribution of the diabetic elderly which answered correctly the question of the Test of Batalha. Nucleus of Attention to Elderly – NAI/ Recife, PE, Brazil, 2011

Test of Batalha	Diabetes Mellitus No. (%)
Reported that diabetes is for all their lives	100 (87.3)
Reported that it can be controlled with diet and medicine	117 (92.9)
Mentioned two organs that could be affected by diabetes	73 (57.9)
Adhesion	66 (52.4)

In the analysis of demographic and socioeconomic variables as possible interfering factors in the adhesion to the medicine treatment, according to diabetic elderly

own reports, there was no new significantly association.

DISCUSSION

The public health service, called Sistema Único de Saúde (SUS), aims at promoting a wide social inclusion through its principles of universality, equality in the assistance, as well as integrality of actions and health services. The integrality supposes that the units which render services must contemplate the several degrees of complexity of assistance to health. So, the whole therapeutic assistance includes pharmaceutical assistance as part of the care to collective or individual health⁽¹⁰⁾.

The access to the medicine is an indicator of quality and purpose of the health system and an important determinant in the adherence of the prescribed treatment⁽¹¹⁾. The lack of availability of the

whole pharmaceutical assistance, that is, they do not have access or they do in a limited way, influences in the sub-use of a medicine prescribed to the elderly⁽⁵⁾. This fact is still more aggravating in this age range, once when old age comes, the prevalence of chronic diseases and the need for health care also increase, among them the use of medicine.

Actually, SUS has had considerable advancement in the last few years regarding the organization of the programs with the purpose of guaranteeing the access to population to medicine⁽¹⁰⁾. For the treatment for hypertension and diabetes, besides the availability of the medicine in the basic attention of health, some programs were launched to make the acquisition of

medicine at symbolic prices and, more recently, the guarantee of free medicine in authorized drugstores.

However, in the present study 26.2% of the interviewees reported to use their own resources to buy the medicine. This aspect shows the fragility of the strategies of provision of medicine in the public services and the need of more clarification with the population regarding the governmental programs in order to get free medicine to keep the glycemic control.

The proportion of elderly women, almost three times larger than in relation to man under this study, is also found in other studies^(12,13) and shows the feminization of getting old. Some factors try to explain the difference between the sexes favoring the women, such as: the cardiovascular protection provided by estrogen, higher rates of mortality due to external causes to the man, lower consume of tobacco and alcohol, besides keeping more vigilance and attention to health along the course of their lives⁽¹⁴⁾.

The factor age has influence in the visual and cognitive functions of the elderly, thus making the distinction and manipulation of several medicine, at the same time more difficult⁽¹⁵⁾, which may jeopardize the follow-up of the prescribed therapeutic for the glycemic control. However, in this study, the percentages of adherence to the treatment, according to the difference of age were minimum, they were more prevailing among the younger elderly.

In the development of nursing appointment with patients with diabetes, the health professional must be aware of the difficulties that the elderly might have to understand and follow the given orientations for the glycemic control. It is emphasized that the importance of a clear and objective dialog, with the orientation spoken up in a slow, paced way, in a loud voice and looking straight into the eyes, which will make communication easier through facial expression and lip reading by the health professional and the elderly⁽¹⁶⁾.

The predominance of the elderly with good schooling differs from the condition observed by most Brazilian elderly, a reflex of the difficulties to enter school at the time these elderly were born and brought up, in an environment of devaluation of formal education and precarious social economic conditions⁽¹⁷⁾. The fact that many elderly in the present study also participated in a Program of Permanent Education, the Open University to Third Age (UnATI), can justify the specificity of the patients regarding differentiated schooling. However, it was observed that the higher the schooling was, the lower the rates of adhesions to the therapy were, which can be related to the representations of the elderly regarding diabetes and the motivation for self-care⁽⁵⁾.

As to the family arrangement, the bi-generational was the most prevailing among the interviewed elderly. The family support represents a unit of care which influences in the orientations of health received by the patients with diabetes, and this may result in a higher adhesion to the recommendations of diet and physical exercises, as well as the issues regarding medicine. However there is a possibility that this influence may conflict with the recommendations regarding health, once the family is influenced by the system of beliefs, values and shared meaning which are fundamental for the person with diabetes to reach the self handling of his disease⁽¹⁸⁾.

Taking into consideration the higher prevalence of women in this study, the widowhood is relevant in the planning of strategies of care, once this elderly ladies are more vulnerable to social isolation and depression⁽¹⁹⁾. However, it is noticed that a higher prevalence of adhesion in this category may infer that the biggest concern to the practices of care are directed to the prevention of the complication of the diabetes, which may contribute to overcome fragility and keep the subjects' independence.

The income is a determinant factor in the situation of health of the elderly, once it is during this period that there is a greater need for medication. It is worrisome the fact that 51.6% of the interviewed elderly have an income from one to two minimum wages and even so they contribute totally for the support of the house. Such situation favors a greater vulnerability of the elderly and it can bring damages to his basic necessities and quality of life. It is noticed that among the adherent elderly there was a minimal variation of family income.

The evaluation of the therapeutical adherence is one of the frequent problems found by the health professionals when providing assistance to patients with chronic diseases. Considering that each type of measure has its own sources of errors, it is believed that the ideal attitude would be the combination of two or more measures of adhesion, in order to guarantee trust and reliability of the obtained results⁽⁵⁾. In this study the behavior of adhesion was evaluated by indirect methods through a self report and standard testing, different values were obtained, but they were complementary.

The degree of self-referred adhesion is a simple but subjective measure in the evaluation of the medicine. In this study it showed to be suitable with the 80% recommended in the literature⁽⁶⁾. A similar result was found in a study made with 165 elderly assisted in a clinic in the city of São Paulo, whose percentage of medicine adhesion correspond to the 88.5% of interviewed⁽¹³⁾. However, when using the standard test (Test of Batalha), which evaluates the adherence of the care with the health through the knowledge that the elderly has on the diabetes and the treatment, the value obtained for adhesion was inferior, confirming another investigation where the same tool was used⁽¹²⁾.

In this study, both methods of evaluation were complementary for the understanding of the phenomenon of medicine adhesion of the diabetic

elderly. The discrepancy of values related to self-reference in the practices of care when compared to the standard test may be related with the need of the elderly to be independently self assured for the self care with his health. However, the lack of information of most of the interviewed subjects regarding his disease and treatment showed through the result of the Test of Batalha, in a real way, that the knowledge can influence the behavior of the subjects when taking decisions to follow or not the prescribed therapeutics for the diabetes⁽⁶⁾.

So, the insipience of information on the disease and treatment many times bring the need to adequate the language, whether providing individual assistance or in a group, by a health professional, especially by the nurse. Besides that, it is necessary to have bigger knowledge of the target public, the understanding of the process of adhesion under the biological, behavioral and emotional focus of the subjects, as well as the establishing of a relationship of trust, considering the specificities of the process of aging.

Therefore, both methods makes possible the identification of possible hindrances to the therapeutic adherence and the development of activities of promotion and education in health, founded in the real needs of the elderly facing the prevention of the complications of the diabetes and the maintenance of his functional capacity.

The education in health is one of the pillars of the nursing practice in search of the development of autonomy and co-responsibility of the subjects in the care of his health. In this context, the participation of educational activities favors the acquisition of knowledge and abilities regarding the self care demanded by the disease⁽²⁾, besides providing the opportunity to identify possible problems which may be interfering in the practices of care.

In the specialized literature it is registered as a positive way the use of the use of active methodologies in the practices of education in health to the diabetic elderly which make possible the exchange of dialogs and the elaboration of the experiences, related to living with diabetes favoring empowerment in leading with the disease through the (re) construction of the knowledge on the diabetes and the adoption of special behavior of self care⁽²⁰⁾.

Getting to know the elderly's profile, his situation of health and, especially, his needs, makes planning of nursing care possible and direct them to the specific interventions⁽¹⁹⁾. Considering the actions linked to the reality of the elderly as a point of reflection to better understand the problematic of medicine adherence experienced by this population, will make possible the elaboration and the planning of action of health direct to specific needs of this group.

In the analysis of the socioeconomic and demographic factor as interfering factors in the adhesion to the medicine treatment, the non observance of a meaningful association confirms the researched literature^(2,12).

CONCLUSIONS

The use of their own resources committing the family income in order to buy the medicine for the glycemic control is still a reality in the part of the population that uses more medicine.

Although the socioeconomic and demographic variables do not show as possible interfering factors in self-referred adhesion to the medicine treatment, it is noticed a higher prevalence of care among the younger elderly, widows and with low schooling, and it can be related to the need of the elderly to self-affirm independent regarding his health self-care. Besides that, the lack of information on the disease and the treatment

interferes in a real way in the medicine adherence when evaluated by the standard test.

Therefore, it is noticeable the need of the strengthening of health policies in order to improve the free access of the elderly population to the medicine for the treatment of the diabetes. The promotion educational actions by the services of health which favor the knowledge of the target public on the disease is also relevant as well as the treatment including the biological, cultural and motivational aspects through active methodologies based in the experience of daily lives with diabetes.

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