Treatment adherence and life quality of diabetic patients assisted in the primary care division

Aderência ao tratamento e qualidade de vida de pacientes diabéticos assistidos na atenção primária de saúde

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ABSTRACT

BACKGROUND AND OBJECTIVE: This study sought to evaluate the association between treatment adherence and life quality of diabetic patients assisted in Primary Health Care Units of four cities of Alagoas. **METHODS**: It was an observational study based on a quantitative approach of transversal investigation. Data came from diabetic patients who were helped out in Primary Health Care Units of the Health Public System of Alagoas/Brazil, from December 2009 to July 2010, in four cities of the state and through the application of socioeconomic and demographic questionnaires and the Morisky-Green and World Health Organization Quality of Life BREF (WHOQOL-BREF) tests. For the analysis, it was used the resources of the Epi Info program. **RESULTS**: The sample consisted of 711 diabetic patients, predominantly female (71%). The mean age was 61.1, the majority declared to be married, having an average of 4.5 live children. Most were of low education and did not perform any paid activity; 43.4% live with a Brazilian minimum wage or less. It was observed that 61.5% of the population studied was diagnosed with the disease for more than five years. The study showed a better life quality in the social domain of WHOQOL-BREF. According to the Morisky-Green test, there was a higher frequency of patients with an intermediate class of adherence. The study also showed a good adherence to the treatment and a satisfactory evaluation for the general life quality of the population and an association between these two factors. **CONCLUSION**: There was better correlation between adherence and the quality of life in the social field.

Keywords: Diabetes mellitus; Medication adherence; Quality of life; Socioeconomic factors; Primary health care; Questionnaires

RESUMO

JUSTIFICATIVA E OBJETIVO: Este estudo procurou avaliar a associação entre a adesão ao tratamento e qualidade de vida de pacientes diabéticos atendidos em Unidades Básicas de Saúde de quatro cidades de Alagoas. **MÉTODOS**: Foi um estudo observacional com base em uma abordagem quantitativa de investigação transversal. Os dados vieram de pacientes diabéticos que foram ajudados em Unidades Básicas de Saúde do Sistema Público de Saúde de Alagoas/Brasil, de dezembro de 2009 a julho de 2010, em quatro cidades do Estado e por meio da aplicação de questionários socioeconômicos e demográficos e Morisky-Green e testes *World Health Organization Quality of Life BREF* (WHOQOL-BREF). Para a análise, foram utilizados os recursos do programa Epi Info. **RESULTADOS**: A amostra foi composta de 711 pacientes diabéticos, predominantemente do sexo feminino (71%). A idade média foi de 61,1 anos, a maioria declarou ser casado, com uma média de 4,5 filhos vivos. A maioria era de baixa escolaridade e não realiza qualquer atividade remunerada: 43,4% vivem com um salário mínimo brasileiro ou menos. Observou-se que 61,5% da população estudada foram diagnosticadas após mais de cinco anos da doença. O estudo mostrou uma melhor qualidade de vida no domínio social do WHOQOL-BREF. De acordo com o teste de Morisky-Green, houve uma maior frequência de pacientes com uma classe intermediária de aderência. O estudo também mostrou uma boa adesão ao tratamento e uma avaliação satisfatória para a qualidade de vida geral da população, e ainda uma associação entre esses dois fatores. **CONCLUSÃO**: Houve melhor correlação entre adesão ao tratamento e qualidade de vida no campo social.

Descritores: Diabetes mellitus; Adesão à medicação, Qualidade de vida; Fatores socioeconômicos; Atenção primária à saúde; Questionários

INTRODUCTION

With the increase in life expectancy and the consequent aging of the population, chronic degenerative-diseases have been the major cause of mortality and disability worldwide, accounting for 59% of the 56.5 million of annual deaths. They have been known as non-transmissible diseases and include illnesses like diabetes, obesity and cancer as well as cardiovascular and respiratory diseases[1].

Diabetes mellitus (DM) is a serious public health problem because of its high incidence in the population, its complications, mortality, high financial and social costs involved in the treatment and a significant deterioration in the quality of life of the people[2]. It demands a lifetime of careful behavior and personal care for the blood glucose to be kept as close as possible of normal levels[3]. Despite the considerable growth of the diabetic population, there are a few patients who have access to recommended treatment in Brazil, which implies in very few chances to control the complications of this disease, the chronic ones in particular[4].

The long-term treatment of diabetes is reflected in a lower medication adherence, while the detail of not achieving the therapeutic goals intention related to a greater number of hospitalizations, worse quality of life and higher costs spent on the disease, since the complications straighten out earlier and more intensively. From the perspective of both patients and health care, the treatment of diabetes is complex and difficult to be made, which has caused inadequate control and assistance levels of low quality[1].

The Self-Care Deficit Theory argues that adherence is a dynamic process that depends on the willingness of clients and their perception about the illness. There is the necessity for the people to assume that the control of the disease is beneficial for themselves, according to its internal and external guidelines will develop the process of self-care which, combined with the support of professionals, enables the clients to make effective their treatment, or at least more effective[1].

The World Health Organization (WHO) put together experts from around the world and defined life quality as the persons perception about their position in life, in the context of culture and system of values in which they live and in relation to their goals, expectations, standards and concerns. This concept is wide and encompasses the construct complexity and inter-relates the environment with the psychological and physical principles and with the social relations and personal beliefs as well as with the level of independence[5].

Another focus given to the life quality consists in evaluating the impact of diseases and the treatments on patients' lives, a condition that is called of Health Related Quality of Life (HRQOL)[6]. However, it is still a challenge for professionals to understand what life quality is and how to measure it in a reliable way. A useful method to evaluate it is based on the instruments that transform subjective measures in objective data that can be quantified and analyzed, apart from being an important tool to verify the impact of health interventions in patients. Studies using these instruments have shown that diabetic patients have lower levels of Quality of Life (QOL) than patients without this disease.

Be healthy with diabetes does not depend only on the correct completion of a treatment and its success. It also depends on the way the persons live with their health condition, whether or not they know their possibilities and limits, the support they receive and their access to a health education based on the dialogue, so as to give the person the conditions of self-expression and for building new ways to deal with the illness. It is necessary not only to identify the available resources, but especially to know those that may provide a welfare that can be greater and closer to the habits and routines of the people. It is important to state that starting at this time people learn on how to live with these factors, how to establish new goals and how to build roads to reach them[4].

In Brazil, the literature on quality of life associated to diabetes is still scarce, especially with populations of low socioeconomic profile[7]. Under this perception, the present work studied the association between treatment adherence and life quality of diabetic patients assisted by Primary Health Care Units, in four cities of Alagoas.

METHODS

This was an observational research based on a quantitative approach of the transversal investigation type. The sample consisted of all 711 diabetic patients enrolled in the Registration List and Follow up System for Hypertensive and Diabetics Patients (HIPERDIA) system for the treatment of Hypertension and Diabetes in the Family Health Program (FHP) of the Ministry of Health, which comprises a total of twenty-six Basic Health Units (BHU) of four pole cities. These cities are: Arapiraca, Penedo, Santana do Ipanema and Maceió, places used for the preparation of medical students of the Federal University of Alagoas.

A pretest with hypertensive and diabetic people was carried out through the application of 40 questionnaires in each selected city. Based on the pretest for Maceió, it was calculated a difference of minimum average of 0.3 and the sample was 772. It was also utilized as an inclusion criteria the condition of being diabetic. Excluding the questionnaires with filling mistakes, the final sample was 711. People were chosen through a simple draw of the entrance number in the list of Hypertensive and Diabetic patients of each unit.

Data collection was conducted from December 2009 to July 2010. Patients were interviewed during medical sessions which took place in the health clinics or home visits, both previously scheduled by the community health workers. The socio-demographic and economic profile was evaluated through the application of a questionnaire which contained the following variables: gender, age and marital status, number of born and live children, education, monthly family income, occupation and origin.

The adherence to treatment was evaluated through the use of the Brazilian version of the "Self-Reported Morisky measure of medication adherence scale" (TMG)[8]. This is the most used questionnaire in Brazil to evaluate treatment adherence. It has been validated in the U.S., using as gold-standard the blood pressure control. The version of TMG used consisted of the following questions: 1) Do you sometimes have trouble in remembering taking your medication? 2) Do you sometimes neglects to take your medication? 3) When is feeling better, do you sometimes stop taking your medication? 4) Sometimes if you feel worse when taking medication, you stop taking it? A limitation of this test is evaluating only adherence to medication, not taking into account the adherence to the non-pharmacological treatment[9].

It would appear as upper-class membership those patients who answered "NO" to all the questions, intermediate the patients who said "NO" to one to three questions and the lower class for those who answered "YES" to all questions. For the purpose of analysis, in this study, it was considered that there was compliance with those classified as high and intermediate and noncompliance with those in the lowest class, in accordance with the Morisky classification[6].

To measure quality of life, the World Health Organization/ WHO questionnaire World Health Organization Quality of Life BREF (WHOQOL-BREF) was used. This test is one of the most influential instruments and it is widely used to assess quality of life for research in internal medicine and mental health. It was designed to make international cross-culturally comparable quality of life evaluations. The need for short instruments that require little time to fill it out, but with satisfactory psychometric characteristics, has made the Quality of Life Group of the WHO to develop a shortened version. It assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns. This instrument consists in a 26 question-questionnaire and covers the following domains: physical, psychological, social relations and the environment[5,10]. For the statistical analysis, data collected were managed and analyzed using EpiInfo Version 3.5.1. The analysis was by non-parametric statistics (Kruskal-Wallis) using a significance level of 0.05.

The project was approved by the Ethics Committee of the Federal University of Alagoas, under the protocol number 012876/2009-96.

RESULTS

A total of 711 diabetics were studied, 71.0% were female and 63.0% reported being married. With regard to education and occupation, 38.5% were illiterate and many were presented as inactive (43.0%), considering the retired, unemployed, pensioners and beneficiaries. There was a 31.2% share of housewives and a minimum of 0.7% of students. There was a total of 17.5% of respondents coming from Maceió, 4.0% from other capitals and the remaining from other Brazilian cities (Table 1).

The age group ranged from 15 to 92 years, averaging 61.14. From the 711 diabetic respondents, 675 reported having children (mean 6.2, SD±4.7), 93,67% reported that these children are alive (mean 4.5, SD±3.1). Most patients have/had a monthly family income equal to or less than one Brazilian legal minimum wage (Table 2). The time of diagnosis of diabetes mellitus in the population studied ranged from 1 to 50 years with an average of 9.8 years (±8.05). When distributed according to duration of diabetes, 55.5% were under 10 years of diagnosis, while 44.5% were diagnosed more than 10 years (Table 2).

It was observed that the domain of the WHOQOL-Bref, with the highest mean score, was the social (68.2, SD=±17.47), followed by the psychological (61.43, SD=±16.71), the Environmental (54, 27. SD=±13.67) and the Physical (53.64, SD=±18.31).

Table 1. Qualitative sociodemographic characteristics of diabetic patients, Alagoas, 2010

Characteristics	n	%	IC$_{95\%}$*
Gender			
Female	505	71,0	67,5-74,3
Male	206	29,0	25,7-32,5
Total	711	-	-
Marital status			
Married	444	63,0	59,3-66,5
Single	100	14,2	11,7-17,0
Divorced	56	7,9	6,1-10,3
Inhabitants	16	2,3	1,3-3,7
Widower	89	12,6	10,3-15,4
Ig	06		
Total	711	-	-
Schooling			
Illiterate	274	38,5	35,0-42,2
Elementary school	343	48,2	44,5-52,0
High school	78	11,0	8,8-13,6
Higher education	16	2,3	1,3-3,7
Total	711	-	-
Occupation			
Student	5	0,7	0,3-1,7
Active	177	25,1	22,0-28,5
Inactive	303	43,0	39,3-46,7
Home	220	31,2	27,8-34,8
Ig	06		
Total	711	-	-
Origin			
Maceió	122	17,5	14,8-20,6
Other capitals	28	4,0	2,7-5,8
Other cities	546	78,4	75,2-81,4

When using the TMG to classify adherence to the treatment of diabetic patients in the study, it was observed that there was a higher percentage of patients with intermediate degree of membership, corresponding to 66.7%. Emphasis must be given to the fact that there was compliance between the intermediate and the high classified groups (27.8%), giving a total of 94.5%, while the non-adherents confirmed the lowest grade (5.5%).

The scores of the WHOQOL-bref were correlated to the degree of membership according to the results of the TMG. The present study showed higher mean scores when related quality of life for membership. The association between social dominance and membership was the one that resulted in a higher average, corresponding to 15.1336 (SD=± 2.69), followed in descending order, by the psychological, the environmental areas and the physical (mean=14.0253 and SD=±2.65, mean=12.8858, SD=±2.11, mean=12.8341, SD=± 2.85), respectively.

Table 2. Quantitative sociodemographic characteristics of diabetic patients, Alagoas, 2010

Characteristics	n	%	CI$_{95\%}$
Age (years)			
15 - 29	12	1,7	0,9-3,0
30 - 44	49	7,0	5,2-9,1
45 - 59	276	39,1	35,5-42,9
60 - 74	293	40,6	37,9-45,3
75 or +	75	10,6	8,5-13,2
Ig	06		
Total	711	-	-
Monthly family income (MFI)			
<1 Minimum wage (MW)	314	45,1	41,3-48,8
1 - 2 MW	246	35,3	31,8-39,0
2 or + MW	137	19,7	16,8-22,8
Ig	14		
Total	711	-	-
Duration of diagnosis (years)			
1 - 4	188	26,7	23,5-30,2
5 - 9	203	28,8	25,5-32,4
10 - 14	147	20,9	18,0-24,1
15 - 19	61	8,7	6,7-11,1
20 - 24	60	8,5	6,6-10,9
25 - 29	16	2,3	1,3-3,7
30 or +	29	4,1	2,8-5,9
Ig	07		
Total	711	-	-

n: number of patients in the sample; CI: confidence interval; SD: standard deviation.

The results were significant according to the test of two samples by Mann-Whitney/Wilcoxon (Kruskal-Wallis test for two groups), as the values of "p" from the correlation between WHOQOL and Morisky were all smaller than 0.05 (Table 3).

DISCUSSION

The epidemiological profile of the diabetic population here studied was characterized by a predominance of females (Table 1), coinciding with the literature which shows predominance on the planet of a female population[11]. This partly explains the higher proportion of women affected by the disease, and that are identified by a more frequent search for health services[11]. The cardiovascular protection provided by female hormones, lower consumption of tobacco and alcohol, apart from an increased demand for medical care are also hypotheses raised by some authors to explain the population difference between sexes[6].

The age ranged from 15 to 75 years old, average of 61.14 and a predominance of individuals aged 45 to 59 (39.1%) and 60 to 74 years (40.6%) (Table 2). *Diabetes mellitus* is more prevalent in over 35-year old persons[11]. It was found that the frequency of diabetic people considerably increases after the age of 40 and the maximum peak occurs in the range of 61 to 70 years. The decrease in the frequency of diabetic patients from the age of 80 may be related to the number of patients, since at this age, many have died from this or other diseases[3].

Regarding the marital status, many people said they were married with an average of 4.5 (± 3.1) live children. These data probably and positively interfere with the treatment adherence as the WHO points out that the individuals marital status influences on the family dynamics and self-care. For the elderly, predominant group age at this study, the family composition may be a decisive factor for the lack of stimulus to self-care and sheltering (Table 1)[11,12].

It was observed that 38.5% of respondents were illiterate and 48.2% had primary education and the functional illiterates were included in this group. In accordance with the Brazilian Institute of Geography and Statistics they have less than four years of study (Table 1). This low schooling produces negative results in health care, because of the instructions complexity and information that patients need to obtain[13].

Low education level can also complicate the learning process because, as the therapeutic complexity increases, the patients require more complex cognitive abilities so as to keep their metabolic control[13]. Diabetics with low capability of understanding on health issues present greater complications and little control of blood glucose levels, and have little knowledge about their disease[6].

In terms of monthly household income, 80.4% had incomes less than two minimum wages (MW), and 45.1% live on less than one. Such socio-economic indicators produce impact on the quality of life, tending to take to a bad or good index when under or over two MW, respectively. The monthly income also affects the individual behavior in terms of health, quality of treatment, social support, community resources and in the knowledge related to the disease, as well as in physical activities development, diet and treatment choices[14]. Related to the medication, most patients use drugs called oral antidiabetics instead insulin, and different kinds of these drugs can be taken without costs. They are part of the National List of Essential Medicines, being subsidized by the government and can be taken on the Primary Care Health Units. Despite being known

Table 3. Correlation between adherence by the Morisky test and the WHOQOL-BREF domain, Alagoas, 2010

Morisky	WHOQOL-bref							
	Physical domain		Psychological domain		Social domain		Environmental domain	
	Mean±SD	p	Mean±SD	p	Mean±SD	p	Mean±SD	p
Adherence	12.83±2.85	0.0061	14,03±2,65	0.0086	15,13±2,69	0.0147	12,89±2,11	0.0037
Non-Adherence	12,27±2,99		13,59±2,68		14,64±2,88		12,43±2,25	0,0037

*SD: standard deviation.

the importance of access to this essential medicines, researches have shown that the Brazilian System of Health has failed to guarantee the right to free access to standard medications for the treatment and when the population has low education, they do not argue for their rights.[15]

A good number of the population here studied, 74.9% did not perform any paid activity. Of these, 43.0% were retired, unemployed, pensioners and beneficiaries and 31.2% were housewives (Table 1). This information should be taken into account, since the people who remain active can get personal satisfaction, can increase the social interaction and can facilitate the physical and mental health[16]. Results of a study showed that inactive individuals show a greater deterioration of life quality which, in many cases, interferes in the treatment, and the rehabilitation process is better when individuals are still working[17].

It was observed that 73.3% of the population received the disease diagnostic five or more years ago (Table 2). This can indicate a low early detection of this disease among users of the service. It is imperative to reinforce the importance of detecting early risk factors for developing diabetes as well as the importance of establishing and strengthening links between the carriers of this disease and the basic unit as essential elements in the prevention and control of this illness[3]. This fact must consider the relationship that exists between the duration of diabetes mellitus and the onset of microvascular complications[13]. Soon after diagnosis and during the first two years after it, there is a period of difficult adaptation to diabetes and the patterns of adherence to the treatment are settled within two to four years, and the adherence patterns early established tend to persist in the course of the disease[4].

In regard to the scores of life quality, they are a positive scale because as higher is the score, the better is the quality of life[18]. The results indicate that diabetic patients had a better quality of life in the social area (mean score 68.2) and the detail of this domain, which refers to sexual activity, had a higher satisfaction rate (54.8% of respondents). Sex, apart from the reproductive and pleasurable aspects, is a way of expressing affection: men and women feel themselves valued by the desire awakened and their self-esteem is reduced when this no longer occurs[19]. One study with older women shows that forgetting and the feeling that they are less attractive were associated with the worst quality of life[20].

The area that contributed less to the overall quality of life was the physical. In it the question of greater score was the need for medical treatment in daily life. In chronic diseases such as diabetes, treatment requires behavioral changes in relation to diet, drug intake and lifestyle. Such changes may compromise the quality of life if there is no adequate guidance in connection with the treatment or no recognition on the importance of complications that arise from this disease[11].

Several factors influence adherence to treatment. Among others, stands out the knowledge of the patients about the disease and their behavior related to the medication intake[1]. For the identification of non-adherent patients, some resources such as the serum control of drug, pill counts and observation on the occurrence of adverse reactions, appraisal of the prescriptions and questionnaires may be used[6].

Adherence to drugs prescription is still a major problem in clinical management of patients that are under conditions that were treated with medications for chronic use and modification of lifestyle. Items of this questionnaire are related to the barriers in terms of drugs intake and allow health professionals to reinforce positive behaviors connected with the adherence to treatment[21], which is confirmed by the results, where there was a higher frequency of patients with intermediate grade of adherence.

Regarding the correlation between the classification of the Morisky test and the domains of WHOQOL-Bref, the higher the score (Table 3) the lower the carelessness and negligence in the use of medicines. In this study the best therapeutic adherence was observed inthe social sector through a higher mean score (Table 3), the patients were satisfied with the social support, and especially with the personal relationships and sexual activity; variants have provided the population a good treatment adherence.

It is undeniable that the better the social support is available to patients, more they feel they are emotionally more secure to adhere to treatment, because the social support makes them to feel more comfortable to talk about their disease and about the difficulties in the handling of some therapeutic measures[22].

Personal relationships are crucial to complete drug therapy because patients who report having support, whether provided by family or friends, show a higher prevalence of adherence to treatment. Family participation in the educational process contributes to the treatment, as it stands as a source of emotional support at times when the diabetic patient is weak for facing the disease challenges[23]. A study on chronic fatigue confirms the necessity of working aspects of social relations and the reduction of social isolation in individuals with chronic diseases[24].

Another facet of the social area that contributed to the treatment adherence was the sexual activity (Table 3). It suggests that frustration with sexual life affects self-esteem and self-image and causes a decline in health, in a general way. At this context, it is understood that the problems of everyday, together with some other complications that arise from chronic diseases, need to be worked in the aspects which reflect the interaction and individual adaptation to the disease and to the environment[25].

It is estimated that the psychosocial discomfort may have a negative impact on the ability of the patient to initiate and maintain basic recommendations of self-monitoring and psychological problems like depression and anxiety that directly affect the treatment adherence[26].

There was also a positive correlation between the psychological field and adherence to treatment for most patients of the sample (Table 3). Such a correlation, also found in a study conducted in Minas Gerais, in 2008shows that these aspects are positively recognized by many respondents and positively contribute to a good life quality in the psychological context[11].

The physical domain of WHOQOL-abbreviated covers issues related to pain and patient discomfort, energy and fatigue, sleep and rest, daily activities, dependence on medication or treatment and working capacity[5]. The study showed a positive correlation between this field of the questionnaire and the Morisky test, suggesting that the above variants did not negatively influence the adherence to treatment in the majority of the patients, information that is included in the literature studied[11].

Although the contribution of the environmental domain in the adherence treatment has not been as significant as that of the social and psychological domains, it had a mean score related to good adhesion of 12.8858 (SD±2.11). This detail explains that the satisfaction of diabetics with the home environment, physical security, the social and health care, physical environment and the transport were all facets that positively contributed to theslig test care less nessand forget fulness in the use of drugs, showing that the therapeutic environment is very stimulating for the patient autonomy with regard to treatment compliance of diabetic patients[27].

CONCLUSION

The study demonstrated a good compliance to the treatment and a satisfactory rating for the overall quality of life, especially in terms of social relations.

The association between treatment adherence and life quality of diabetic patients who participated in this research was assumed as positive when the majority of them declared to have a good quality of life in the social, psychological, environmental and physical contexts and showed themselves adherents to a medicine therapy. There was a better correlation between adherence and quality of life in the social field. The patients were satisfied with the social interaction in their environment and, especially, with personal relationships and sexual activity, facets that were strong predictors of the behavior of adherence to treatment.

Recognizing that the study, as part of a health training project, could bring a contribution to improve basic attention on health programs, in particular those directed to diabetics and other chronic disease-carrying patients. It is expected that the factors presented here may contribute to improve the life quality of patients and the treatment adherence.

REFERENCES

1. Péres DS, Franco LJ, Santos MA. Comportamento alimentar em mulheres portadoras de diabetes tipo 2. Rev Saúde Pública. 2006;40(2):310-7.
2. Silva CA. A educação no tratamento das doenças crônico-degenerativas. RBSP[Internet]. 2006 [citado 2012 Jun 21]; 19(4):195-6. Disponível em: http://hp.unifor.br/pdfs_notitia/1018.pdf
3. Rodrigues TC, Lima MH, Nozawa MR. O controle do *Diabetes mellitus* em usuários de unidade básica de saúde, Campinas, SP. Ciênc Cuid Saúde. 2006;5(1):41-9.
4. Silva I, Ribeiro JP, Cardoso, H. Adesão ao tratamento da *diabetes Mellitus*: A importância das características demográficas e clínicas. Rev Ref. 2006;2(2):33-41.
5. Fleck MP. O instrumento de avaliação de qualidade de vida da Organização Mundial da Saúde (WHOQOL-100): características e perspectivas. Ciênc Saúde Coletiva. 2000;5(1):33-8.
6. Rocha CH, Oliveira AP, Ferreira C, Faggiani FT, Schroeter G, Souza AC, et al. Adesão à prescrição médica em idosos de Porto Alegre, RS. Ciênc Saúde Coletiva. 2008;13(supl):703-10.
7. Araújo AF, Souza ME, Menezes CA. Qualidade de vida e aspectos socioeconômicos em diabéticos tipo 1. Arq Bras Endocrinol Metab. 2008;52(7):1124-30.
8. Strelec MA, Pierin AM, Mion D Jr. A influência do conhecimento sobre a doença e a atitude frente à tomada dos remédios no controle da hipertensão arterial. Arq Bras Cardiol. 2003;81(4): 349-54.
9. Ben AJ, Neumann CR, Mengue SS. Teste de Morisky-Green e Brief Medication Questionnaire para avaliar adesão a medicamentos. Rev Saúde Pública. 2012;46(2):279-89.
10. Blay SL, Marchesoni MS. Association among physical, psychiatric and socioeconomic conditions and WHOQOL-Bref scores. Cad Saúde Pública. 2011;27(4):677-86.
11. Miranzi SS, Ferreira FS, Iwamoto HH, Pereira GA, Miranzi MA. Qualidade de vida de indivíduos com diabetes mellitus e hipertensão acompanhados por uma equipe de saúde da família. Texto & Contexto Enferm. 2008;17(4):672-9.
12. Otero LM, Zanetti ML, Teixeira CR. Características sociodemográficas e clínicas de portadores de diabetes em um serviço de atenção básica à saúde. Rev Latinoam Enferm. 2007; 15(Esp):768-73.
13. Cazarini RP, Zanetti ML, Ribeiro KP, Pace AM, Foss MC. Adesão a um grupo educativo de pessoas portadoras de diabetes mellitus: porcentagem e causas. Medicina (Ribeirão Preto). 2002;35(2):142-50.
14. Brown AF, Ettner SL, Piette J, Weinberg M, Gregg E, Shapiro MF, et al. Socioeconomic position and health among persons with diabetes mellitus: a conceptual framework and review of the literature. Epidemiol Rev. 2004;26(1):63-77.
15. Leite SN, Vasconcellos MP. Adesão à terapêutica medicamentosa: elementos para discussão de conceitos e pressupostos adotados na literatura. Ciênc Saúde Coletiva. 2003;8(3):775-82.
16. Faria HT, Zanetti ML, Santos MA, Teixeira CR. Conhecimento sobre terapêutica medicamentosa em diabetes:um desafio na atenção à saúde. Acta Paul Enferm. 2009;22(5): 612-7.
17. Contreras F, Esguerra G, Espinosa JC, Gutiérrez C, Flardo L. Calidad de vida y adhesión al tratamiento em pacientes com insuficiência renal crônica em tratamento de hemodiálisis. Univ. Psychol [Internet]. 2003 [citado 2012 Jan 21];5(3):487-99. Disponível em: http://www.redalyc.org/articulo.oa?id=64750305
18. Pereira RJ, Cotta RM, Franceschini SC, Ribeiro R, Sampaio RF, Priore SE, et al. Contribuição dos domínios físico, social, psicológico e ambiental para a qualidade de vida global de idosos. Rev Psiquiatr Rio Gd. Sul. 2006;28(1):27-38.
19. Basson R, Schultz WW. Sexual sequelae of general medical disorders. Lancet. 2007; 369(9559):409-24.
20. Avis NE, Assmann SF, Kravitz HM, Ganz PA, Ory M. Quality of life in diverse groups of midlife women: assessing the influence of menopause, health status and psychosocial and demographic factors. Qual Life Res. 2004;13(5):933-46.
21. Morisky DE, Green LW, Levine, DM. Concurrent and predictive validity of a self-reported measure of medication adherence. Med Care. 1986;24(1):67-74.
22. Neder PR. Análise da adesão ao tratamento em mulheres com lúpus eritematoso sistêmico [Dissertação]. Belém: Universidade Federal do Pará, Instituto de Filosofia e Ciências; 2009. [citado 20123 Nov 21]. Disponível em: http://www.ufpa.br/ppgtpc/dmdocuments/MESTRADO/DissertacaoPatriciaNeder2009.pdf
23. Teixeira CR, Zanetti ML, Santos MA, Gimenes HT, Siman AF, Almeida KH. Caracterização de pacientes diabéticos atendidos em um Centro Educativo em Diabetes (CED). Diabetes Clinica. 2007;11(4):338-44.
24. Trindade TG, Stein AT. Fadiga crônica: diagnóstico e tratamento - abordagem em Atenção Primária à Saúde (APS) [Internet]. Disponível em: http://www.telessaudebrasil.org.br/lildbi/docsonline/9/4/049-Fadiga_cronica_diagnostico_e_tratamento_Abordagem_APS.pdf
25. Cade NV. Terapia de grupo para pacientes com hipertensão arterial.Rev Psiquiatr Clín. 2001; 28(6):300-4.
26. Nunes MM. Qualidade de vida e Diabetes: variáveis psicossociais [Tese]. Badajoz: Universidade de Extremadura; 2004.
27. Garrett SP. Adesão ao tratamento da diabetes em adolescentes: factores motivacionais [Dissertação]. Porto: Faculdade de Psicologia e de Ciências da Educação, Universidade do Porto; 2007. [citado 2012 Jun 21]. Disponível em: http://repositorio-aberto.up.pt/bitstream/10216/23360/2/67148.pdf