



ORIGINALES

Prevalence of adherence to the medical treatment of people with Diabetes Mellitus

Prevalência de adesão ao tratamento medicamentoso de pessoas com Diabetes Mellitus

Prevalencia de adhesión al tratamiento medicamentoso de personas con Diabetes Mellitus

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ABSTRACT:

Objective: To determine the prevalence of adherence to the medical treatment of people with diabetes mellitus enrolled in a program of hypertension and diabetes; to relate the adherence to the variables: sex, age, diagnosis time, presence of complications, type of diabetes, family history, schooling, individual income, knowledge, attitude of coping with the disease.

Methods: Quantitative, observational, analytical, cross-sectional study. People with diabetes mellitus enrolled in a hypertension and diabetes program were invited to participate, constituting a convenience sample with 141 participants. Data collection was performed from January to July 2014, in the Basic Health Units of the urban area of the municipality. Four questionnaires were used: sociodemographic and clinical questionnaire, Diabetes Knowledge Questionnaire, Diabetes Attitude Questionnaire, Measure of Adherence to Treatments. Data analysis employed simple descriptive statistics, bivariate, multivariate analysis (linear and logistic regression).

Results: The prevalence of drug treatment adherence was 90.8%, despite the low knowledge (71.6%) and unresponsive attitudes (50.4%). There was a correlation between adherence and the attitude of coping with the disease ($p = 0.049$), inferring that positive attitudes predisposes to greater adherence to treatment.

Conclusion: The results of this research indicate that people with diabetes showed good adherence to drug treatment, although they have presented low knowledge about diabetes and little positive coping attitudes. However, the statistical correlation indicates that positive attitudes predispose to greater adherence to treatment. There was no correlation between adherence and the other variables.

Keywords: Medication Adherence; Diabetes Mellitus; Community Health Nursing.

RESUMO:

Objetivo: Determinar a prevalência de adesão ao tratamento medicamentoso de pessoas com diabetes *mellitus* cadastradas em programa de hipertensão e diabetes; relacionar a adesão às variáveis: sexo, idade, tempo de diagnóstico, presença de complicações, tipo de diabetes, antecedentes familiares, escolaridade, renda individual, conhecimento, atitude de enfrentamento à doença.

Métodos: Estudo quantitativo, observacional, analítico, transversal. Foram convidados a participar pessoas com diabetes *mellitus* cadastrados em programa de hipertensão e diabetes, constituindo-se amostra de conveniência com 141 participantes. A coleta de dados foi realizada no período de janeiro a julho de 2014, nas Unidades Básicas de Saúde da zona urbana do município. Utilizou-se quatro questionários: questionário sociodemográfico e clínico, *Diabetes Knowledge Questionnaire*, *Diabetes Attitude Questionnaire*, Medida de Adesão a Tratamentos. Análise dos dados empregou estatística descritiva simples, análise bivariada, multivariada (regressão linear e logística).

Resultados: A prevalência de adesão ao tratamento medicamentoso foi de 90,8% dos participantes, apesar do baixo conhecimento (71,6%) e atitudes de enfrentamento pouco positivas (50,4%). Apresentou-se correlação entre adesão e atitude de enfrentamento à doença ($p=0,049$), inferindo que atitudes positivas predispõe a maior adesão ao tratamento.

Conclusão: Os resultados desta pesquisa indicam que pessoas com diabetes apresentaram boa adesão ao tratamento medicamentoso, embora tenham apresentado baixo conhecimento sobre o diabetes e atitudes de enfrentamento pouco positivas. No entanto, a correlação estatística indica que atitudes positivas predispõem a maior aderência ao tratamento. Não se constituíram correlação entre a adesão e as demais variáveis.

Palavras-chave: Adesão à medicação; Diabetes Mellitus; Enfermagem em Saúde Comunitária.

RESUMÉN:

Objetivo: Determinar la prevalencia de adhesión al tratamiento medicamentoso de personas con diabetes *mellitus* registradas en programa de hipertensión y diabetes; relacionar la adhesión a las variables: sexo, edad, tiempo de diagnóstico, presencia de complicaciones, tipo de diabetes, antecedentes familiares, escolaridad, renta individual, conocimiento, actitud de enfrentamiento a la enfermedad.

Métodos: Estudio cuantitativo, observacional, analítico, transversal. Se invitó a participar a personas con diabetes *mellitus* registradas en el programa de hipertensión y diabetes, constituyéndose una muestra de conveniencia con 141 participantes. La recolección de datos fue realizada en el período de enero a julio de 2014, en las Unidades Básicas de Salud de la zona urbana del municipio. Se utilizaron cuatro cuestionarios: cuestionario sociodemográfico y clínico, *Diabetes Knowledge Questionnaire*, *Diabetes Attitude Questionnaire*, Medida de Adhesión a Tratamientos. Análisis de los datos empleó estadística descriptiva simple, análisis bivariado, multivariado (regresión lineal y logística).

Resultados: La prevalencia de adhesión al tratamiento medicamentoso fue del 90,8% de los participantes, a pesar del bajo conocimiento (71,6%) y actitudes de enfrentamiento poco positiva (50,4%). Se presentó correlación entre adhesión y actitud de enfrentamiento a la enfermedad ($p = 0,049$), infiriendo que actitudes positivas predisponen la mayor adhesión al tratamiento.

Conclusión: Los resultados de esta investigación indican que las personas con diabetes presentaron buena adhesión al tratamiento medicamentoso, aunque presentaron bajo conocimiento sobre la diabetes y actitudes de enfrentamiento poco positivas. Sin embargo, la correlación estadística indica que las actitudes positivas predisponen la mayor adherencia al tratamiento. No hubo correlación entre la adhesión y las demás variables.

Palabras clave: Cumplimiento de la Medicación; Diabetes Mellitus; Enfermería en Salud Comunitaria.

INTRODUCTION

In recent years, there has been an increase in the prevalence of chronic non-communicable diseases, including Diabetes Mellitus (DM). Currently DM is seen as a

worldwide epidemic, since its incidence and prevalence have shown an accelerated increase. Population aging, the adoption of a sedentary lifestyle and an unhealthy diet are factors that contribute to this increase in people with DM ⁽¹⁾.

In addition to high prevalence, diabetes is also responsible for an expressive number of deaths due to specific mortality. According to World Health Statistics, in 2008, the mortality rate in adults between 30 and 70 years for cardiovascular diseases and diabetes was 248 for every 100,000 inhabitants ⁽²⁾.

Early diagnosis and treatment of DM are extremely important for disease control and prevention of complications. This treatment involves the use of medications and the change of lifestyle habits. The adoption of a balanced diet and physical exercises are fundamental for the control of glycemia and contribute to the reduction of the risks of cardiovascular problems. However, it is also necessary to use drugs, such as oral antidiabetics, insulin and / or insulin analogues ⁽³⁾.

Adherence to DM treatment is paramount for metabolic control, prevention of complications, improvement and maintenance of quality of life. The World Health Organization (WHO) defines adherence as the degree that the patient follows the instructions of the health professional, as there is behavior change, understood as taking medication, following diet and / or changing lifestyle ⁽⁴⁾.

According to WHO (2003), the average number of people with chronic diseases adhering to treatment is 50% for developed countries. In developing countries this problem has a greater magnitude and impact, considering the scarcity of resources and the difficulty of access to health services. Low adherence has direct consequences, both for the person with DM and for the health system, resulting in suffering for these people and high financial costs to the health system ⁽⁴⁾.

The prospect that treatment will go on throughout life and will not achieve cure can lead to countless negative feelings for people with diabetes. These people are found to have difficulties in accepting the diagnosis and in the therapeutic itinerary ⁽⁵⁾.

It is estimated that only 28% of European patients have good adherence to the medical treatment of diabetes, reaching adequate levels of glucose in the blood. However, the rate of adherent patients is lower when considering drug administration, foot care, diets and self-monitoring and regular eye exams. In the United States, this index corresponds to less than 2% of adults with DM ⁽⁴⁾.

According to WHO (2003) there is evidence of the influence of some specific factors on adherence, such as socioeconomic status, illiteracy, low schooling, unemployment, lack of social support networks, treatment centers away from the population, high cost of transportation, high cost of medication, culture, low knowledge about the disease, family dysfunction and the treatment itself. Other factors, also cited were color, war situations, age, comorbidities and complex therapeutic regimens ⁽⁴⁾.

Studies indicate that drug adherence may be associated with advanced age, male sex, higher education, higher income, higher drug dosages, diagnostic time, low cost medication use, and depression ⁽⁶⁻⁷⁾. In addition, factors such as the person's perception about the disease, socioeconomic status, imposition of treatment regimens, diet, the quality of care provided at health institutions, and so on are still relevant to the treatment adherence process. It also stands out as an important factor for the adherence, participation and involvement of the family in the management of diabetes care ⁽⁸⁾.

The consequences of non-adherence to treatment, of people with diabetes are varied. These include a reduction in life expectancy, a two- to four-fold increase in the risk of developing cardiovascular disease and stroke. It is also the most common cause of non-traumatic limb amputation and can lead to premature birth. Nephropathy and retinopathy are added to this list of chronic complications ⁽¹⁾. It should be emphasized that cardiovascular impairments are the main causes of morbidity and mortality in people with diabetes, followed by nephropathy ⁽⁹⁾.

For this reason, it is important to investigate factors that interfere in adherence to DM treatment, generating new knowledge in the field of health, which can be used to plan health actions. The same applies to the study of confrontational attitude and the acquisition of specific knowledge. Knowing the points that need intervention is one of the main tools for the effectiveness of health practices.

In addition, identifying the factors that hinder or improve the patient's adherence with DM to the treatment allows nurses to better manage their difficulties in order to support the patient in the therapeutic process. Knowledge about disease and adherence to treatment may contribute to a better quality of life and / or patient survival. This contribution can contribute to changes in the way of acting, therefore, to achieve the real goals of DM treatment: glycemic control, improvement of quality of life and prevention of complications arising from inadequate control.

In this context, knowing the factors that are related to adherence to treatment makes it possible to search for new strategies to achieve the best way to control DM. Associated with this, studies like these can collaborate with the production of knowledge in this subject, because as pointed by some authors, there are still gaps of knowledge to be filled ⁽¹⁰⁻¹²⁾.

In view of the above, this study aims to determine the prevalence of adherence to the medical treatment of people with DM enrolled in a hypertension and diabetes program and to relate adherence to the variables: sex, age, diagnosis time, presence of complications, type of diabetes, family background, schooling, individual income, knowledge and attitude of coping with the disease.

MATERIAL AND METHOD

This is a quantitative, observational, analytical and cross-sectional study conducted in the city of Uberaba, Minas Gerais (MG).

Patients with DM enrolled in the HIPERDIA Program, from the Ministry of Health (MH), in the municipality, were invited to participate in this study. The sample was of convenience, totaling 141 patients. Participants were randomly treated during the waiting time for HIPERDIA care, ie, the sample consisted of patients who were in the health unit at the time of data collection.

The inclusion criteria of the participants were: to be an adult with 18 years or more; have a diagnosis of DM; be enrolled and participate in the meetings of the HIPERDIA program of the MH, in the basic health units of the municipality of Uberaba-MG; reside in the urban area of the municipality. Were considered, as exclusion criteria, all those who did not finalize the interview by withdrawal.

Four questionnaires were used to carry out this research, including: sociodemographic and clinical questionnaire, Diabetes Knowledge Questionnaire (DKN-A), Diabetes Attitude Questionnaire (ATT-19) and Treatment Compliance Measure (MAT). The sociodemographic and clinical questionnaire was constructed by the authors, based on the HIPERDIA registration form, developed by the Ministry of Health, and contained

variables such as gender, age, HIPERDIA enrollment time, type of diabetes, color, schooling, family and individual income, background family, personal background and life habits.

DKN-A assesses knowledge scores on diabetes. The ATT-19 assesses the coping attitude to diabetes. Both were translated and validated in Brazil, presenting good reproducibility. The use of the questionnaires was authorized by means of electronic mail by the author, who carried out the validation study for Portuguese language. For the reliability analysis, the internal consistency and the test-retest were evaluated, using a Kappa coefficient (values between -1 and +1). There was a variation of the Kappa coefficients of the DKN-A from 0.56 to 0.69 and the ATT-19 from 0.45 to 0.60, indicating reliability for its use ⁽¹³⁾.

MAT is a scale that evaluates the patient's adherence to drug treatment. The scale was validated for Portuguese language in 2001, in Lisbon and presented acceptable internal consistency, with Cronbach's alpha values around 0.75, when presented as a Lickert scale. These results indicate that the use of this scale is adequate for this study ⁽¹⁴⁾.

Data collection was performed in two stages, from January to July 2014. The first one consisted of a direct and individual interview of the participants, with the application of the questionnaires. In the second stage, sociodemographic and clinical data were collected on HIPERDIA registration and follow-up records.

The data collected were organized into a database of the Microsoft Excel® 2007 program and the double typing technique was used to reduce or detect possible transcription errors. After this step, the banks were imported into the Statistical Package for Social Sciences (SPSS) version 20.0, where they were analyzed statistically.

The characterization data of the sample were analyzed according to simple descriptive statistics, using relative and absolute frequency values, measures of central tendency as the mean, median and measures of variance.

The DKN-A analysis is given by the sum of the correct questions. To each correct question was given the score one ⁽¹⁾. Questions 13, 14 and 15 have two correct assertions and both should be referred for assignment of score one ⁽¹³⁾. The dichotomized score was also used in the analysis in which scores less than or equal to eight ⁽⁸⁾ are considered as inadequate level of knowledge ^(15,16).

The analysis of ATT-19 is given by the sum of the individual scores of each question. The scale is of the type Lickert, where one ⁽¹⁾, corresponds to totally disagree and five ⁽⁵⁾, totally agree. Questions 11, 15 and 18 have a reverse score ⁽¹³⁾. This scale was analyzed considering gross and dichotomized scores, in which scores above 70 were considered adequate attitudes to DM coping ^(15,16).

To calculate the prevalence of adherence, MAT was used, in which the total score is given by the sum of the individual scores, divided by the number of questions. From this scale it was considered the dichotomous variable adheres or does not adhere, being considered adherent the patient that reaches a score greater or equal to five ⁽⁵⁾, based on an earlier study ⁽¹⁰⁾.

For bivariate analysis of the relationship between sex, age, occurrence of complications, presence of family history, type of DM and adherence, a linear regression method was used, considering a 95% confidence interval (CI). For the multivariate analysis of the variables: schooling, individual income, knowledge and attitudes scores in relation to the disease, and the dependent variable, adherence to

the treatment, contingency tables were used and calculation of the prevalence ratio and gross and adjusted odds ratios, using the statistical method of logistic regression, considering a 95% CI. The p values should be interpreted in the hypothesis that the sample is a simple random sample of a population with similar characteristics.

This study was approved by the Research Ethics Committee of the Federal University of the Triângulo Mineiro (UFTM), with CAAE 26472814.1.0000.5154. The participants signed the Free and Informed Consent Term and agreed to voluntarily participate in this research. This work is part of a master's thesis titled "Factors related to adherence to the treatment of adult patients with Diabetes mellitus enrolled in the HIPERDIA program of primary health care".

RESULTS

Of the 141 interviewees, 91 (64.5%) were female, 56 (39.7%) were in the age group of 61 to 70 years, 44 (31.2%) were enrolled in the hypertension program and diabetes during ten years or more 123 (87.1%) reported having a diagnosis of T2DM, 81 (57.5%) were white, 67 (47.5%) had completed one to four years of schooling, 39 (27, 7%) lived only with a partner. Regarding income, 88 (62.4%) and 107 (75.9%) reported a family and individual income between one and two minimum wages, respectively. For 65 (46.1%) of the interviewed, only two people depended on family income.

The analysis of the prevalence of family history showed that the most prevalent were systemic arterial hypertension (SAH), 112 (79.4%), followed by DM2, with 80 (56.7%). Regarding the personal history, these were divided into associated conditions and complications related to DM. Therefore, 130 (92.2%) of the interviewees had at least one of the associated conditions, and of the 141 interviewees, 100 (70.9%) had a diagnosis of SAH.

Concerning the complications related to DM, 73 (51.8%) reported having had no complications. Among those who had some kind of complaint, 31 (22%) reported only one comorbidity. The most prevalent diseases were angina, referred by 31 (22%) of the participants, followed by coronary artery disease, reported by 28 (19.9%) interviewees.

Investigating the life habits of the interviewees, it was observed that 83 (58.9%) did not smoke and 107 (75.9%) reported never to consume alcohol. Regarding the practice of physical activity, 76 (53.9%) did not practice any type of activity. Among those who practice, 28 (43.1%) perform this activity four times or more during the week. The duration of the activity ranged from 15 minutes to more than one hour. For the majority, 47 (72.3%), the activity lasted between 30 to 60 minutes.

Regarding the analysis of the total score of knowledge according to the DKN-A scale, this one revealed a variation from one to thirteen points. No participant got the maximum score, which would be 15 points. Analyzing the attitude score according to the ATT-19, a great variation was obtained, reaching scores of 39 to 90 points. Only one interview could not be accounted for, because the interviewee could not complete it. The analysis of the dichotomized scores of the scales revealed that 101 (71.6%) had less than expected knowledge (score ≤ 8) and 71 (50.4%) showed little positive attitudes (score ≤ 70).

Regarding the prevalence of adherence to drug treatment according to MAT, a large majority (128.8%) presented a sufficient score to be considered adherent to the treatment, and only 13 (9.2%) were classified as non-adherent. It should be noted that the scale used does not include other treatment measures.

In the bivariate analysis of possible factors that interfere with adherence, there was a small statistical difference for the sexes, with the male sex reaching a higher percentage of adherent participants. However, there were no statistically significant differences when considering p values. The same occurred for the type of DM, in which patients with DM2 had a higher percentage of adherents than patients with DM1. Values of $p < 0.05$ were considered statistically significant, with CI = 95%. The following table shows the values found for bivariate analysis (Table 1).

Table 1 - Distribution of bivariate analysis of adherence to treatment of DM patients and enrolled in HIPERDIA according to sex, age, presence of complications, family history and type of diabetes and adherence to drug treatment, Uberaba - MG, 2014.

		Aderes				<i>RP</i> ^a (IC 95%)	<i>RCP</i> ^b (IC 95%)	<i>p</i>
		Yes		No				
		n	%	n	%			
Sex	Male	48	96.0	2	4.0	1.09	3.30	0.1 22
	Female	80	87.9	11	12.1	(0.99 – 1.20)	(0.70 – 15.53)	
Dichotomized Age	Adult	69	88.5	9	11.5	0.95 (0.85 - 1.05)	0.52 (0.15 - 1.78)	0.2 90
	Elderly	59	93.7	4	6.3			
Presence of Complication	Yes	61	91.0	6	9.0	1.01 (0.91 - 1.12)	1.06 (0.34 - 3.34)	0.9 18
	No	67	90.5	7	9.5			
Family History	Yes	11	90.1	13	9.9	0.90 (0.85 - 0.95)		0.2 96
	No	8	100	0	0			
Type of DM	DM1	13	81.2	3	18.8	0.88 (0.69 – 1.13)	0.383 (0.09 – 1.57)	0.1 70
	DM2	11	91.9	10	8.1			

a Prevalence Ratio b Ratio of prevalence chances

The multivariate analysis of the possible factors that interfere with adherence revealed that there was no statistically significant relationship between the variables, except for the attitudes of coping with DM, which presented $p = 0.049$. Observing the value of

adjusted CPR, it can be inferred that positive attitudes function as a protection factor, since they favor adherence to drug treatment, for a CI = 95%. The following table shows the values found in the logistic regression for multivariate analysis (Table 2)..

Table 2 - Distribution of logistic regression between adherence and sex, age, schooling, knowledge score and attitude score of DM patients and enrolled in HIPERDIA, Uberaba - MG, 2014

	Adherence	
	Adjusted RCP ^c	p
Time to register	1.560	0.706
Education	1.139	0.880
Individual income	2.038	0.343
Score of Knowledge	1.806	0.374
Attitude score	0.253	0.049

c Reason for Chances of Adjusted Prevalence

DISCUSSION

The data characterizing the sample are convergent with results of other studies, which highlight the predominance of the female population, white and aged 50 years or more. The same happens with the results of schooling and family and marital situation, in which there was a predominance of incomplete 1st grade and cohabitation with partner. This data reflects the population of health services that are mostly women, with low educational level and low income ⁽¹⁷⁻²⁰⁾.

Regarding the family history, the results confirm the above in the literature. In most cases, the positive family history for DM and SAH is associated with the current health conditions of people with DM. It is also common to find high rates of overweight and obesity, as well as the presence of complications ^(17, 21,22). However, in specific groups, the most prevalent complications may vary, and may be coronary artery disease, angina or diabetic neuropathy ^(19, 21). The same goes for your personal background. Risk factors for complications, such as overweight and poor glycemic control, are significant in this population, although it is accompanied by a health program, which aims to promote self-care ^(17, 19, 21,22).

The low prevalence of alcohol and tobacco use is similar to other studies ⁽¹⁹⁻²¹⁾. However, it should be emphasized that alcohol and tobacco consumption may be related to the worsening of diabetes and to the appearance of complications; therefore, it is necessary to investigate among those who use it, the degree of risk relative to consumption and to stimulate the abandonment of this habit.

Regarding the regular practice of physical activity, we can see that similar characteristics were found in other populations, in which the majority do not practice

physical activity and among those who practice, this takes place three times a week, lasting from 30 to 60 minutes ^(17, 19, 21, 23). It is important to emphasize the consequences of sedentary lifestyle, since it can result in important complications, such as diabetic foot ⁽²⁰⁾.

The results of the analysis of knowledge scores are anchored in other studies ^(15,16). It can be seen, in different contexts, that people with DM have presented low level of knowledge about the disease. However, one study indicated that participants had a high level of knowledge about diabetes, correctly pointing out, for the most part, what diabetes is and what factors related to diabetes ⁽²⁴⁾.

This result disagrees with this study. It should be emphasized that although the sample studied participated in follow-up groups, they had low levels of knowledge. This data leads to reflect on the educational practices developed in these groups. What is observed is that although these educational practices exist, they seem to be inefficient, since the knowledge produced does not perpetuate or become permanent.

In relation to the attitude score, these presented greater variations, diverging from the literature. In two studies the sample studied presented high scores for attitudes ^(16, 25). These differences stem from different contexts and realities. The diagnosis of DM2 may imply radical changes in lifestyle ⁽²⁶⁾. Such changes are faced with difficulties; and for some, the greatest of these is the acceptance of the diagnosis. This may be one of the causes for the negative attitude found in this research and in the studies cited above ⁽²⁶⁾.

In the analysis of adherence to drug treatment, positive results were obtained, since most of the sample was considered adherent, consistent with other studies that showed a high rate of drug adherence ^(11, 27). This can be related to several factors, such as the culture of medicalization of health, belief in the effect of the drug on the disease, the policy of distribution of free medicines and ease of use of the drug ^(11,17). The general population still believes that the drug has more effect on the disease than the lifestyle change. Added to this, low economic and educational level can be influential factors in people's daily food ⁽¹⁷⁾.

The bivariate and multivariate analyzes showed that there was influence only of the attitudes about the adhesion, inferring that those who have positive attitudes are more likely to adhere to the drug treatment. These data are convergent with the literature, which shows that there was no significant association between sex, age, number of people at home, schooling, sociodemographic, clinical and adherence variables ^(27,28). Other studies still show no correlation between family income, time of diagnosis, marital status and knowledge ^(11, 29). Correlation was found only with the frequency of insulin and oral antidiabetic use and blood pressure levels, but all were of low magnitude ⁽²⁷⁾.

These data diverge from other studies that suggest that educational level and economic level are influential to adherence ⁽¹²⁾. Other factors are also listed, such as family support, difficulties in following the diet, practicing exercises, getting around and scheduling consultations with health professionals ⁽³⁰⁾. For some authors knowledge and positive attitudes are important allies in adherence to treatment ^(13, 15,16, 24,25).

The fact that the attitudes have influenced the adherence can be understood as the difficulty of the person with DM in adapting to the reality of the disease. The individual with DM can often be resistant to accepting the diagnosis of the disease, mainly due to the chronicity of the disease. Associated with this, immediately after the diagnosis, the person with DM needs to undergo an intense period of adaptation, changes in routine

and lifestyle, which involves adopting new habits, the use of medications and the restriction to certain types of food ⁽²⁶⁾.

The fact of being diagnosed with DM imposes on the subject a new reality, which demands changes in lifestyle. Such changes include food re-education, which is often understood by the person with DM as deprivation of something that gives him pleasure. These negative feelings translate into a low willingness to react to the new reality, resulting in less adherence to self-care activities and treatment. Associated with this, there is a culture of medicalization of health, reinforced by public policies that little value the actions of disease prevention and health promotion, besides reinforcing access to medicines.

It is also reinforced that in Brazil there is a strong culture of health medicalization in which treatment is often associated only with the use of medications. In the context of DM, this data is of crucial importance, since for the improvement of glycemic levels, adherence to non-medication measures is essential.

CONCLUSION

The results of this research indicate that the patients with DM enrolled and in follow-up in HIPERDIA showed good adherence to the drug treatment, although they had low knowledge about DM and little positive coping attitudes. There was no correlation between adherence to treatment and variables: gender, age, schooling, presence of complications, family history, individual income and knowledge score. There was a statistically significant correlation between adherence and coping attitudes to DM. However, despite adhering to drug treatment, few adhere to a balanced diet and regular practice of physical activity.

It is worth pointing out that despite being accompanied by a program aimed at enabling the subject for self-care practices, the sample presented low level of knowledge about DM. Such data may reflect that the strategies used for health education practices have been ineffective. In addition, the low level of knowledge can influence the coping reactions to DM, generating little positive attitudes. Not knowing the interfaces related to the disease and its possibilities of control can generate low expectations in the individuals.

The results of this study can contribute to the reflection on health care and education practices aimed at people with DM and developed in basic health care. It is noticed that there is a positive reinforcement to the use of medicines as well as a facilitated access to them. However, other key practices for successful treatment of diabetes have been neglected, such as regular practice of physical activity.

The study presented as a limitation the use of a non-probabilistic sample. However, the use of this sample made it possible to verify that, although people with diabetes are adherents to the drug treatment, which reflects the culture instituted, they still need more clarification about the disease and empowerment to manage their health.

More studies need to be done in order to deepen knowledge on the subject, using other instruments, assessment parameters and different populations. DM is a complex disease that involves different aspects of the individual's life. The consequences of decompensated diabetes are even more devastating, as they may limit the functional capacity of the individual; studying the factors that can improve adherence are fundamental. Understanding the complexity of these factors can contribute to the improvement of health strategies for this population. In addition, studies such as this can contribute to the construction of knowledge on the subject, as well as to support

new ways of offering health care to people with DM and new public policies of attention to this population.

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