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ORIGINAL ARTICLE

SELF-CARE ACTIVITIES IN PEOPLE WITH TYPE 2 DIABETES MELLITUS*

ATIVIDADES DE AUTOCUIDADO EM PESSOAS COM DIABETES MELLITUS TIPO 2

ACTIVIDADES DE CUIDADO PERSONAL EN PERSONAS CON DIABETES MELLITUS TIPO 2

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ABSTRACT

Objective: to analyze the frequency of self-care activities in people with type 2 diabetes mellitus and their association with clinical control. ***Method:*** this is a quantitative, analytical study in five Family Health Strategies, with 86 individuals. Data was collected using a form and a Diabetes Self-Care Activity Questionnaire. Data was analyzed using IBM® Statistical Package for Social Sciences (SPSS), version 20.0. *Results:* it was observed, considering self-care, a satisfactory result for the ingestion of sweets and medication use and unsatisfactory for the other activities. A low percentage of smoking was found. The frequency of self-care activities was significantly associated with time since diagnosis, type of medication and capillary blood glucose. *Conclusion:* the results were led to an unsatisfactory self-care profile that influences poor clinical control of T2DM. It was also allowed to evaluate the importance of self-care in the metabolic control of DM2, serving as a subsidy for the development of coping strategies. ***Descriptors***: Diabetes Mellitus Type 2; Self Care; Nursing; Behavior; Control; Activities of Daily Living.

RESUMO

Objetivo*:** analisar a frequência de atividades de autocuidado em pessoas com Diabetes Mellitus tipo 2 e sua associação com o controle clínico. ***Método*:** trata-se de um estudo quantitativo, analítico, em cinco Estratégias Saúde da Família, com 86 indivíduos. Coletaram-se os dados por meio de um formulário e um Questionário de Atividades de Autocuidado com o Diabetes. Analisaram-se os dados por meio do programa *Statistical Package for the Social Sciences* (SPSS) IBM®, versão 20.0. ***Resultados*:** observou-se, considerando o autocuidado, resultado satisfatório para a ingestão de doces e uso de medicamentos e insatisfatório para as demais atividades. Encontrou-se baixo percentual de tabagismo. Associou-se a frequência de atividades de autocuidado significativamente com tempo de diagnóstico, tipo de medicação e glicemia capilar. ***Conclusão: conduziram-se os resultados a um perfil de autocuidado insatisfatório que influencia no mau controle clínico do DM2. Permitiu-se, além disso, avaliar a importância do autocuidado no controle metabólico do DM2, servindo como subsídio para o desenvolvimento de estratégias de enfrentamento. ***Descritores*:** Diabetes Mellitus tipo 2; Autocuidado; Enfermagem; Comportamento; Controle; Atividades Cotidianas.

RESUMEN

Objetivo: analizar la frecuencia de las actividades de autocuidado en personas con Diabetes Mellitus tipo 2 y su asociación con el control clínico. ***Método:*** este es un estudio cuantitativo y analítico en cinco Estrategias de Salud Familiar, con 86 individuos. Los datos se recopilaron mediante un formulario y un Cuestionario de Actividades de autocuidado como Diabetes. Los datos se analizaron utilizando el programa *Statistical Package for the Social Sciences* (SPSS) IBM®, versión 20.0. ***Resultados***: se observó, considerando el autocuidado, un resultado satisfactorio para la ingestión de dulces y el uso de medicamentos e insatisfactorio para las otras actividades. Se encontró un bajo porcentaje de tabaquismo. La frecuencia de las actividades de autocuidado se asoció significativamente con el tiempo desde el diagnóstico, el tipo de medicamento y la glucosa en sangre capilar. ***Conclusión:*** los resultados condujeron a un perfil de autocuidado insatisfactorio que influye en el control clínico deficiente de la DM2. También se permitió evaluar la importancia del autocuidado en el control metabólico de DM2, sirviendo como un subsidio para el desarrollo de estrategias de afrontamiento. ***Descriptores***: Diabetes Mellitus Tipo 2; Autocuidado; Enfermagem; Conducta; Control; Actividades Cotidianas.

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INTRODUCTION

Diabetes Mellitus (DM) is known to be a chronic condition that occurs when there are high blood glucose levels because the body cannot produce enough insulin or use it effectively. Due to lack of insulin or the inability of cells to respond to insulin, it leads to high blood glucose levels - the hyperglycemia - which is the hallmark of diabetes.[1]

The DM is classified as: type 1; type 2; Gestational diabetes (GD) and specific types of diabetes. DM2 is accounted for as 90% to 95% of all diabetes. These include individuals who have relative insulin deficiency and have peripheral insulin resistance. The risk of developing T2DM increases with age, lack of physical activity, obesity, poor diet, smoking and family history.[2]

For 2017, the prevalence of adults with diabetes was estimated at 7.2% to 11.3%, with 8.8% in people between 20 and 79 years of age. Brazil was ranked 4th in the ranking of the top ten countries for the number of people with diabetes (aged 20 to 79 years), with estimates ranging from 11.4% to 13.5% (11.5 million people) in people in this age group and projected 20.3 million people by 2045 if current trends persist.[1]

From the perspective of controlling DM and preventing complications, the patient's knowledge and execution of self-care activities in their treatment should be involved. These include: glycemic index monitoring; adequacy of food; foot care and physical activity. However, it is necessary to consider that adequate follow-up of the prescribed treatment is difficult to accept due to the need for discipline and incorporation of new habits.[3]

Self-care was defined in 1980 as the practice of activities that are performed by the patients themselves in which they must take responsibility for their own actions, aiming at achieving improvements in quality of life, health and well-being.[4]

It is understood that identifying users who, over time, are unable to perform self-care to maintain diabetes control is an important strategy so that measures can be taken to minimize the onset of complications of the disease.[5]

Several studies have evaluated self-care activities in people with diabetes and their importance for the clinical management of diabetes.[3,6-9] Thus, the importance of these investigations is considered, as they allow to evaluate the impact of these activities on the control and prevention of complications of T2DM and serve as a subsidy for the development of coping strategies.

OBJECTIVE

- To analyze the frequency of self-care activities in people with type 2 diabetes mellitus and their association with clinical control.

METHOD

It is a quantitative study of the analytical type. The population consisted of 303 people with DM2, of both sexes, registered in five Family Health Strategies (FHS). It was obtained, after calculating for the finite sample and based on the prevalence of DM2 in adults, that the number of people who should be investigated would be 101. However, due to difficulties in accessing households, the impossibility of and some people's refusal to participate, that the final sample consisted of 86 people.

The following inclusion criteria were established: being over 18 years old and having a diagnosis of T2DM of at least two years. The following exclusion criteria were listed: not knowing how to read and write; being pregnant and have physical or cognitive limitations apparent or stated by the respondent.

Sociodemographic and clinical characteristics, collected from a form, and self-care activities were assessed using the Diabetes Self-Care Activity Questionnaire (DSCA).

DSCA was translated and adapted to Brazilian culture by Michels and collaborators from the original instrument Summary of Diabetes Self-Care Activities Questionnaire (SDSCA), developed to systematically assess adherence to self-care activities in people with diabetes. The DSCA has six dimensions and fifteen items: general nutrition; specific food; physical activity; blood glucose monitoring; foot care and medication use, plus smoking assessment.[10]

The self-care activities were analyzed considering the frequency of adherence in the seven days prior to data collection. Scores were varied from zero (least desirable) to seven (most desirable). In the items “eating high fat foods” and “eating sweets”, the values and their scores corresponded to the number of days of the week in which the participants did not eat these foods, that is, they performed self-care. Activities performed with frequency from zero to four days were considered unsatisfactory and satisfactory with frequency between five and seven days, as recommended in the literature.

Data was collected for the investigation from February to May 2018, in a private room of the health facilities, in the days of medical or nursing consultation for diabetics and also through home visits.

The data was arranged and organized for spreadsheet analysis of the Excel 10.0 software and processed in the IBM® Statistical Package for Social Sciences (SPSS) version 20.0. Continuous

variables such as frequency, percentage, mean, standard deviation, minimum and maximum were described; and categorical as frequency and percentage.

The Kolmorov Smirnov test was used to assess the normal distribution of the sample. In order to verify the association between means, Student's t-tests and ANOVA were used. We considered as statistically significant for all statistical analyzes those with p <0.05.

The research project was approved by the Research Ethics Committee (REC) with human beings of the Federal University of Piauí under opinion No. 2,389,110. Those who agreed to participate in the study were asked to sign the Free and Informed Consent Term (FICT) in two copies, which provided detailed information on the study.

RESULTS

Female individuals (70.9%), aged 50 to 69 years (61.6%), with a mean age of 57.9 ± 11.8 years, self-reported as brown (57.0%), married or in a stable union (64.0%), retired (52.3%), with average schooling of 8.8 ± 5.5 years of schooling; the average monthly income was R $ 2,458.00, with 26.7% of respondents belonging to the economic class D-E.

Clinical characterization, frequency of self-care activities and smoking data are presented in tables 1, 2 and 3, respectively.

Table 1. Characterization of the sample regarding clinical data. Peaks (PI), Brazil, 2018.

Variables	N	%	Minimum	Maximum	Average ± SD*
Drug treatment					
None	7	8.1			
Oral antidiabetic	70	81.4			
Insulin	2	2.3			
Association	7	8.1			
Time of diagnosis (years)			2	30	8.6 ± 7.1
2 – 10	63	73.3			
11 – 20	18	20.9			
> 20	5	5.8			
Capillary blood glucose			94	594	235 ± 98
Good glycemic control	19	22.1			
Poor glycemic control	67	77.9			

*SD: Standard deviation.

Table 2. Self-care activities. Peaks (PI), Brazil, 2018.

DSCA Items	Adherence (frequency of days of the week) 0 - 4		5- 7		
	N	%	N	%	Média ± DP*
1 Follow healthy diet	49	57	37	43	3,8 ± 2,5
2 Follow food guidance	50	58,1	36	41,9	3,4 ± 2,6
3 Eat five or more servings of fruits and/or vegetables	40	46,5	46	53,5	4,7 ± 2,1
4 Eat red meat and/or whole milk derivatives	61	70,9	25	29,1	3,3 ± 2,1
5 Ingest sweets	9	10,5	77	89,5	6,1 ± 1,2
6 Perform physical activity for at least 30 minutes	60	69,8	26	30,2	2,7 ± 2,4
7 Perform specific physical activity	60	69,8	26	30,2	2,4 ± 2,5
8 Evaluate Blood Sugar	84	97,7	2	2,3	0,7 ± 1,3
9 Assess blood sugar the recommended number of times	83	96,5	3	3,5	0,5± 1,2
10 Examine your feet	59	68,6	27	31,4	2,8 ± 3,0
11 Examine inside shoes before wearing them	63	73,3	23	26,7	2,3 ± 2,9
12 Dry the spaces between the fingers after washing them	45	52,3	41	47,7	3,7 ± 3,2
13 Take medications as recommended**	4	4,7	75	87,2	6,6 ± 1,4
14 Take insulin injections as recommended***			9	100	7,0 ± 0,0
15 Take the recommended number of diabetes pills****	8	9,3	70	81,4	6,4 ± 1,7

*SD: standard deviation. ** Seven people did not use any kind of medicine. *** Nine people used insulin. **** One person did not use oral antidiabetic drugs.

Table 3. Descriptive characteristics related to smoking. Picos (PI), Brazil, 2018.

DSCA Items Smoking	Frequency n	%	Average ±SD*
1 Smoke			
Yes	3	3.5	
No	83	96.5	
2 Number of cigarettes per day			16.7 ± 5.8
3 When did you smoke your last cigarette			
Never smoked	49	57.0	
Over two years ago	30	34.9	
One or two years ago	2	2.3	
Four to 12 months ago	1	1.2	
In the last month	1	1.2	
Today	3	3.5	

*SD: Standard deviation.

It is evident that the dimensions "medication" and "blood glucose monitoring" had the highest and lowest scores, respectively, and the only activities considered as satisfactory were: eating sweets (89.5%); take medications as recommended (87.2%); take insulin injections as recommended (100%) and take the appropriate number of diabetes pills (81.4%). Smoking was reported by only 3.5% of the sample.

It is found that people with longer diagnosis and who used insulin had better self-care scores for blood glucose monitoring (p = 0.007 and p = 0.001, respectively) (Table 4).

Table 4. Relationship between time since diagnosis, type of medication used and self-monitoring blood glucose frequency. Picos (PI), Brazil, 2018.

Variable scores	Blood glucose self-monitoring Average ± SD*	#p-value
Time of diagnosis (years)		
1 – 10	0.5 ± 1.0	0.007
11 – 20	0.6 ± 1.1	
> 20	2.2 ± 2.0	
Type of medication		
None	0.0 ± 0.0	0.001
ADO	0.5 ± 1.0	
Insulin	2.2 ± 1.0	
Association	1.9 ± 1.8	

* SD: Standard deviation. # ANOVA test; significant p value <0.05

In the sample studied, it was observed that the respondents who had good glycemic control had better scores for the dimensions of self-care, general diet and physical activity. These individuals followed a healthy diet and professional orientation more frequently during the week than those with poor glycemic control (p = 0.025). Therefore, physical activity was performed during the last seven days more frequently than those with poor glycemic control (p = 0.001) (Table 5).

Table 5. Relationship between glycemic control and frequency of self-care activities. Picos (PI), Brazil, 2018.

Variables	Good glycemic control	Poor glycemic control	
	Average ± SD*	Average ± SD *	p-value
General diet	4.6 ± 2.0	3.3 ± 2.3	0.025
Fruits and/or vegetables	5.1 ± 2.0	4.6± 2.3	0.398
Red meat and whole milk derivatives	3.0 ± 2.1	3.3 ± 2.2	0.605
Sweets	6.0 ± 1.2	6.1 ± 1.2	0.762
Physical activity	4.1 ± 2.3	2.1 ± 2.2	0.001
Blood Glucose Monitoring	0.7 ± 1.3	0.6 ± 1.2	0.663
Take medication as recommended	6.9 ± 0.2	6.5 ± 1.6	0.062

*SD: Standard deviation. # Student's t-test; significant p value <0.05.

DISCUSSION

The sociodemographic and clinical characterization of this study was shown to be similar to other studies conducted with people with DM.[6,7] The diagnosis of more frequent DM in women can be explained by the greater demand of this public for health services. DM has been associated with older age, low education and income.[3,11-3] Poor eating habits, increased frequency of sedentary lifestyle and overweight are associated with the increased prevalence of diabetes in the population.[14]

The respondents reported following a healthy diet, eating advice given by a professional, in less than four days a week, resembling findings from other studies.[3,15] It was found, in a study that used the original version of the instrument used in this research to assess self-care in T2DM, that 53.1% of the sample studied did not follow nutritional guidelines of a health professional.[9]

The World Health Organization (WHO) recommends a daily intake of at least 400 grams of fruits and vegetables (equivalent to five servings of these foods).[15] This recommendation was followed by respondents less than five days a week, similar to data found by other authors.[6,14-6-7]

Eating a wide variety of nutritious foods such as legumes, fruits, cereals, lean meats, poultry, fish, eggs, milk and dairy products (skimmed) and reducing the intake of saturated fat, alcohol and salt/sugar added for the purpose of controlling glycemic levels and maintaining adequate weight in individuals with DM.[18]

Self-care for the intake of red meat and/or whole milk derivatives was unsatisfactory, as well as findings from other investigations.[3,6] A recent survey of risk factors and protection against chronic diseases by telephone survey (Vigitel) showed that the consumption of these foods by the Brazilian population is still inadequate.[19]

In people with DM, the consumption of foods containing free sugars should be limited because they are directly related to the increase in glycemic levels, besides being associated with overweight and obesity.[13] Self-care for the consumption of sweets by people with DM has been shown to be satisfactory from several investigations using this assessment tool.[3,6,14-7]

In addition, another important recommendation for people with DM is daily exercise to improve metabolism, lipid profile, lower blood pressure and improve glycemic control.[1,2,13] However, it is cautioned that this self-care was unsatisfactory both in this research and in several other.[6,15-6,20]

In a study conducted with 225 patients with DM, 62% with DM2 reported that they did not exercise regularly and, when evaluating the report of the reasons for non-adherence to this self-care activity, stated: “because of discomfort”, “because of medical restriction” and “for not liking”.[21]

These results are confirmed by the study that presents the frequencies for the Brazilian capitals of lifestyle indicators: high consumption of meat with excess fat; recommended low consumption of fruits and vegetables; practice of physical activity in free time below the recommended.[22]

Recommendations for the frequency of self-monitoring of blood glucose are provided by the Brazilian Society of Diabetes for patients on insulin treatment; however, there is no consensus for DM2 patients treated with oral antidiabetic agents alone - treatment used by most investigated patients. Moreover, most of them reported not having received professional guidance on the frequency of this practice, which may explain the low scores for this self-care activity.[13]

It can also be observed that the individuals who used insulin and who had longer diagnosis time were the ones who performed this self-care more often, confirming that it is a self-care that varies according to the needs of each patient and the recommendation of their realization, as demonstrated in the literature.[6,14-7]

According to another study, a significant relationship was found between longer diagnosis time and greater adherence to drug treatment.[7] Lower drug use among younger adults is possibly related to a more recent diagnosis and less advanced disease, situations that favor control by non-pharmacological measures, such as diet and physical activity; [11] in addition, those with longer diagnosis time may have more information about the disease, which makes them safer and more confident about the proposed treatment.[23]

Self-care for medication use was the most satisfactory.[17] It is reiterated, however, that drug treatment alone is not sufficient to ensure good glycemic or metabolic control, so non-drug treatment is of considerable importance in this outcome. This is confirmed in recent research by obtaining the following results: Participants with high drug therapy scores had a mean glycated hemoglobin (HbA1c) value of 9.73%, indicating poor glycemic control. Moreover, these participants also obtained low scores for the items to eat five or more portions of fruits and/or vegetables, to eat foods rich in fat and in the physical activity domain.[20] It leads to poor glycemic control due to non-adherence to physical activity, as well as drug treatment and eating plan.[7,24]

Hyperglycemia, if left unchecked over time, can cause damage to various organs of the body, leading to the development of life-threatening health disabilities and complications such as cardiovascular disease, neuropathy, nephropathy and eye disease, leading to retinopathy and blindness.[1] Satisfactory self-care has been achieved through the adoption of healthy lifestyle

habits through balanced diet, regular physical activity, moderation in alcohol use and smoking cessation, which are the foundation of T2DM treatment.[25]

Most respondents mentioned not smoking, and a significant amount had never smoked or quit, as evidenced in other studies.[6,8,14-6-7] In Brazil, there has been a reduction in tobacco use resulting from public anti-smoking policies, such as warning messages on packaging, an increase in product taxes and a ban on advertising.[26]

These results reaffirm the evidence from a study developed with data from the 2013 National Health Survey: individuals with diabetes prioritize ending harmful habits, such as eating sweets, using tobacco and alcohol, adopting new habits/ practices that bring health benefits and contribute to glycemic control, such as regular physical activity or adequate consumption of fruits and vegetables.[27]

Regarding foot care, the frequency of poor self-care adherence with scores lower than those of several studies was found.[3,6,14-7,28] It is emphasized that to prevent foot complications, some care is essential, such as: daily examination of the feet for edema, erythema, callus, discoloration, cuts or perforations, and excessive dryness; maintaining hygiene, careful drying, especially between the toes, cutting nails straight, without leaving tips, and not wearing tight shoes.[29]

CONCLUSION

It was revealed that the sample had unsatisfactory self-care for most activities. It was noted that drug treatment alone was not able to guarantee clinical control, while non-drug treatment, especially adequate food and regular physical activity showed greater effects for this control.

It is considered that some items of the DSCA question the respondent very subjectively, such as the item follow healthy diet, so you can ask "what is healthy eating for each of the respondents?". It is believed that the item to examine inside the shoes before wearing them is also a caveat: some people reported not wearing shoes or not doing it every day.

As a limitation in this study, there are few studies that related adherence to self-care activities with clinical and metabolic control in people with DM. Therefore, it is suggested that future studies be conducted to fill knowledge gaps related to this theme and to understand effectively the influence of these practices on DM treatment.

Relevant research was shown since its results can be generalized, as they corroborate the findings in the current literature. The data presented here allowed us to evaluate the importance of self-care in the metabolic control of DM2, serving as a subsidy for the development of coping strategies.

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