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ORIGINAL ARTICLE

Adherence of people with type 1 diabetes to self-care activities

Adesão das pessoas com diabetes tipo 1 às atividades de autocuidado

Adherencia de las personas con diabetes tipo 1 a las actividades de autocuidado

Moura, Bernardo[1]; Vidal, Diogo Guedes[2]; Ferreira, Margarida[3]

ABSTRACT

Objective: to assess the adherence of people with type 1 diabetes to self-care activities. **Method**: quantitative study with 60 diabetics, from Porto, Portugal. The Self-Care Scale for Diabetes in its version translated and adapted to Portuguese was applied in January to February 2019. **Results**: respondents are mostly young (36.7%), employed (63.4%), female (73.3%), married (36.7%), high educated (60.0%) and diagnosed with recent diabetes (50.0%). Most have good mean adherence to self-care behaviors related to food (5.0), blood glucose monitoring (6.8), foot care (5.6) and medication (6.4). Regarding physical activity (2.6) and smoking, 73.3% of respondents say they smoked a cigarette in the last seven days lower adherence was identified. **Conclusions**: there is a need to develop educational programs to ensure a higher adherence to healthy lifestyles. **Descriptors**: Nursing care; Healthy lifestyle; Pharmacology; Treatment adherence and compliance; Diabetes complications

RESUMO

Objetivo: *avaliar a adesão de pessoas com diabetes tipo 1 às atividades de autocuidado.* ***Método:*** *estudo com 60 diabéticos, do Porto, Portugal. Foi aplicada a Escala de Autocuidado para Diabetes traduzida e adaptada para o português em janeiro a fevereiro de 2019.* ***Resultados:*** *os inquiridos são maioritariamente jovens (36,7%), empregados (63,4%), mulheres (36,7%), casados (36,7%), com ensino superior (60,0%) e com diagnóstico recente de diabetes (50,0%). A maioria tem boa adesão aos comportamentos de autocuidado relacionados à alimentação (5,0), monitoramento da glicemia (6,8), cuidados com os pés (5,6) e medicamentos (6,4). Em relação à atividade física (2,6) e ao tabagismo, 73,3% dos entrevistados afirmam que fumaram um cigarro nos últimos sete dias foi identificada menor adesão.* ***Conclusões:*** *há necessidade de desenvolvimento de programas educativos que garantam uma maior adesão aos estilos de vida saudáveis.*

Descritores: *Cuidados de enfermagem; Estilo de vida saudável; Farmacologia; Cooperação e adesão ao tratamento; Complicações do diabetes*

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RESUMEN

Objetivo: *evaluar la adherencia de las personas con diabetes tipo 1 a las actividades de autocuidado.* ***Método:*** *estudio cuantitativo con 60 diabéticos, de Porto, Portugal. Se aplicó la Escala de Autocuidado de la Diabetes y se tradujo al portugués en enero a febrero de 2019.* ***Resultados:*** *los encuestados son principalmente jóvenes (36,7%), empleados (63,4%), mujeres (36,7%), casados (36,7%), con estudios superiores (60,0%) y con diagnóstico reciente de diabetes (50,0%). La mayoría tiene una buena adherencia al autocuidado relacionado con la alimentación (5,0), control de la glucosa en sangre (6,8), cuidado de los pies (5,6) y medicación (6,4). En cuanto a actividad física (2,6) y tabaquismo, 73,3% de los encuestados dice haber fumado un cigarrillo en los últimos siete días, se identificó menor adherencia.* ***Conclusiones:*** *hay necesidad de desarrollar programas educativos que aseguren una mayor adherencia a los estilos de vida saludables.*
Descriptores: *Atención de enfermería; Estilo de vida saludable; Farmacología; Cumplimiento y adherencia al tratamiento; Complicaciones de la diabetes*

INTRODUCTION

Diabetes mellitus (DM) appears as one of the main public health problems and is one of the most frequent chronic disorders in the world.[1] According to the Portuguese Directorate-General for Health[2] and the American Diabetes Association[3] there are four types of etiologically distinct diabetes: type 1 diabetes, type 2 diabetes, gestational diabetes and other specific types of diabetes. Type 1 DM is a chronic disease characterized by deficient insulin production and requires daily administration of insulin, which was previously known as insulin-dependent, juvenile or childhood-onset.[4] This condition represents approximately 5 to 10.0% of all cases of diabetes and is characterized by the destruction of beta cells in the pancreas that leads to an absolute deficiency of insulin and may be of autoimmune or idiopathic origin. This type of diabetes is more common in young people, however, it can occur at any age.[5]

World Health Organization[6] alludes that there are currently around 422 million people with diabetes worldwide. In addition to economic costs, diabetes causes costs that are difficult to quantify, such as pain, anxiety, inconvenience and loss of quality of life, causing great impact on the lives of people and their families.[7-8] DM caused 5,1 million deaths worldwide in 2013. More than 79 thousand children and young people developed type 1 diabetes. Over 21 million births were affected, during the period of pregnancy, by maternal hyperglycemia (84.0%) for gestational diabetes and 16.0% for diabetes before pregnancy.[9] It is estimated that the prevalence of diabetes has reached about 422 million people.[6]

Portugal is no exception, where diabetes has a significant burden with increasing prevalence.[10] In 2015, type 1 diabetes in children and young people aged 0-19 years, reached 3327 individuals, corresponding to 0,16% of the Portuguese population in this age group. In 2016, according to the Ministry of Health, the number of cases of type 1 diabetes, from 0 to 18 years, reached 1472 cases of females and 1707 of males.[9] In 2013, the estimated prevalence of diabetes in the Portuguese population aged between 20 and 79

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years old (7,8 million individuals) was 13.0%.

DM control depends not only on the self-management of the therapeutic regime but also on the adoption of self-care behaviors that contribute to the reduction of mortality and morbidity. People with type 1 diabetes mellitus often require self-care. Self-care is a regulatory function that allows people to perform, on their own, activities aimed at preserving life, health, development and well-being. Conceptualizing self-care and establishing self-care needs and activities are fundamental to understanding how people can benefit from the nurse's intervention. The active participation of the person with diabetes, through self-care activities, is essential to control of diabetes, since the person and their family members are responsible for more than 95.0% of the treatment.[11–14] The International Classification for Nursing Practice[15] defines that self-care is characterized by an activity performed by the individual to deal with what is necessary to remain functional and capable of dealing with basic human and intimate needs and the respective activities of daily living.

Adherence is characterized as an action aimed at promoting well-being, recovery and rehabilitation, following certain guidelines and not deviating from them, engaging a set of actions or behaviours.[15] For the World Health Organization[4] adherence is a multidimensional phenomenon determined by the interaction of five factors, called "dimensions", in which the factors related to the patient are only a determinant. These five factors are as follows: health system and staff, socioeconomic factors, patient-related factors, disease-related factors and treatment-related factors. According to the Portuguese Nurses Order[16] better adherence is related to patient safety, resulting in better health results and lower health care costs. Good adherence improves the effectiveness of interventions, promotes health and improves patients' quality of life and life expectancy. There is no single way to promote adherence to treatment regimes. To improve adherence, several educational and behavioral strategies must be combined, with reminders and reinforcement of the patient's behavior. Besides, healthcare providers (healthcare professionals) can investigate patients' preferences, simplifying dosing regimens, etc.

This study aimed to assess the adherence of people with type 1 diabetes to self-care activities. As specific objectives, the following were outlined: a) To characterize the group of adult people with Type 1 Diabetes in the city of Porto, Portugal concerning sociodemographic variables; b) Identify the patterns of adherence of the adult with Type 1 Diabetes to self-care activities.

METHODS

It is a descriptive and quantitative study developed in the city of Porto, a coastal city in the north of Portugal. A snowball sample of 60 people, of both sexes, with non-institutionalized diabetes, participated in the study. Data collection took place from January 1 to February 28, 2019, using the Self-Care Scale for Diabetes in its version translated and adapted to Portuguese in

Portugal[17] consisting of the first part - Questionnaire for sociodemographic and clinical characterization and the second part - Scale of Self-Care Activities in People with Diabetes (SDSCA), with the following inclusion criteria: being 18 years old or older, living in the city of Porto, Portugal and having Type I Diabetes Mellitus.

The SDSCA version used in this study consists of 7 dimensions: general food, specific food, physical activity, blood glucose monitoring, foot care, medication and smoking habits. The assessment is parameterized on days of the week, on a scale of 0 to 7, which corresponds to the behaviors that the person adopted in the week before the questionnaire, with zero being the least desirable situation as it means that the person surveyed in the last 7 days did not present the desired behavior concerning the question addressed and 7 the most favorable, as it means that the respondent presented, every day of the week before the questionnaire, the desirable behavior. The questions addressed in the dimension of specific feeding must be recorded by inverting the score: 0 = 7; 1 = 6; 2 = 5; 3 = 4; 4 = 3; 5 = 2; 6 = 1; 7 = 0. The level of adherence, by dimension, is obtained by the sum of the items and divided by the number of them, and the results (averages) are expressed in days per week.

All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of University Fernando Pessoa having been approved in 8 January September 2019 (no specific reference assigned, date acting as reference identification). The data were treated using the SPSS program in its 25th version.

The selected scale presents a good reliability (α=0.76) to ensure the high quality of this study. The questionnaire was pre-tested with a sample of ten patients with type 1 diabetes to ensure that all questions were easily understood and correctly answered.

RESULTS

The study sample consists of 60 participants (Table 1). Prevailed female (73.3 %), aged between 20 and 29 years (40.0 %), with an mean age of 38 years, married (36.7 %), with university degree (60.0%), employed (63.4%) and diagnosed with DM less than 9 years ago (53.3 %).

The second part of the Questionnaire corresponds to the SDSCA and made it possible to characterize the adherence to self-care activities by the respondents, in the different domains, namely:

General food (questions 1 to 3),
Specific food (questions 4 to 8),
Physical activity (questions 9 and 10),
Blood glucose monitoring (questions 11 and 12),
Foot care (questions 13 to 15),
Medication (questions 16 to 18),
Smoking habits (questions 19 to 21);

Regarding adherence to “General food”, it appears that, on average, the individuals in the sample, in the 7 days before the questionnaire, adhered 5.0 days (± 1.2) to a healthy diet (Table 2).

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In the parameter of adherence to "Specific food", it appears, on average, that the individuals in the sample, in the 7 days before the questionnaire, adhered to 1,5 days (± 1.0). In the item "Physical activity", it appears, on average that the individuals in the sample, in the 7 days before the questionnaire, adhered 2.6 days (± 0.5). As for adherence to "Blood glucose monitoring", it appears, on average that the individuals in the sample, in the 7 days before the questionnaire, adhered 6.8 days (± 0.2). In "Foot Care", there is adherence, on average, of 5.6 days (± 1.3), in the 7 days before the questionnaire. In the parameter of adherence to "Medication", it appears, on average, that the individuals in the sample, in the 7 days before the questionnaire, adhered to 6.4 days (±0.4). From the domain of "Smoking habits", we can see that 73.3 % of respondents say they smoked a cigarette, even though only one passes, in the last 7 days before completing the questionnaire.

Table 1: Sample sociodemographic characterization, Porto, Portugal, 2019. N=60

Variables	N (%)
Sex	
Male	16 (26.7)
Female	44 (73.3)
Age group	
20-29	22 (36.7)
30-39	18 (30.0)
40-49	8 (13.3)
50-59	8 (13.3)
60-69	2 (3.3)
70-79	2 (3.3)
Marital status	
Married	22 (36.7)
Divorced	4 (6.7)
Single	18 (30.0)
De facto union	14 (23.3)
Widowed	2 (3.3)
Education level	
1st Cycle of Basic Education	6 (10.0)
High school	14 (23.3)
Professional course	4 (6.7)
University degree	36 (60.0)
Occupation	
Unemployed	14 (23.3)
Employed	38 (63.4)
Retired	8 (13.3)
Diabetes diagnosis time (years)	
0-9	32 (53.3)
10-19	10 (16.7)
20-29	10 (16.7)
30-39	8 (13.3)
Total	60 (100)

Source: People with type 1 diabetes (*n*=60), Porto, Portugal (2019).

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Table 2: Characterization of the self-care activity scale in people with diabetes, Porto, Portugal, 2019

Items and factors	Mean	Standard Deviation
General food		
How many of the last seven days did you eat healthy?	5.4	1.1
On average, in the last month, how many days a week did you follow an eating plan recommended by a health professional?	3.6	2.6
How many of the last seven days did you eat five or more pieces of fruit and / or vegetables (including soup)?	5.9	1.8
Mean	5.0	1.2
Specific alimentation		
How many of the last seven days did you eat red meat (cow, pig, kid)?	2.8	1.8
How many of the last seven days did you eat bread with your lunch or dinner meal?	1.6	2.6
In how many of the last seven days did you mix two or more of the following foods with your meal: rice, potatoes, pasta, beans?	2.2	2.3
In how many of the last seven days did you consume more than a glass, of any type of alcoholic beverage, at your main meals?	0.7	1.2
How many of the last seven days did you sweeten your drinks with sugar?	0.3	1.3
Mean	1.5	1.0
Physical activity		
How many of the last seven days did you practice physical activity for at least 30 minutes? (Total minutes of continuous captivity, including walking)	3.0	2.3
How many of the last seven days did you participate in a physical exercise session (such as swimming, walking, cycling) in addition to the physical activity you do at home or as part of your work?	2.3	2.3
Mean	2.6	0.5
Blood glucose monitoring		
How many of the last seven days did you evaluate your blood sugar?	6.9	0.6
How many days a week have you been recommended to check your blood sugar by your doctor, nurse or pharmacist?	6.6	1.4
Mean	6.8	0.2
Foot care		
How many of the past seven days have you examined your feet?	4.2	3.0
How many of the last seven days have you washed your feet?	6.6	0.9
How many of the last seven days did you dry the spaces between your toes after washing them?	6.0	2.1
Mean	5.6	1.3
Medicines		
How many of the past seven days did you take, as directed, your diabetes medications?	6.0	2.4
How many of the past seven days have you had insulin injections as directed?	6.8	1.3
How many of the past seven days have you taken the indicated number of diabetes pills?	6.5	1.7
Mean	6.4	0.4

Source: People with type 1 diabetes (*n*=60), Porto, Portugal (2019).

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DISCUSSION

The data presented are inconsistent with previous studies[18-19] in which the surveyed population is mostly male. The results corroborate with the bibliographic review carried out which states that type 1 diabetes mellitus is more frequent in young individuals.[5] However, when comparing the data with another study we conclude that the majority of type 1 diabetics are in the age group of those over 70 years of age, with only 3 respondents in the age group below 40 years of age.[18] More than a quarter of people between 60 and 79 years of age have diabetes, with an increase in prevalence with age.[9] The results related to the diagnosis are in line with the literature.[20]

Regarding the item related to Other pathologies associated with diabetes, it appears that 56.7% do not have other pathologies, 43.3% already have other pathologies associated with diabetes, which is still quite significant. The quality of life of people with diabetes has a negative impact on the social dimensions, on the burden and the embarrassment of having diabetes, and this pathology ends up interfering in family and social life.[21]

There are seven essential self-care behaviors for people with diabetes: healthy eating, being physically active, monitoring capillary blood glucose, taking the prescribed medication, good problem-solving skills, ability to acquire healthy lifestyle habits and acquire reduction behaviors risk.[22] According to a study were the SDSCA was applied, it was found quite similar results, with greater adherence to healthy behaviors, in terms of food.[18]

Promoting healthy eating behaviors is one of the main objectives. The main objectives of feeding a person with diabetes are to obtain good control of blood glucose, cholesterol, triglycerides, blood pressure and achieve and maintain a healthy weight, to prevent the onset of complications from diabetes.[23] According to the same source, some fats are very harmful to health, which increase bad cholesterol (LDL), favor weight gain and increase the risk of cardiovascular diseases, such as saturated fats that we find in red meats, sausages, fatty cheeses, cream, among others. This association reiterates the importance of including fibre-rich foods in your meals, such as brown bread or rye, or oat flakes, legumes (grain, beans, peas, broad beans, lentils) as they allow you to lower blood glucose after meals, reduce cholesterol levels, increase satiety and help the bowel to function properly.

Given the results presented, and adherence to self-care activities in the context of physical exercise, it is important to promote these habits, at least, for at least 30 minutes daily. Physical exercise is done regularly and, for a minimum of 30 minutes daily, will contribute to the reduction of visceral fat, and thus to decrease insulin resistance, that is, improving the action of insulin in the body.[23]

Concerning the adherence level to the blood glucose monitoring, this study results revealed a trend aligned with previous one.[24] When assessing capillary blood glucose, people with diabetes can

see the effect that meals or physical activity have on their blood sugar levels.[23] The frequency with which blood glucose tests should be carried out must be adapted to the type of diabetes, the therapy, the age and the person's abilities, but it can also vary with lifestyle changes - factors related to diet, physical activity or even working hours. The tight control of blood glucose levels, through regular monitoring of blood glucose levels, was associated with the reduction of infection.[25]

Although there is a very high adherence to self-care related to foot care, the importance of empowering these people to the importance of self-surveillance of the feet is evident in the future to prevent late complications. Regarding foot care, previous study presents less adherence to this self-care.[24] Although there is such a high adherence to this self-care, adherence to drug therapy is a key component of the self-management of diabetic patients.[26]

In the control of DM, the lack of treatment adherence is a challenge often faced in clinical practice by professionals from health institutions.[27] Thus, it is necessary to look for intervention strategies that aim to increase the levels of adherence to the therapeutic regime in people with diabetes. The results presented in our study, demonstrate that the participants have better adherence to this self-care than the respondents in the previous study.[27]

CONCLUSION

The present study aimed to assess the adherence of people with type I diabetes mellitus to self-care activities. The results showed a profile of participants, mostly young, employed, female, married, with university degree and with a recent diabetes diagnosis.

Regarding adherence to self-care, we found that respondents have a higher rate of adherence regarding blood glucose monitoring and self-care that has fewer adherences is physical exercise. About smoking habits, it was found that the majority of respondents currently smoke and, of these, the majority smoked a cigarette in the week before the study. It was found that most diabetics have good adherence to self-care behaviors related to food in general, specific food, blood glucose monitoring, foot care and medications. However, regarding physical activity and smoking habits, the behaviors of adherence to this self-care still reach very low values, reflecting a weak adherence to these behaviors.

Despite not being a representative sample, these study findings revealed that the prevalence of younger people with type 1 DM is increasing, which may be a result of the lack of physical exercise and balance diet, and the adoption of sedentary lifestyles. This can compromise their quality of life and reduce drastically their potential years of life. Through these clues, some recommendations regarding health education measures aiming at holistic care for people with type 1 DM must be developed to prevent complications.

Some limitations must be pointed out: the sample was selected in a non-probabilistic way, by a snowball. Also, the sample size is reduced, which implies the risk of not being representative, leading to results that cannot be generalized.

To promote higher adherence to self-care activities regarding patients with type 1 DM, the quality of nursing care provided is pivotal. However, the provision of high-quality care is strongly dependent on the organizational capacity of health professionals with the necessary training so that they can respond to these demands.

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