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SELF-CARE OF USERS WITH TYPE 1 DIABETES IN A BASIC HEALTH UNIT AUTOCUIDADO DE USUÁRIOS COM DIABETES TIPO 1 EM UMA UNIDADE BÁSICA DE SAÚDE AUTOCUIDADO DE USUARIOS CON DIABETES TIPO 1 EN UNA UNIDAD BÁSICA DE SALUD

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ABSTRACT

Objective: to identify the self-care activities of insulin-dependent patients of a Basic Health Unit. **Method:** descriptive exploratory study with a quantitative approach, carried out with 46 patients. Authors applied the Diabetes Self-Care Activities Questionnaire that addressed the therapeutic adherence. **Results:** the mean age of participants was 62 years old, family income from one to three minimum wages and with hypertension and dyslipidemia. **Conclusion:** there was low adherence to blood glucose self-monitoring, to the practice of physical exercise and good acceptance of the use of medication. There is evidence that, at the time of nursing care, the information is understood, however it is not followed further. **Descriptors:** Diabetes Mellitus; Self-Care; Nursing.

RESUMO

Objetivo: identificar as atividades de autocuidado dos pacientes insulíndependentes de uma Unidade Básica de Saúde. **Método:** estudo descritivo exploratório, com abordagem quantitativa, realizado com 46 pacientes. Aplicou-se o Questionário de Atividades de Autocuidado com o diabetes que abordou a adesão terapêutica. **Resultados:** a média de idade dos participantes foi de 62 anos, renda familiar de 1 a 3 salários mínimos e com hipertensão arterial e dislipidemia. **Conclusão:** demonstrou-se baixa aderência à automonitorização glicêmica, à prática de exercícios físicos e boa aceitação ao uso da medicação. Há evidências que no momento do atendimento de enfermagem a informação é compreendida, entretanto não seguida posteriormente. **Descritores:** Diabetes Mellitus; Autocuidado; Enfermagem.

RESUMEN

Objetivo: identificar las actividades de autocuidado de los pacientes insulíndependientes de una Unidad Básica de Salud. **Método:** estudio descriptivo exploratorio, con enfoque cuantitativo, realizado con 46 pacientes. Se aplicó el Cuestionario de Actividades de Autocuidado con la diabetes que enfocó la adherencia terapéutica. **Resultados:** la media de edad de los participantes fue de 62 años, renda familiar de 1 a 3 salarios mínimos y con hipertensión arterial y dislipidemia. **Conclusión:** se demostró baja adherencia al auto monitoreo glicémica, a la práctica de ejercicios físicos y buena aceptación al uso de la medicación. Hay evidencias que en el momento del atendimento de enfermera la información es comprendida, sin embargo no seguida posteriormente. **Descriptores:** Diabetes Mellitus; Autocuidado; Enfermería.

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INTRODUCTION

Diabetes mellitus (DM) appears as a major public health problem and is one of the most common chronic disorders in the world.¹ It is estimated that the prevalence of diabetes has reached 120 million people in 2000 and that half of sufferers ignore their diagnosis. The forecast for 2025 accuses the daunting global figure of 300 million diabetics.²

Type 1 diabetes or insulin-dependent diabetes is the destruction of the β cell with absolute deficiency of insulin, of autoimmune or idiopathic nature, and the type 2 diabetes or non-insulin-dependent ranges from predominant insulin resistance with relative insulin deficiency to the predominantly secretory defect, with or without resistance, presenting other specific types of diabetes, as functional genetic defects of β cell; genetic defects in insulin action; disease of the exocrine pancreas; endocrine diseases; induced by drugs and chemicals; infections and other genetic syndromes often associated with diabetes and gestational diabetes.²⁻⁴

So, the number of patients with diabetes mellitus has grown increasingly due to increased life expectancy and unhealthy habits. We can cite as an example the sedentary lifestyle, poor diet and obesity as the main factors to explain the increasing prevalence of diabetes.^{2,3}

According to data from the Ministry of Health, through the research Vigitel 2011 (Risk Factors Surveillance and Protection for Chronic Diseases through Telephone Survey), for the first time, the percentage of people overweight exceeds more than half of the Brazilian population. Results have shown that, among men, overweight reaches 54% and among women 48%. This data interferes with the rates of patients with diabetes mellitus.³

The average incidence of diabetes in the adult population, over 18 years old, is 5.2%, which represents 6,399,187 of people who confirmed to have the disease, considering that the prevalence increases with age, reaching 18.6% of the population over 65 years old.^{3,4}

The number of hospitalizations and deaths from this disease in the Unified Health System (SUS) has increased by 10% between 2008 and 2011, from 131,734 hospitalizations to more than 140,000. The Ministry of Health Information System on Mortality, in 2009, recorded 52,104 deaths from this disease. In 2010, that number rose to 54,542. With this increase, there has been a decrease in the

last three years, between 2005 and 2007, and the percentage of increase was 16%, and between 2008 and 2010, the number dropped to 7.5%³⁻⁵.

The treatment of DM, which will later be called only as diabetes, aims to maintain metabolic control and basically comprises non-drug therapies, related to changes in behavior associated with healthy eating and to physical activity.⁵ Metabolic clinical control includes glycemic control through glycated hemoglobin and fasting plasma glucose measurements, as well as the control of blood pressure and plasma lipids. These two latter conditions often coexist in people with DM1, constituting factors for cardiovascular disease.⁶

One way to reduce the consequences of the disease is education to diabetic insulin-dependent patients. The education goals for these patients are to improve metabolic control, prevent acute and chronic complications and improve the quality of life at a reasonable cost.⁷

It is extremely important that the multidisciplinary team has the role to explain to the patient that diabetes has no cure and the disease is now part of their world. Thus, patients need to know the controls needed to maintain a good quality of life. However, some are reluctant to abandon habits acquired when living without the disease.^{7,8}

One of the motivating factors for changing habits previously acquired is the fear of the complications that diabetes can bring to their life. They feel fear of being limited, dependent on someone or something; therefore, some people have clearly expressed their fear of amputation, of blindness, of the possibility of losing their ability to come and go, to take care of themselves.⁸ The verbalization of loss, not only as an impossibility inherent in the human condition but enhanced by the possible complications of diabetes, is present in reported speech in articles published in the area.⁹

Regarding nursing, there is a need to see the patient in a holistic manner, not only as a person who is ill, but paying attention to how that person is reacting. Experiencing a chronic disease with which they will have to live in their day to day in the long term requires emotional support in the comprehensiveness of health services. The successful treatment is achieved when diabetes is controlled and new living habits are acquired, which reflects the improved quality of life, far from fears.

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Nursing can clarify the pathology and how it can help in the treatment.^{9,10}

The nurse plays a key role as a member of multidisciplinary teams working in education for self-care of diabetic patients. Orienting the patient and their family constitutes a crucial task. However, the joint action of the various professionals involved (nurse, doctor, nutritionist, physical trainer) is a decisive strategy for a successful treatment.¹⁰

Through this study, we aim to gain knowledge about self-care of insulin-dependent patients. It is hoped that this study will provide data to enable generating new health promotion strategies, as well as interventions in the working methods of the teams that could contribute to a better adherence to treatment.

This study does not bring direct benefits to the user. However, learning about the self-care strategies of these patients may enable thinking of health education strategies that may concern this population directly, bringing future benefit to them. This work had the guiding question: what are the self-care activities of a group of patients with type 1 DM and what is their level of adherence to treatment?

This study aims to identify the self-care activities of insulin-dependent patients of a Basic Health Unit.

METHOD

This is a descriptive exploratory study with a quantitative approach, performed in a Basic Health Unit in Curitiba with insulin-dependent patients. This Unit composes the Cajuru Sanitary District and covers the neighborhoods Capão da Imbuia and Tarumã. According to the Ministry of Health 2010 census, it has a population of approximately 23,171 patients, and 65% are dependent on SUS.

We selected 46 participants with definitive registration in the unit, over 18 years old, of both sexes, diagnosed with type 1 diabetes and who agreed to participate by signing the Informed Consent Form.

The survey was conducted in the basic health unit with direct approach to users who spontaneously sought the unit services and also through home visits. They were interviewed individually through a

questionnaire they filled themselves, without interference of the researcher. After this step, questionnaires were placed in an unidentified envelope for later analysis.

The data collection period covered the first week of September until the second week of October 2013. We used the Diabetes Self-Care Activities Questionnaire (DSAQ), which was developed to assess, in a systematic way, adherence to self-care activities in the diabetic patient. This scale has been translated and validated to Portuguese by Michels *et al.*⁶

The DSAQ is considered easy to use and cost-controlled instrument with adequate test-retest reliability and validity evidence and sensitivity to change. It is an excellent option for assessing self-care for diabetes. Once viewed as something private and subjective, it can be now measured accurately.

This questionnaire is composed of six dimensions and 15 items: general nutrition, specific diet, physical activity, blood glucose monitoring, foot care and medication. It also has three items that mention "smoking". The evaluation is parameterized on weekdays, on a scale from 0 to 7, corresponding to the behavior for the last seven days. In this evaluation, zero is the least desirable situation, and seven is the most desirable, except the dimension specific nutrition, in which the values are reversed. Smoking habits are considered separately because they are coded differently, with a valuation of the mean number of cigarettes smoked per day.⁸

Data collection of demographic, socioeconomic and clinical profile of participants was made through the e-health system, of that basic health unit.

The study follows the ethical precepts of the Brazilian legislation and was approved by the Research Ethics Committee under the CAAE (Certificate of Presentation for Ethical Consideration) number 17159013.9.0000.0095.

RESULTS

Results are presented in tables and discussed later. To characterize 46 people with type 1 diabetes in the study, the demographic and socioeconomic aspects are described below.

Table 1. Demographic and socioeconomic aspects Curitiba, Brazil, 2013.

Age group (years)	n
< 40 years old	3
40 - 49 years old	2
50 - 59 years old	10
60 - 69 years old	13
>70 years old	18
Gender	n
Female	23
Male	23
Schooling	n
Complete primary education	7
Incomplete primary education	19
Complete High School	17
Incomplete High School	3
Income /Minimum Wage	n
1 - 3	27
>3	19

Table 2. Adherence to items of the Diabetes Self-Care Activities Questionnaire. Curitiba, PR, Brazil, 2014.

Items of the DSAQ	0 to 4 days No. (%)	5 to 7 days No. (%)	Average (days)
1. Following a healthy diet.	19 (41%)	27 (58%)	4.54
2. Following nutritional guidance.	25 (54%)	21 (45%)	3.56
3. Eating five or more portions of fruits and / or vegetables.	21 (45%)	25 (54%)	4.69
4. Eating red meat and / or milk derivatives.	12 (26%)	34 (73%)	5.56
5. Eating sweets.	44 (95%)	2 (4%)	1.08
6. Performing physical activity for at least 30 min.	36 (78%)	10 (21%)	2.60
7. Perform specific exercise.	39 (84%)	7 (15%)	2.0
8. Assessing blood sugar.	15 (26%)	31 (73%)	5.32
9. Assessing blood sugar in the recommended number of times.	24 (52%)	22 (47%)	3.67
10. Examining feet.	17 (36%)	29 (63%)	4.67
11. Examining the inside of shoes before putting them on.	23 (50%)	23 (50%)	3.71
12. Drying between toes after washing the feet.	6 (13%)	40 (86%)	6.19
13. Taking diabetes medicaments as recommended (insulin or tablet).	3 (6%)	43 (93%)	6.76
14. Taking insulin injections as recommended.	2 (4%)	44 (95%)	6.76
15. Taking the indicated number of tablets for diabetes.	8 (17%)	35 (76%)	5.97

DISCUSSION

With respect to age, the study showed that only three are younger than 40 years old. And 22 patients correspond to the age group between 40 and 49 years old. The age group 50-59 accounted for 10 users. A significant portion of the subjects were in the age group 60-69 and over 70 years old, equivalent to 31 participants. Seven respondents had completed primary education and 17 had completed high school. Regarding family income, 27 participants received from one to three minimum wages and 19 participants received more than three salaries.

It is observed that the increase in life expectancy in Brazil has increased the incidence of DM, since this disease tends to increase with increasing age.¹⁰

The low education level of the participants may significantly interfere with adherence to treatment of DM1. Many users do not understand the disease and the complications it can cause, which constitutes a major challenge for the multidisciplinary team.¹¹ Data from IBGE 2011have shown that the percentage of male adults with a diagnosis of

type 1 diabetes in the South region is 4.3%. So, we can conclude that the male predominance is smaller than in women, who show percentage of 6.4%.¹² This date was not evidenced in the proposed research, since there was equivalence between the sexes.

Respondents referred following a healthy diet on average 4.54 days a week. For 19 participants, there was the same quantitative data for zero to four days of the week. 27 users could keep that habit for 5 to 7 days a week. When asked about following the nutritional guidance, this percentage declined to 54%, averaging only 3.56 days a week.

The study showed an average of adherence of 4.64 days with regard to the intake of five or more servings of fruit or vegetables, and 21 of respondents did so only from 0 to 4 days per week, and 25 users from 5 to 7 days.

On the issue of intake of red meat and / or milk derivatives, the study showed that most participants maintained this habit for an average of 5.56 days in the week. In the item that refers to intake of sweets, the average days of the week dropped to 1.08, and 95% (44) related only consuming from 0 to 4 days of the week.

Nutritional therapy plays a key role in the prevention of T1D, in the management of existing disease and in preventing the development of complications of this chronic disease. Weight control is a key factor in reducing the risk of comorbidities because fat tissue offers resistance to insulin.¹⁷ There must be sufficient supply of fibers, since the soluble fibers may interfere with the absorption of dietary glucose, providing lower postprandial blood glucose peaks.⁵

The Brazilian Society of Diabetes explains that saturated fatty acids, like those from meats and whole dairy products, increase the plasma concentration of LDL and should therefore be restricted to values below 7% of the total calories of the diet.⁵

Among the most mentioned comorbidities, there was hypertension and dyslipidemia, with 60.8% and 28.2%, respectively. The association between dyslipidemia and hypertension is frequent, and together they account for over 50% of the attributable risk of coronary artery disease. The non-drug approach, with changes in lifestyle, dietary care and physical activity, is essential for the prevention of cardiovascular risks.¹⁸

Foods containing sucrose should be avoided to prevent sharp fluctuations in blood glucose. Patients should not be encouraged them to eat sweets, but be helped to eat them so that there is no harm for their health.¹⁰ They must be advised about the use of sweeteners, since it is safe when taken in adequate amounts. Dietary food can be recommended, but with careful, as it may have high calorific value for its fat content or other components.¹³

Adherence to physical activities for at least 30 minutes has shown a low rate of only 2.60 days a week. In the sample, 36 users reported performing only in 0 to 4 days a week, and 7 participants walk in 5 to 7 days a week. On specific physical activities, 39 perform in only 0 to 4 days a week, which proved to be significant evidence of low rates, that can somehow attributed to the age of the patients, who had an average of 62 years old.

There are countless benefits attributed to regular physical activity, and in the case of DM1 carriers, it is worthy mentioning, besides the improvement of physical fitness, the increased glucose uptake by the muscle, the reduced blood pressure and the improved lipid profile and endothelial function.¹⁷

Moreover, patients with type 1 diabetes who do physical exercise have a higher probability of suffering from hypoglycemia, which may occur immediately after exercise or even hours after. A person with poorly

controlled type 1 diabetes, without enough insulin to maintain blood glucose levels close to normal, when subjected to physical exertion, may have the hyperglycemic condition worsened. Thus, it is not recommended to practice exercise in insulin-deficiency situations, as it can enhance the metabolic decompensation.¹⁷

Glucose monitoring is essential for these activities to be successful, and must be carried out before, during (when the length is more than 45 minutes) and after exercise.¹⁷

When asked about assessing blood glucose, the study shows that participants perform this procedure for an average of 5.32 days in the week. For 31 participants, control was carried out five to seven days a week and for 15, it was done zero to four days a week.

Blood glucose tests can be performed through traditional laboratory techniques, by clinical laboratories or through home self-monitoring, which can provide a very realistic view of glycemic control level throughout the day.¹⁷

For patients taking insulin, it is recommended to conduct another blood glucose test during the night for assessing a possible hypoglycemia. The American Diabetes Association believes that self-monitoring allows evaluating the individual response to therapy and adjustments in drug and non-drug therapy for carriers of both type 1 and type 2 DM.¹⁷

Usually, these patients are advised by doctors on the amount of times and schedule they should perform the dextrose, but this does not always occur in the prescribed manner. Through reports from users, many confirm that they do not perform the tests as many times as recommended by their doctors. The study showed that there is not much patient adherence to this medical recommendation, because participants perform the test as many times as recommended only in 3.67 days a week, on average, and 52% perform it only in 0 to 4 days a week, and 47% in 5 to 7 days. The guidance referred by users is the only provided by the doctor. There was no reference to the monitoring of nursing.

Nursing in public health has the specificity of caring for the human being as a whole, in the context in which they live, coordinating the team to develop activities of disease promotion, prevention, recovery and rehabilitation. Nurses in public health work for long time in contact with the community and with the problems experienced by these individuals, and therefore have a better view

of reality. This factor contributes to the development of strategies to mitigate problems.

Health education is as one of the most decisive interventions in the accession process to treatment and in the practice of self-care and should be maintained in the routine of health services. It is through them that we can start a link exchange of experiences between patients and multidisciplinary team, besides providing the team data on most frequently asked questions, difficulties encountered, as well as a better insight into the education strategies that best apply to this community.

Often this reality is not experienced in the Basic Health Unit. There are contradictions between the health education activities that are proposed of those that actually happen. The nurse faces many challenges in the mission of implementing health education activities and routines, sometimes due to the workload, that makes it impossible to analyze the flows, statistic data and demands and to organize intervention strategies, or due to the small team that makes it difficult to maintain the services provided without interruption while providing activities.

On the evaluation of the feet, 63% reported performing this inspection every day, and the average was 4.67 days a week. When the item relating to the examination of the inside of shoes before them putting them on was approached, 50% of patients confirmed doing it. The most confirmed activity on foot care was the item of drying between toes after washing the feet, by 86% of patients, who performed it five to seven days a week, with an average of 6.19 days in the week.

The diabetic foot includes a set of syndromes in which neuropathic, ischemic and infectious disorders can cause tissue damage and, consequently, ulcerations and amputations. The foot ulcers and amputations of lower limbs are the leading causes of morbidity and disability in people with diabetes.¹⁶

About 85% of amputations of the lower extremities related to diabetes are preceded by an ulcer on the feet. The most important factors related to the development of ulcers are peripheral neuropathy, superficial injuries and foot deformities. Many people with diabetes lose sensitivity and may develop deformities and do not realize repetitive trauma or surface cracks in the skin or damages in the feet. The spectrum of foot lesions varies in different regions of the world due to socioeconomic conditions, standards of care and quality of shoes. Many ulcers can be

prevented by regular inspection of the feet, access to specialized care and proper footwear. Shoes that are unsuitable, new and only recent use or lack of shoes are the main traumas that cause of foot ulcers. However, even today, most diabetic patients do not receive inspection or regular care.¹⁹

To prevent foot ulcers, some key recommendations should be followed, such as evaluation of symptoms of peripheral arterial disease, deformities, use of the materials as monofilament by the nurse and palpation of peripheral pulses. In addition to discussing the importance of foot care in health programs, educational support according to individual needs and the risk of ulcers and amputation must be offered.¹⁰

The items regarding the insulin injections and the indicated number of tablets had adherence during 6.76 days a week, and in this same item showed the number of diabetics (6%) who only takes insulin.

It is assumed that the knowledge about the medication is directly related to the understanding of the use of medicines, which interferes with the use and optimizes the control of diabetes mellitus. Glycemic control, verified by examining the glycosylated hemoglobin (HbA1c), is performed by less than half of patients with DM.¹⁵

It is estimated that only 1/3 of the patients adhere to the treatment and many patients do not even start it by considering it ineffective or leave due to the side effects. The nurse has a duty to educate patients about the drug therapy, its effectiveness and also address the trade name of the drug, dose and schedule of administration, its mechanism of action and possible side effects.⁴

When asked about smoking, only five participants responded affirmatively. The study showed that 18 patients are former smokers who stopped smoking, on average, nine years ago.

Smoking increases the concentration of fat in the abdominal level, reduces insulin sensitivity and increases the glucose concentration after an oral glucose tolerance test. The risk can be related to the number of cigarettes per day and duration of the habit. Estimates from the Physicians' Health Study suggest that in the United States, where approximately 25% of population smokes, about 10% of cases of diabetes may be attributed to smoking.¹⁴

CONCLUSION

Diabetes results in significant changes in the relationship the patient has with their own body and the world around them. The conflict between the desire to eat and the urgent need to contain it is always present in their everyday life, and to improve self-care with diabetes, it is necessary that the multidisciplinary team is engaged and willing to perform educational actions to obtain a low rate of risk for serious complications.

The expansion of learning can foster the acquisition of healthy habits in the family. Thus, education on diabetes must be focused on the multidisciplinary team, in the family system, in the patient and in the social facilities. Planning of actions and professional training can improve the quality of care provided to users. When the patient finds this support network, there is greater effectiveness in the educational process.

The nursing staff should provide better conditions for access to the activities of health promotion and for this purpose, they should rethink their working practices, their methods and purposes, as this will provide greater interaction between users and the proposals of programs, thus generating better treatment adherence and self-care. And with tertiary prevention of morbidities, such as examining the foot sensitivity tests and others.

In order to meet the objective of the study, the Diabetes Self-Care Activities Questionnaire showed that, in the item nutrition, more than half of participants reported following a diet, but 70% eat red meat and dairy products frequently. For most patients, the examination of blood glucose at home is very important, as they perform it most days of the week. On physical activity, the study showed that adherence is very low, with an average of only 2.6 days per week.

The issue of diabetic foot should be approached more often, since research has shown that many are unaware of the importance of this practice. The item medication showed some relevance for participants as they adhere to this activity most days of the week.

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