Cogitare Enfermagem

ORIGINAL ARTICLE

CONTACT TIME IN EDUCATIONAL INTERVENTIONS AND SELF-CARE OF INDIVIDUALS WITH DIABETES MELLITUS

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ABSTRACT

Objective: To identify the relationship between the contact time in educational interventions and self-care variables in users of the Family Health Strategy service with diabetes mellitus.

Method: Quasi-experimental before and after study. Data were collected between August and December 2019 at two different times: on the first day (initial moment) and on the last day (final moment) of an educational intervention. In the analysis, paired t-student was used to compare the mean scores in the initial and final moments.

Results: The participants were 57 people living with type 2 diabetes mellitus. Analysis showed improvement in the self-care scores between the initial moment (4.15) and the final moment (4.81), with statistical significance (p <0.001).

Conclusion: A positive relationship was identified between the contact time in educational interventions and self-care variables in users of the family health strategy (ESF) service who live with diabetes mellitus.

DESCRIPTORS: Diabetes Mellitus; Nursing; Health education; Self-care; Nursing care.

TIEMPO DE CONTACTO CON INTERVENCIONES EDUCATIVAS Y AUTOCUIDADO DE PERSONAS CON DIABETES MELLITUS

RESUMEN:

Objetivo: verificar la relación entre el tiempo de contacto con intervenciones educativas y las variables de autocuidado en usuarios con diabetes mellitus. Método: estudio casi experimental del tipo antes y después. Se obtuvieron los datos entre agosto y diciembre de 2019, en dos momentos distintos: en el primer día de intervención educativa (momento inicial) y en el último día (momento final). En el análisis se utilizó el t-student para comparar los promedios de las puntuaciones en el momento inicial y en el momento final. Resultados: participaron del estudio 57 personas que presentaban diabetes mellitus tipo 2. El análisis demostró crecimiento en las puntuaciones de autocuidado entre el momento inicial (4,15) y el momento final (4,81), con significancia estadística (p<0,001). Conclusión: se verificó una relación positiva entre el tiempo de contacto con intervenciones educativas y las variables de autocuidado en usuarios acompañados en la estrategia de salud de la familia que presentan diabetes mellitus.

DESCRIPTORES: Diabetes Mellitus; Enfermería; Educación en Salud; Autocuidado; Cuidados de Enfermería.

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INTRODUCTION

Diabetes Mellitus (DM) is a major public health problem due to the development of chronic macrovascular and microvascular complications, characterized by long-term damage and which is often irreversible, requiring permanent and comprehensive management by the Unified Health System (SUS) [1]. The Brazilian Diabetes Society estimated that by 2040 more than 642 million people will be living with the disease, and about 75% of these cases will occur in developing countries [2].

It is estimated that the increase in the prevalence of this chronic condition is due to obesity, factors related to a sedentary lifestyle, changes in dietary habits, and the increased life expectancy of the population [3]. Thus, diabetes must be recognized as a disease that requires changes in behavior, and for that, education, skills development, counseling and support from the health care team are necessary. Behavioral changes are part of complex processes impacted by several factors, such as knowledge, beliefs, attitudes, skills, motivation and social support [4].

In view of the aforementioned, strategies must be implemented to empower users of the ESF program with diabetes, so that they can actively participate in their own care, as studies have found low treatment adherence rates among users of the ESF program, mainly due to the need for long-term self-care [5]. Therefore, the education of diabetic individuals is now considered a social process, consisting of all influences that can modify the behavior of the individuals [6]. It is believed that the greater the degree of knowledge of individuals about the disease and treatment, the greater the likelihood that they will adopt positive attitudes in self-management of health [7].

Studies found that health education is effective in reducing complications, improving foot care, increasing adherence to dietary and physical activity habits, blood glucose monitoring, and medication use [5,8]. Moreover, scientific evidence demonstrates that adherence to proper self-care in diabetes collaborates to maximize therapeutic success, mediating satisfactory results, such as improving metabolic control, quality of life, anxiety and depression, and reducing cardiovascular risk [9].

It should be noted that the investigation of these facts will make it possible to determine the effectiveness of health education activities, and will enable users to properly manage their health condition. Thus, the theme proposed is relevant and its main contribution concerns the establishment of the relationship between contact time in educational interventions and self-care variables, since there are few studies on this subject.

Thus, the present study aims to identify the relationship between users' contact time in educational interventions and self-care variables in diabetes mellitus.

METHOD

Quasi-experimental before and after study. The population consisted of users assisted by the Family Health Strategy (ESF) of a municipality located in the Curimataú of the state of Paraíba, northeastern Brazil, who had a medical diagnosis of DM, were over 18 years of age and participated in at least one health educational activity. Each educational intervention lasted at least 120 minutes. Individuals with cognitive impairment were excluded. Convenience sampling technique was used to select the participants.

Intervention activities were developed in three meetings with the following themes:

guidance on eating habits and physical activity, use of oral medications and insulin therapy, and foot care. The contents covered in the actions were addressed with the use of active methodologies, to stimulate reflection and the participation of users in their self-care.

Data were collected between August and December 2019. The users answered a sociodemographic questionnaire at the initial moment (Mi) and the Summary of Diabetes Self-Care Activities Questionnaire, which measured adherence to self-care activities, administered before the beginning of each action, in order to verify the score obtained at the final moment (Mf).

The Summary of Diabetes Self-Care Activities Questionnaire was translated into Portuguese, culturally adapted to the country, and its psychometric properties were tested [10]. Items are distributed on days per week, from 0 to 7, where 0 is the least desirable situation and 7 is the most favorable situation. Adherence is satisfactory when the scores for self-care activities are greater than or equal to five. However, in some studies, self-care behavior was considered desirable when the average obtained in self-care activities was greater than four, which comprises the number of days of the week in which the self-care practice was performed [9].

The questionnaire also includes information about general diet, specific diet, physical activity, blood glucose monitoring, foot care, medication and smoking. In the items related to the specific diet dimension, which include questions about intake of foods rich in fat and sweets, the values were reversed. Assessment of smoking for the establishment of a score was not considered in this study, since it was presented by proportion of smokers, average number of cigarettes consumed and the last time the individual smoked.

To test the normality of numerical data inferential statistics was performed. Kolmogorov-Smirnov tests were used. Since distribution was normal, paired t-student was used to compare the mean scores in the Mi and Mf times. The significance level was <0.05 in all the analyzes.

The study was carried out after the project was assessed by the Research Ethics Committee, under Protocol No. 3,541,477 / 2019.

RESULTS

The study participants were 57 users that lived with type 2 DM, 41 (71.9%) of whom were female, with a mean age of 65.3 years (± 12.2). In addition, 34 (59.6%) had incomplete primary education and were retired, and the monthly family income of 48 (84.3%) was one to two minimum wages.

Regarding health conditions, the average time since diabetes diagnosis was 8.3 (± 7.6) years; 36 (66.2%) participants had high blood pressure, and retinopathy was the most frequent complication in eight of them (14.0%). It should also be noted that 30 participants have (52.6%) never smoked, and 45 (78.9%) used oral hypoglycemic drugs as a pharmacological therapy.

The self-care activities in the Mi and Mf moments are shown in Table 1. Data analysis shows that there was an average increase in scores between Mi and Mf, inferring that participation in health education activities had a positive impact on the self-care behavior of users with DM.

Table 1 – Comparison of the scores of the Summary of Diabetes Self-Care Activities Questionnaire) between the initial moment (Mi) and final moment (Mf). Cuité, PB, Brazil, 2019

Variable	Mi		Mf		p*
	m	dp	m	dp	
Summary of Diabetes Self-Care Activities Questionnaire	4,15	(0,97)	4,81	(0,81)	<0,001

*Significance of paired t test.
Source: the author (2019).

Table 2 presents the scores of the Summary of Diabetes Self-Care Activities Questionnaire between Mi and Mf, according to adherence to the questionnaire items. Drug treatment obtained the highest mean score among the items in the questionnaire, although there were no mean differences between Mi and Mf regarding the use of oral antidiabetic drugs.

Table 2 - Comparison of the scores of the Summary of Diabetes Self-Care Activities Questionnaire between the initial moment (Mi) and final moment (Mf), according to adherence to the questionnaire items. Cuité, PB, Brazil, 2019 (continues)

Variables	Mi		Mf		p*
	m	dp	m	dp	
General diet					
Adopt a healthy diet	4,56	2,94	6,12	1,59	<0,001
Adhere to dietary guidelines	2,31	3,14	5,78	1,91	<0,001
Specific diet					
Eat five or more servings of fruits and / or vegetables	5,28	2,47	5,87	1,82	0,036
Eat foods high in fat, such as red meats or foods with whole milk or dairy products	4,21	2,77	4,98	2,29	0,04
Eat sweets	6	1,75	6,01	1,73	0,936
Physical activity					
Perform physical activity for at least 30 minutes	2,28	2,74	3,24	2,58	<0,001
Perform specific physical exercise (swimming, walking, cycling), not including activities at home or work	1,63	2,31	2,63	2,41	<0,001
Blood glucose monitoring					
Monitor blood sugar	1,07	2,21	1,57	2,44	0,009
Monitor blood sugar as often as recommended by the doctor or nurse	0,98	2,2	1,22	2,2	0,005
Foot care					
Examine the feet	5,1	3,07	5,22	2,73	0,659
Check the inside of the shoes before putting them on	4,22	3,4	4,85	2,99	0,104
Medication					

Take diabetes medications as directed	6,8	0,83	6,95	0,26	0,144
Take insulin injections as recommended	7	0	6,07	1,14	<0,001
Take the recommended number of diabetes pills	6,75	0,84	6,81	0,95	0,735

* Significance of paired t test.
Source: the author (2019).

DISCUSSION

The sociodemographic and clinical characterization of the subjects corroborates the results of other studies that reported the predominance of users with type 2 DM in the elderly population, mostly female individuals with low educational level [11].

Regarding self-care skills, the mean score of the different moments increased after participation of the subjects in the self-care actions performed. This data suggests the relevance of carrying out health education activities, especially group activities, for people living with DM, as it allows participants to exchange experiences and verbalize doubts and feelings related to this condition [12].

Moreover, the difference in the mean scores from Mi to Mf showed statistical significance in some variables, such as general diet, in which participants were asked about healthy eating intake and follow-up on adherence to dietary guidance.

Adopting a proper diet is extremely important for individuals with DM, since this contributes to glucose control and has a metabolic impact on the ideal weight gain [13]. There was a significant improvement in this variable regarding adherence to a healthy diet whose values were close to seven, and are related to the days in the week in which this habit was exercised. The result was satisfactory and contrasts with those from a study with a group of diabetics in Chile. In the referred study, the subjects found it difficult to maintain a proper diet. A mean value of 4.19 was obtained [14].

Regarding specific diet, in the questions related to the ingestion of sweets and foods rich in fat, as these are considered inappropriate behaviors, the values of the numerical scale were reversed, in descending order starting from 7, with seven also considered desirable and zero unsatisfactory. Thus, despite the small difference between the first and the last meeting, both behaviors obtained values within the expected parameters.

Regarding the intake of sweets, there was no statistically significant difference between Mi and Mf, although this habit was not very frequent on a weekly basis. It should be stressed that foods rich in sugars and sweets, when consumed in excess by this population, in addition to raising blood glucose levels, contribute to increased risk for overweight, glucose intolerance and increased risk of cardiovascular complications [15].

Furthermore, the data obtained confirm the findings of a study with elderly diabetics carried out in Bahia, in which the subjects restricted only the consumption of sweets/sugars to control blood glucose, disregarding all other carbohydrates that are sources of glucose, as they found that high adherence to the restriction of sweets was sufficient [16].

The results from another study contrast with those from the present study, as although the individuals ate fruits and vegetables for at least five days a week, they also consumed sweets and foods rich in fat almost every day [17].

We stress that individuals with DM should eat foods that help the body metabolize

carbohydrates more effectively, such as vegetables, fruits and whole grains. Regarding proteins, priority should be given to protein sources low in saturated fats, since these fats must be strictly controlled. So, the ideal is to eat unsaturated fat, as this is related to cholesterol control[18].

Regarding physical activities, there was an improvement in the average number of days performed, though insufficient, since this practice was not performed even three days a week. Regarding physical activities, there was an improvement in the average number of days on which physical exercises were performed. However, it was insufficient, as this physical practice was performed less than three days a week. The inactivity of this population can be justified by the old age of the respondents, which makes mobility difficult.

Also, physical activity was not routinely practiced. These data corroborate a study that found that the average number of days of physical activity performed by the participants was 2.62[19]. These data are also similar to those from a study with 65 subjects who lived with type 2 DM, in which the individuals practiced physical exercises on zero to three days. They said that this was due to discomfort and lack of guidance from a health professional[20].

Physical exercise is an important component in DM treatment and control, because it reduces the daily need for insulin, as glucose is degraded during this practice. Moreover, it prevents the development of complications and assists in the control of body weight. Another relevant factor is the psychological benefits of physical exercise, which provides a feeling of emotional health and well-being[21].

There was also slight improvement in blood glucose monitoring. Nevertheless, the low performance of capillary blood glucose was due to the fact that few respondents had a glucometer, and most services available only performed the test once a week per patient. A study found that only 38.9% of respondents underwent capillary blood glucose monitoring because they did not have a blood glucose test device[22]. The importance of monitoring blood glucose to control blood glucose levels should be stressed. It is possible to adjust insulin dosage to control one's glucose needs, in addition to avoiding hypoglycemia and hyperglycemia[23].

As for foot care, there was an improvement regarding inspection of feet and use of appropriate footwear. Nevertheless, the data were not statistically significant as there was no difference in the mean scores from Mi to Mf. This can be explained by the fact that most respondents did not perceive loss of sensation in the foot region. In another study, the authors obtained a mean score of 5.5 days for this item, which was considered adequate[9].

Adherence to foot self-care behavior is a key measure to reduce complications such as diabetic foot: these are ulcerations in the lower limbs caused by peripheral neuropathy and vasculopathy. In addition to the causes already mentioned, other factors may contribute to the onset of diabetic foot ulcer, such as time of diagnosis, age, delay and/or non-adherence to treatment[24].

Regarding medications, although there are no differences in the mean scores from Mi to Mf for the use of oral antidiabetics, and despite the decrease in the mean scores from Mi to Mf for the use of insulin therapy, the data are considered satisfactory, since they all have mean scores higher than six, which demonstrates good performance of this practice, when assessed on a weekly basis.

Data from another study also showed a positive result regarding the use of insulin by the subjects. However, the mean score for oral medications was only 4.5[25]. Other findings show a satisfactory mean score regarding oral medications, and a very low mean score for appropriate use of insulin[26].

Drug treatment obtained the highest mean score among the variables. This can be explained by the fact that people living with DM find it difficult to adhere to changes in lifestyle, because they rely more in the pharmacological therapy[19]. Drug therapy, in

addition to other benefits, also plays a significant role in the treatment of DM. The use of oral antidiabetics causes the body to produce and use insulin, as well as slows down intestine's absorption of starchy foods [21].

In turn, insulin therapy allows strict control of this hormone in the body, reducing the risk of development of long-term complications, improving quality of life and consequently increasing survival [27]. Despite not being closely related to type 2 DM, insulin therapy can also be indicated in these patients, aiming to reduce overload in kidney and liver in the metabolism of glucose and renal excretion of oral antidiabetic agents, as well as in glucose control when drug treatment and dietary measures are insufficient [28].

Some limitations of this study are related to the low adherence of users and the continuous participation in health education actions. However, in addition to the scientific contributions mentioned in this study, the data obtained enable the development of new strategies and studies capable of raising the awareness of people living with diabetes to participate in health education groups and actions, and adhere to self-care measures, consequently improving their quality of life.

CONCLUSION

This study provided knowledge about the positive relationship between the contact time in educational interventions and variables of self-care in users of the ESF service who live with diabetes mellitus. Thus, there were some significant improvements in adherence to self-care skills based on participation in health education activities.

Despite the positive impacts, some behaviors were still insufficient, not reaching a favorable mean score regarding weekly practice, e.g. in physical activities and monitoring of capillary blood glucose. Thus, strategies and public policies that enable users to adhere to these measures should be created.

The results of this study demonstrate the effectiveness of the actions performed, contributing to the improvement of nursing care and to scientific progress. It is also hoped that these findings will support a better planning of care for users living with DM and will make professionals aware of the importance of health education for adherence to self-care skills.

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