Self-care of people with diabetes *mellitus* who have lower limb complications

Autocuidado das pessoas com diabetes *mellitus* que possuem complicações em membros inferiores

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Abstract

Objective: Evaluate self-care activities of people with diabetes *mellitus* who have ulcers and/or amputations in lower limbs.

Methods: Cross-sectional study utilizing a quantitative approach developed in secondary and tertiary health units. The research instrument for the evaluation of self-care was the Diabetes Questionnaire of Self-Care Activities, previously validated for the Portuguese language. This questionnaire was applied to a convenience sample consisting of 35 people.

Results: Desirable self-care was noted i.e. good self-care related to the use of drug therapy, and the opposite for the practice of physical activities.

Conclusion: Data suggested that continuous follow-up of these individuals in caring for their ulcers can contribute to self-care activities; the presence of ulcers limits the practice of physical activity.

Resumo

Objetivo: Avaliar as atividades de autocuidado de pessoas com diabetes *mellitus* que possuem úlceras e/ou amputações em membros inferiores.

Métodos: Estudo transversal de abordagem quantitativa, desenvolvido em unidades secundária e terciária da saúde. O instrumento de pesquisa para avaliação do autocuidado foi o Questionário de Atividades de Autocuidado com o Diabetes, previamente validado para a língua portuguesa. Aplicou-se esse questionário a uma amostra de conveniência, composta por 35 pessoas.

Resultados: Observou-se um autocuidado desejável, ou seja, um bom autocuidado, relacionado ao uso da terapia medicamentosa e o contrário para a prática de atividade física.

Conclusão: Os dados sugeriram que o acompanhamento contínuo dessas pessoas, no cuidado das úlceras, pode contribuir às atividades de autocuidado; a presença das úlceras limita a prática da atividade física.

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Conflicts of interest: none to declare.

Introduction

Self-care can be defined as the practice of activities that people perform independently to maintain life, health and well-being. The development of this practice is directly related to skills, limitations, values, cultural and scientific rules and the self.[1]

Self-care means no longer being passive in relation to health care and following recommendations to improve health. This has to do with personal behavior, which can influence health. It does not occur in isolation, but rather in conjunction with environmental, social, economic and hereditary factors, as well as those related to health services.[2]

The World Health Organization recommends self-care education as a way to prevent and treat chronic diseases because it encourages the person's involvement in his/her care and produces better adherence to the treatment regimen, minimizing complications and disability associated with chronic problems.[3]

Among chronic diseases, diabetes *mellitus* stands out due to its high prevalence worldwide and its potential for the development of acute and chronic complications if not treated properly. [4,5]

Among the chronic complications of diabetes, diabetic neuropathy, which is present in 50% of patients over 60 years of age, is the most important factor in the origin of structural and functional changes in the feet, producing ulcers in the lower limbs.[6,7]

A study conducted in a specialized service with patients with diabetes mellitus showed that over 50% of the study population had dermatological conditions conducive to the development of ulcers/lesions.[8]

In general, patients with diabetes *mellitus* recognize the importance of foot care to avoid complications; however, self-care is not performed correctly.[9] The presence of complications can reduce motivation for self-care, in addition to patient limitations.[10]

Considered as one of the main components in the treatment of diabetes, self-care involves a diet plan, monitoring of capillary blood glucose, the practice of physical activities, the proper use of medication and foot care.[11]

In view of the importance of self-care for the treatment and prevention of chronic complications of DM, as well as the increasing number of diabetic patients affected by complications in the lower limbs, the aim of this study was to evaluate the self-care activities of people with diabetes who have complications affecting the lower limbs.

Methods

This is a cross-sectional and descriptive study conducted in the outpatient clinics of secondary and tertiary health care units in the city of Ribeirão Preto, Southeastern Brazil, from October 2011 to May 2012.

Inclusion criteria were the following: patients with diabetes mellitus type 2, aged at least 30 years, capable of responding verbally and presence of ulcers and/or lower limb amputations.

The demographic and clinical data were collected through individual interviews with the participants using a structured instrument, as well as from the results of laboratory tests obtained by consulting the medical records.

The study instrument was the Diabetes Questionnaire of Self-Care Activities (translated version), adapted and validated for the Brazilian culture from The Summary of Diabetes Self-Care Activities Measure (SDSCA).[11,12]

Data were collected at the time of return visits to monitor patients with foot ulcers and/or lower limb amputations requiring dressing changes. The interviews lasted approximately 20 minutes.

For data analysis, the Statistical Package for Social Science (SPSS) program, version 17.0, was used. The continual variables were described by means and standard deviation (SD); the categorical variables were described using absolute and percentage frequency.

Responses were assigned values according to the frequency with which they performed a given activity on weekdays, with a variation of scores for each item ranging from zero to seven. Value zero corresponds

to a less desirable situation and value seven to a more favorable situation. In the items of the dimension "specific diet", the values are inverted (7=0, 6=1, 5=2, 4=3, 3=4, 2=5, 1=6, 0=7). Tobacco analysis was performed by means of absolute and relative frequencies of the smokers in the sample, as well as the mean number of cigarettes smoked per day.[12]

The study development followed national and international standards of ethics for research involving human beings.

Results

The study population consisted of 35 participants selected by convenience sampling.

Male predominance (62.9%) stood out in the sociodemographic data, with a mean length of education of 5.3 (SD=4.3) years (Table 1).

Table 1. Characterization of the study population

Variables	Mean (SD) or number (%)	Median
Age (in years)	60.0(SD=9.0)	60(36-78)
Gender		
Male	62.9	
Female	37.1	
Education (in full years)	5.3(SD=4.3)	4(0-15)
Schooling (categorized)		
Low (< 9 years)	85.7	
Mean (9-12 years)	2.9	
High (> 12 years)	11.4	
Time since diagnosis (in full years)	19.4(8.4)	20(2-35)
Laboratory results		
Glycated hemoglobin A_{1c}	9.4(SD=2.1)	9(6.8-15.4)
Fasting plasma glucose	142.8(SD=66.7)	131(37-280)
Type of drug treatment		
Insulin	33(94.3%)	
Oral antidiabetic agent	16(45.7%)	
Oral antidiabetic agent plus insulin	16(45.7%)	

Legend: SD - Standard Deviation

The results obtained from the questionnaire are described in table 2.

As for smoking, two people (5.7%) reported tobacco use; the mean number of cigarettes smoked per day was 0.3 (SD=1.3), the interval varying between zero and seven cigarettes.

Table 2. Items of the Diabetes Questionnaire of Self-care Activities

Items of the questionnaire	Mean (SD)
Follows a healthy diet	5.6(2.4)
Follows diet education	4.3(3.0)
Eats five or more servings of fruits and vegetables	3.8(3.2)
Eats foods high in fat	6.2(1.5)
Eats sweets	2.2(2.8)
Performs physical activity for at least 30 minutes daily	1.0(2.2)
Performs specific physical exercise (walking, swimming etc.)	0.4(1.6)
Assesses blood sugar	5.8(2.1)
Evaluates blood sugar according to recommendations	4.3(3.2)
Examines the feet	6.2(2.0)
Examines insides of shoes before putting them on	5.2(3.0)
Dries the spaces between toes after washing them	5.1(3.0)
Takes insulin injections as recommended	6.9(0.4)
Takes the prescribed number of tablets for diabetes	7.0(0.0)

Legend: SD - Standard Deviation

Discussion

The limits of this study's results are related to the cross-sectional design, which does not allow for the establishment of cause and effect relationships, but suggests interesting associations regarding self-care in patients with diabetes mellitus. A convenience sample was chosen to enlist the accessible population for a significant period of time for the clinical condition under study, and it was judged representative of the target population.

The sample was comprised mostly of male individuals (62.9%). The mean time since diagnosis was 19.4 (SD=8.4) years and 85.7% of participants had a low level of education. Studies show that the risk for developing foot ulcers is higher in males who have been diagnosed for longer than ten years.[6]

The level of education is directly related to self-care, i.e., the lower the educational level, the lower the knowledge of self-care activities.[9] Social inequality in access to and utilization of health services is related, among other factors, to the level of education of the people. Thus, people with a low level of education may have greater difficulty in gaining access to information and education regarding self-care.[13,14]

When assessing the self-care of patients with diabetes mellitus, higher scores were obtained for

activities related to drug therapy and lower scores for performance of physical activities.

Similar results were found in studies conducted in other countries using the same study instrument.[12,15] In India, a developing country, as Brazil, the results showed that 79.8% reported following recommendations related to drug therapy, while 21% reported performing the recommended level of physical activity.

A cross-sectional study conducted with a sample of 162 diabetic patients using the Diabetes Questionnaire of Self-Care Activities instrument, (short version validated for Portuguese in Brazil),[16] revealed a mean score of 4.34 (SD=1.34) (scores > 5 indicate good self-care behavior). The sample of this study, therefore, scored low in self-care in relation to diet and exercise recommendations.[17]

A study that aimed to assess the level of physical activity among 118 patients with diabetes mellitus, using the International Physical Activity Questionnaire (IPAQ), showed that 30.7% of the sample were inactive, 60.6% were active and 8.7% were very active; as for physical exercise, 83 (70.3%) reported that they did not exercise.[18]

In this study, the participants practiced physical activity a mean of 1.0 (SD=2.2) day per week, as assessed by the item "perform physical activity for at least 30 minutes"; for the item "perform specific physical exercise (walking, swimming, etc.)" the mean was 0.4 (SD = 1.6) days per week, which was similar to the data found in the literature.

However, self-care related to diet was close to desirable in the next three of the five items on the questionnaire (items "follows a healthy diet", "follows diet education" and "eats foods rich in fats" with respective means of 5.6 (SD = 2.41), 4.3 (SD = 3) and 6.2 (SD = 1.5) days per week, respectively.

Regarding drug therapy, other studies using this instrument found similar results as this one i.e., showed high scores for self-care activities that involve adherence to drug therapy.[12,15]

Care involving changes in lifestyle, such as healthy eating practices and physical activity, have been shown to be the most difficult to adhere to, unlike drug therapy to which people generally have higher adherence.[19]

Low adherence to diet recommendations may be associated with factors such as dietary restriction of long duration, interference in family habits and higher costs of healthy foods, as well as the extra time needed for food preparation.[19]

As for physical exercise, a study elucidating the reasons given by patients with diabetes mellitus not to engage in physical activity include: discouragement, discomfort, lack of time, ignorance, dislike, medical restrictions, hypoglycemia and others.[18]

On the other hand, it should be noted that the study population had ulcers and/or amputations of their lower limbs, factors that limit the practice of physical activity.

Self-care activities involving foot care obtained scores very close to desirable in the three assessment items regarding these activities. A study to evaluate the self-care ability among patients with diabetes mellitus in Mexico showed that people may have low motivation for self-care in the face of disabilities related to comorbidities and chronic complications of the disease.[10]

People who participated in this study received outpatient follow-up and guidance from the local professional team. This fact may have contributed to a high score in self-care activities involving the feet.

Thus, it is emphasized that it is important for health professionals to encourage, motivate and help develop self-care skills, particularly in light of disability and limitations related to comorbidities and chronic complications of the disease.[10]

In the sample studied, there was a low frequency of people using tobacco (5.7%). This result was a positive one, since there is evidence suggesting that tobacco use is associated with the occurrence of amputations.[6,7]

As for blood glucose self-monitoring, this is a fundamental measure of diabetes control.[20] In the present study, this activity scored a mean of five on the questionnaire, considered close to the desirable, which is seven. However, it is expected that the self-monitoring of capillary blood glucose is performed by all persons with DM, especially those using insulin and/or oral antidiabetic agents.

These data suggest that continual monitoring of people receiving care for ulcers can contribute to improved self-care activities; the low score found for physical activity reflects the current situation, which imposes limitations on the practice of exercises.

Conclusion

The self-care activities reported by patients with diabetes mellitus who have foot ulcers and/or amputations of lower limbs had scores above four, except for those related to physical activities.

Collaborations

Gomides DS contributed to the project design, drafting the article and making a critical and relevant review of its intellectual content; Villas-Boas LCG and Coelho ACM participated in the analysis and interpretation of data, drafting the article an making a critical and relevant review of the intellectual content; and Pace AE collaborated with the analysis and interpretation of data, drafting the article and making a critical and relevant review of the intellectual content, also approving the final version to be published.

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