

Adherence to foot self-care in diabetes mellitus patients

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ABSTRACT

Objective: to analyze the self-care of patients with type 2 diabetes mellitus in the Family Health Strategy in Teresina-PI. **Method:** search cross selected by simple random sampling, 331 people with diabetes mellitus. Data collection took place from August to December 2012 with the use of Self-Care Activities Questionnaire with Diabetes and structured instrument for recording information socioeconomic and guidance received by the professional nurse. **Results:** the data revealed that patients have poor adherence to blood glucose monitoring, the physical exercise and foot care, but with good adherence to the medication. Only 38.7% of the sample examined the feet of five to seven days a week. Statistically significant association between self-care activities with their feet and orientations of nurses ($p < 0,05$). **Conclusion:** that there is need to raise awareness with regard to the development of skills for self-care.

Key words: Self-Care; Feet; Diabetes Mellitus.

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INTRODUCTION

Self-care is defined by Orem as the practice of activities for the maintenance of life, health and well-being, carried out by the individual for his/her own benefit. When carried out effectively, they contribute to the maintenance of the integrity and functionality of humans⁽¹⁾. The active participation of the patient, by means of self-care activities, constitutes the main key for the control of diabetes mellitus (DM), since patients and their family members are responsible for over 95% of the treatment⁽²⁾.

Several studies discuss the low adherence to self-care activities for people with diabetes, describing possible responsible factors for the increase of this problem⁽³⁻⁴⁾. Factors of personal, social, economic and cultural order, as well as aspects related to the disease, treatment, the health system and the multidisciplinary team can influence the self-management of care⁽²⁾.

Health professionals in general, and Nursing professionals in particular, have the task of promoting better patient adherence to treatment by stimulating essential behavioral changes to effective control of the disease. A research⁽⁵⁾ shows that orientations received on self-care by the patient, about changes in their lifestyle and the skills to apply them involve prevention and reduction of complications. Foot care is one of the areas of self-care in patients with DM, as the diabetic foot is one of the main complications of the disease and is one of the constant causes for hospitalizations and amputations in these patients⁽⁶⁾.

Nursing actions are important to teach patients about appropriate care with their feet, which begins with a careful daily check. Foot self-care should include washing, drying and lubricating foot to prevent accumulation of humidity in the interdigital spaces. The selection of an appropriate footwear should also be emphasized. Health professionals should check the feet of diabetic patients annually, seeking to identify deformities and to detect 10g monofilament neuropathy, and palpate peripheral pulses (dorsalis pedis and posterior tibial)⁽⁶⁾.

In this context, we are attempting to explore the actions taken by the nurse professional in the prevention of diabetic foot complications and its impact on patient adherence to foot self-care.

This study aimed to analyze self-care of patients with type 2 diabetes mellitus in the Family Health Strategy Program in Teresina, PI.

METHODS

This is a descriptive, cross-sectional study, developed in Health Centers that integrate the Municipal Health Foundation (MHF) of Teresina-PI, where teams of the Family Health Strategy (FHS) program perform primary health care activities.

The research population included 8,709 patients with type 2 diabetes mellitus (DM2) monitored by the FHS teams of Teresina, according to data contained in the DATASUS SIS-HIPERDIA. Through a simple random sample, we selected 368 people with DM2, of which 331 were interviewed.

People with DM2 were included and registered in the SIS-HIPERDIA. They were also monitored by the same FHS team for at least 12 months. Exclusion criteria were as follows: glucose intolerance, walking difficulties of patients, diabetic people who were unable to perform self-care activities due to visual impairments, mental disorder or physical limitations.

The approach for recruiting participants was done in a private room while waiting for nursing care. At that time, we informed the research objectives for people who manifested their desire to participate or not in the study, with the assurance of anonymity. For those who agreed, we handed the Consent form in to be signed.

For data collection, we used the Summary of Diabetes Self-Care Activities (SDSCA), translated and adapted version for the Brazilian culture as a measurement strategy of self-care activities in people with diabetes. Information on the socio-economic characteristics of the sample and foot self-care promotion activities were oriented and obtained by the nurse through application of a structured instrument.

The Brazilian version of SDSCA consists of 15 items, three addressed to foot care. The evaluation is parametric in days of the week, on a scale from 0 to 7 corresponding to their behavior for the last seven days. The adherence to foot self-care activities was satisfactory when the scores were greater than or equal to five. We decided to apply it during an interview, due to the low educational level of the participants.

After collecting data, we proceeded to the detailed investigation of the data collected, using descriptive statistics using the software Statistical Package for Social Sciences for Windows (SPSS for Windows) version 18.0.

The Kolmogorov-Smirnov allowed the verification of data normality. Due to non-normal distribution, we used nonparametric Mann-Whitney test (U test) to evaluate differences between nursing orientations and SDSCA items targeted to foot care. The test was considered significant at a $p < 0.05$.

RESULTS

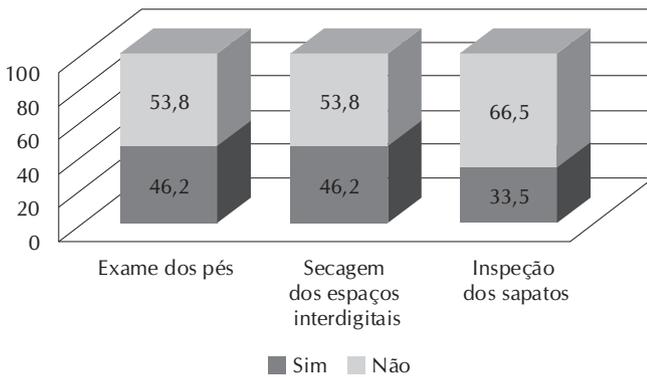
A total of 331 DM2 participated in the research. Regarding socio-economic characteristics of the sample, 223 (67.4%) were female; 203 (61.3%) were married; mean age 59.05 (SD = 9.70); and 4.6 (SD = 4.34) years of education/study. An average of 4.14 (SD = 1.97) people lived in the same household, with average monthly family income of R\$1,081.00¹ (SD = 768.98).

Regarding foot self-care promotion activities actions oriented by nurses (Figure 1), 53.8% (n = 178) of participants were unanimous in saying that they had never received orientations from the nurse about the need to check their foot and dry between toes. Also, 66.5% (n = 220) denied orientation on the inspection of shoes before wearing them.

When investigating the actions taken by the nurse during the consultation, it was found that 79.5% (263) had their foot checked during the service, and 96.4% (n = 319) underwent foot sensitivity test in the last 12 months.

1 This amount corresponds to U\$ 375,00 dollars according to the Central Bank of Brazil on February 25th, 2015

Figure 1 – Foot self-care promotion activities oriented by nurses from the perspective of people with DM2, Teresina, Piauí, Brazil, 2011



The Summary of Diabetes Self-Care Activities (SDSCA) allowed the analysis of the item “foot care” adherence which was 3.06 days, thus 38.7% (n=128) of participants did it on 5-7 days a week. However, this percentage drops to 29% (n=96) when it came to the inspection of the inside of their shoes. Concerning drying between toes after washing their foot, the study showed an average of 3.10 days, with 40.8% (n=135) of participants performing this action on the same frequency previously mentioned (Table 1).

The association between orientations provided by nurses

and adherence to SDSCA items addressed to foot care (Table 2) was possible through the usage of the nonparametric Mann-Whitney test.

The average value of the categories for the items “check feet regularly”, “inspecting the inside of shoes” and “drying between toes” was higher in the group that claims to have received the nurse’s orientations on these aspects of care, with p-value <0.05, showing a statistically significant association between these items and the orientation variables (Table 2).

DISCUSSION

Birth rates decline combined with the advance in life expectancy leads to an aging population. Consequently, this demographic transition positively affects the incidence and prevalence of chronic health problems⁽²⁾. The increase in life expectancy in Brazil has increased the prevalence of DM, since the disease tends to increase with increasing age⁽⁷⁾. Studies in diabetic patients have demonstrated not only the increased quantity of elderly but also a prevalence in females⁽⁸⁻¹⁰⁾.

Until the age of 40 years, the prevalence of obesity is similar in both genders, from this age on, the prevalence is twice as high in women when compared to men⁽¹¹⁾. This fact may explain the rise of DM among females in Teresina, since obesity is a major factor for the high prevalence of DM⁽⁶⁾.

One should also pay attention to the low educational level of the participants, since people with lower education levels

Table 1 - Adherence to Summary of Diabetes Self-Care Activities (SDSCA) items targeted to foot care. Teresina. Piauí. Brazil. 2011

SDSCA Items	Frequency (days/week)				Mean (days)
	0 a 4 days		5 a 7 days		
	n	%	N	%	
Check feet regularly	203	61.3	128	38.7	3.06
Inspecting the inside of shoes before wearing them	235	71.0	96	29.0	2.24
	196	59.2	135	40.8	3.10

Table 2 - Association between nursing orientation and adherence to SDSCA items addressed to foot care. Teresina. Piauí. Brazil. 2011

SDSCA Items	Orientations	Categories average	P
Check feet regularly	Yes	197.29	0.000
	No	139.11	
Inspecting the inside of shoes before wearing them	Yes	209.79	0.000
	No	143.91	
Drying between toes after washing their feet	Yes	195.98	0.000
	No	140.23	

may present difficulties to understand treatment recommendations given by health professionals⁽³⁾, which could explain the lower adherence of patients to treatment.

Studies⁽¹²⁻¹⁴⁾ have highlighted the importance of family as a motivation component for therapeutic adherence, since the support and family participation has a positive effect for the improvement of self-care behaviors. Family and friends play a determining role in the daily lives of people. Family life turns out to influence the decision making for following the recommendations, leading patients to reorganize and achieve metabolic control. For this reason, nurses should consider family members as participants of the process.

The low socioeconomic level of the sample analyzed, imposed by low family income with which these people live, is a similar characteristic to that found in a study conducted in Porto Alegre⁽⁸⁾.

The World Health Organization (WHO) attributes to poverty and low educational levels the precarious health of a significant portion of the population, since individuals with lower income live and work in environments related to worse health conditions and, generally do not have access to health care or preventive measures. In addition, poor families tend to have lower educational levels. Indeed, it helps to maintain poverty and poor health circles⁽²⁾.

Nursing consultations, among other purposes, may help the individuals to be trained for self-care through essential orientations towards good glycemic control. During the consultation time, nurses must develop strategies to promote the prevention of diabetic foot complications. It should be a Nursing job to teach patients self-care, including, daily inspection and maintenance of the foot which should be clean and dry, especially between the toes, which can prevent costly complications, both physical and emotional. Noteworthy, it is also important to encourage patients to wear closed shoes that fit them well, as well as inspecting shoes before wearing them.

The examination of the lower limbs to identify the foot at risk should be part of a nursing consultation. In this study, information on the non-performance of foot examination in consultations in the previous year was associated with the occurrence of amputation ($p < 0.05$), with risk of 1.9 times higher when compared to those who had their foot checked⁽¹⁵⁾.

The sensory-motor neuropathy is a predictive factor of the appearance of leg ulcers and may be present in about 30% of the diabetic population treated in hospitals and 20% of patients of primary care. Often asymptomatic, its diagnosis should be performed with the use of neurological tests⁽¹⁶⁾, among which the skin perception threshold performed with the use of 10g monofilament to search for the loss of sensitivity stands out.

Such actions should be implemented by nurses in their care routine to this population, considering that the diabetic foot is a leading cause of hospitalization of people with diabetes. A research⁽¹⁷⁾ found that from the 559 causes of hospitalizations registered in a hospital in Merida, Mexico, 15.2% were due to diabetic foot.

The data identified in this study indicate the need for deeper reflection and changes about the Nurses doings in Teresina-PI, since the absence of such care is considered a high-risk

behavior for the occurrence of injuries on the foot, as well as costs with specialists and hospitalizations.

The foot care is one of self-care aspects of patients with DM. Daily foot check is necessary to detect early signs of minor trauma or that footwear is being used inappropriately⁽⁶⁾. This action was performed, on average, 3.06 days per week by the studied sample, similar to the data of 3.5 and 3.55 found in studies in Portugal⁽¹⁸⁾ and Santa Catarina⁽¹⁹⁾, respectively.

Adherence of 2.24 days for the item "inspecting the inside of shoes before wearing them" masks the real information that, in fact, people wear opened shoes, so there is therefore no need to look inside the footwear. This was observed by our field diary, which is contrary to what other studies advocates, endorsed by the Brazilian Society of Diabetes⁽²⁰⁾ and American Diabetes Association⁽²¹⁾.

Research⁽⁵⁾ showed that from the 22 diabetic participants, 81.8% used opened shoes. In a city in countryside of Minas Gerais⁽²²⁾ it was identified that 92% of diabetics were using inadequate footwear. It was also found that only 23.07% of participants systematically performed cleaning of the foot with warm water and mild soap, moisturizing, daily check and maintenance of dry feet. It should be remembered that the analysed patients dry between their toes on average 3.10 days in a week.

Such behaviors constitutes risk for the occurrence of complications that only worsen the quality of life. However, we point to the need for implementation of effective educational practices aimed at such patients taking into account north-eastern habits.

To improve adherence of the diabetics to self-care activities, health professionals, in general and nurses in particular, must continually provide basic orientations to reduce the morbidity and mortality from complications of the disease. From this perspective, the work of professionals of Primary Health Care (PHC) are highlighted, since they are responsible for the vast majority of health actions, including the monitoring of people with diabetes mellitus.

A research⁽²³⁾ found no statistically significant association between adherence to non-pharmacological treatment and orientations given by the nurse. It is worth mentioning the excellent result of nurse's orientations on patients' adherence to foot care, specifically checking their foot regularly, inspecting the inside of shoes before wearing them and drying between toes, with $p = 0.000$.

Health education is an essential measure to reduce the development and progression of foot ulcers, since this area is vulnerable to imperceptible trauma⁽⁶⁾.

CONCLUSION

Thus, the results of this study showed that the diabetic population of Teresina-PI is basically composed of females, with low socioeconomic status, who need recommended information by nurse professionals with respect to foot care and low adherence to these self-care activities.

However, there was a statistically significant relationship of the orientations provided by nurses to patients for adherence to foot self-care activities. In this study, however, we did not evaluate how this professional provide orientations. It is

noteworthy that these patients should be monitored together by other health professionals who probably reinforce these orientations, being co-responsible for such results.

Although translated and validated for Brazilian Portuguese, it was noted that patients had limitations in understanding the item "inspecting the inside of shoes before wearing them", since this question would fit only those who had closed footwear. We suggest reformulation of the writing of this item as well as application in other Brazilian population groups.

Training and continuous education for interdisciplinary teams, working together with diabetics and civil society, are needed. Professionals in the primary health care should be trained to perform dialogical and reflective educational practices that take into account the cultural aspects of people. Additionally, the professionals involved need to intensify actions aimed at counseling and communication, since the effectiveness of the orientations in adherence to foot self-care practices was demonstrated.

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