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Nurse's actions in diabetic foot prevention: the perspective of the person with diabetes mellitus

Ações do enfermeiro na prevenção do pé diabético: o olhar da pessoa com diabetes mellitus

Acciones de la enfermera en la prevención del pie diabético: la mirada de la persona con diabetes mellitus

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ABSTRACT

Objective: Investigate the actions taken by nurses in the prevention of diabetic foot in the perspective of the person with diabetes mellitus (DM). **Method:** A qualitative, exploratory and descriptive approach conducted with people diagnosed with DM in a municipality of Minas Gerais, enrolled in an extension project. Data was collected through semi-structured interview and clinical evaluation of the feet. Data were organized and analyzed from the perspective of essentialist and semantic inductive thematic analysis. **Results:** Effective actions for the prevention of diabetic foot appear very peripherally in the data set and are largely limited to education actions in health and not to the examination of the feet. **Conclusion:** Nurses should promote systematically the prevention of diabetic foot by empowering people towards autonomy, self-care and self-examination of the feet, which helps to reduce complications and improve quality of life.
Descriptors: Amputation, Nursing care, Diabetes Mellitus, Nursing, Diabetic foot.

RESUMO

Objetivo: Investigar as ações realizadas pelo enfermeiro na prevenção do pé diabético na perspectiva da pessoa com DM. **Métodos:** Pesquisa com abordagem qualitativa, exploratória e descritiva, realizada com pessoas com diagnóstico de DM de um município de Minas Gerais, cadastradas em um projeto de extensão. Dados coletados por meio de entrevista semiestruturadas e de avaliação clínica dos pés. Os dados foram organizados e analisados na perspectiva da Análise Temática essencialista indutiva e semântica. **Resultados:** As ações efetivas para a prevenção do pé diabético aparecem muito perifericamente no conjunto dos dados, e que grande parte limitam-se as ações de educação em saúde e não ao exame dos pés. **Conclusão:** O enfermeiro deve promover de forma sistemática a prevenção do pé

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diabético empoderando as pessoas para a autonomia e para o autocuidado e o autoexame dos pés, o que contribui para a redução de complicações e melhoria da qualidade de vida.
Descritores: Amputação, Cuidados de Enfermagem, Diabetes Mellitus, Enfermagem, Pé diabético.

RESUMEN

Objetivo: Investigar las acciones realizadas por el enfermere em la prevención del pie diabético com perspectiva de la persona com DM. **Metodologia:** Investigación com um enfoque cualitativo, exploratotio y descriptivo, com personas diagnosticadas com DM em um município de Minas Gerais, registradas em um projecto de extensión. Datos colectados em entrevistas semiestruturadas y de evaluación crituca de lios pies. Los datos fueron organizados y anaizados desde el punto de vista del análises temático essencialista inductivo y semántico. **Resultados:** Las acciones efectivas para la prevención del pie diabético apareceu muy perifericamente em el conjunto de datos, y em gran parte se limitan a las aciones de educación em salud y no al examen de los pies. **Conclusión:** El enfermere debe promover de forma sistemática la prevención del pie diabético responsabilizando a las personas con su autonomía, su autocuidado y el autoeyamen de los pies, lo que contribuye a la reducción de complicaciones y a mejorar la calidad de vida.
Descriptores: Amputación, Atención de Enfermería, Diabetes Mellitus, Enfermería, Pie Diabético.

INTRODUCTION

Diabetic Foot is among the most frequent chronic complications of Diabetes Mellitus (DM) and chronic injuries, infections and amputations of lower limbs can occur as consequences.[1]

It is estimated that 25% of people with DM have an annual incidence of foot ulcers of 2% and a 25% risk of developing them during their lifetime, and they account for 40% to 70% of the total non-traumatic lower limb amputations in the general population.[1]

Diabetic foot is a term used to characterize the injury that occurs in the feet of people with DM, resulting from the combination of sensory-motor and chronic peripheral autonomic neuropathy, peripheral vascular disease, biomechanical changes that lead to abnormal plantar pressure and infection, which may be present and aggravate the case.[2-3]

Ulcerations and amputations, consequences of the diabetic foot, are some of the most serious and have a great impact on the quality of life of people with DM because they compromise the biological, social, cultural and economic dimensions. The costs resulting from the treatment overburden the health and social security system, due to the need for long and recurrent hospitalizations, high-cost technologies, withdrawals from work activities and early retirements. It affects self-image, self-esteem, physical capacity, and social isolation and depression can occur, with important repercussions on the lives of these people.[4]

Given the magnitude of the problem represented by the high incidence and the repercussions in different dimensions in the life of the person with DM, it is imperative that health professionals, especially nurses, have an increasingly wide and differentiated view to meet the needs of the person affected by this disease.

It is incumbent upon this professional to work with the Basic Health Care team, the clinical evaluation of the person involves the evaluation of the feet and injuries, periodic monitoring and guidance to people with DM and their family members regarding the importance of foot care, of having an adequate nutrition, of performing physical exercises regularly and maintaining glycemic control.[5-6]

Clinical evaluation and follow-up of people with DM make it possible to educate about preventive self-care, quality and life expectancy of these individuals and their families.[7-9]

For effective and efficient action, nurses should seek ways to encourage people with DM to adopt adequate ways of caring for their feet and to develop strategies so that difficulties in adhering to preventive measures are solved.[6]

Although Brazilian guidelines, manuals and protocols have emphasized the importance of the nurse in the actions for the prevention of diabetic foot injuries in people with DM, it has been noticed that in the work process of some professionals, these actions have not been developed in everyday life. Their work with these people has been to prioritized medical consultations, examinations, investigation of adherence to pharmacological treatment and supervision of technicians in wound healing procedures. Apparently, in the local-regional reality, few professionals have performed the evaluation of the feet of people with DM in a non-systematic way.

The fact that diabetic foot is a complication of high prevalence and repercussions on people's quality of life and that nursing plays a very important role in the prevention and health promotion of the population has been provoking reflections and restlessness that translate into the following question: how do the people with DM perceive the evaluation of the feet performed by the nurses of Basic Care?

To answer this question, we propose the development of this study with the objective of investigating the actions performed by the nurse in the prevention of diabetic foot in the perspective of the person with Diabetes Mellitus.

METHOD

An exploratory-descriptive study type, with qualitative approach. The qualitative analysis aims at the possibility of building knowledge and has all the requirements and instruments to be considered and valued as a scientific construction. Even with this approach it is possible to objectify a knowledge that puts into perspective the opinions, beliefs and values underlying the inter-subjective social relations.[10] In this case under study, the relations of care with the feet, established between nurses and people with DM.

The study participants were twenty people diagnosed with DM, of whom five men and fifteen women, with ages over eighteen years, residents in the urban neighborhoods of the municipality, enrolled in the extension project "DIPER: in search of better quality of life", of a public university in Minas Gerais.

Since this was a qualitative study, data collection was not concluded by numerical criteria alone, but it took into account the variability that allowed covering the whole problem investigated in its multiple dimensions. The sample was considered exhausted or satisfactory when in-depth responses to the established questions were obtained, in association with the repetition of the discourse by other interviewees.[11]

The data were collected by the main authors on a pre-scheduled home visit, through a three-part instrument. The first part was based on sociodemographic and clinical variables, the second was based on guiding questions to investigate the perception of the person about the evaluation of the feet performed by the nurse, and the third part consisted of a foot evaluation script with inspection of shoes, socks, dirt, nail clippings, inter-digital spaces, ambulation, and the application of the tactile sensitivity test with Semmes-Weinstem monofilament.[12-13] The interviews were recorded in audio and transcribed in full with text editor, preserving non-verbal communication. They were read and reread to evaluate the reliability of the transcripts.

The data were organized and analyzed from the perspective of the Thematic Analysis (TA).[14] Defined as a method to identify, analyze and report patterns within the data, TA involves the active role of the researcher in the identification and selection of patterns relevant to the research question, such response patterns in the data set are assumed as themes.

In this study, TA was considered in an essentialist perspective, which proposes to report the experiences and meanings of the participants' reality in an optics that takes into account the relationship between experience and language. For its operation, we opted for the inductive analysis, which searches for strongly data-related themes, and semantics, which considers the explicit meaning or surface of the data.

The following steps were: transcription of data with reading and re-reading, identification and organization of similar codes in themes and sub-themes, revision of themes, naming of themes, thematic map elaboration, and final analysis. The research was approved by the Ethics Committee of the Federal University of Alfenas under CAAE 06655512.0.0000.5142. Ethical precepts were respected as signing the Term of Free and Informed Consent (TFIC) and preservation of anonymity by replacing the name with the letter P followed by an Arabic numeral.

RESULTS AND DISCUSSION

As far as sociodemographic characterization was concerned, there was a predominance of women (75%), with an average of 64.8 years of age, with complete elementary education, married, catholic and retired. The average time of diagnosis of DM was 12 years.

As for the clinical evaluation, obtained through the physical examination of the feet, the monofilament test found a sensitivity damage in 10% of the participants; presence of injury in 15%; signs of onychomycosis in 25%; onicocryptosis in 30%; onicofosis in 5%; edema in lower limbs in 35%.

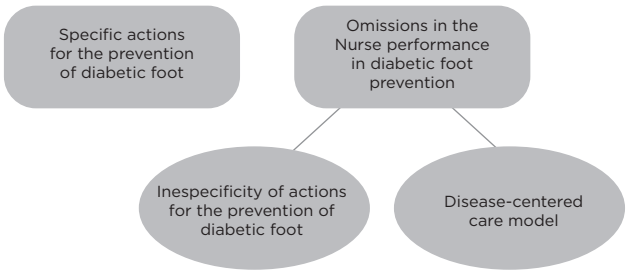
There were no blisters, callosities or amputations, but there was a plantar fissure in 15% of the participants. Inadequate use of shoes and socks were found in 95% of the participants and only 5% presented poor hygiene. In this regard, satisfactory hygiene was considered as the absence of dirt, both on the feet and on the nails. It was found that 20% of the participants claimed that their feet were examined by the nurse of the unit in which they belonged, 5% of which were in specialized services for DM.

We highlight a high incidence of risk factors in the participants of this study, and these clinical findings are in line with other studies that indicated that the main risk factors of diabetic foot were varicose veins, callus, ulcers, inter-digital mycosis, onychomycosis, and amputation. Also, they observed the degree of mobility compromised, the use of inadequate shoes and cuticle extraction in most of the participants.[15-16]

It is recommended that the evaluation of the feet of the person with DM be performed annually, identifying risk factors for ulcer and amputation.[3]

The analysis and interpretation of qualitative data allowed us to construct two themes and two subtopics that reflect the conception of people with DM about the actions performed by the nurse in the prevention of diabetic foot, according to the thematic map.

Chart 1 – Thematic Map.



Source: authors

It was found that some nurses have developed specific actions, which properly involves examining the feet, although it is not a systematic action in the work process. The performance of these professionals refers to the recommendations of the Guidelines for the care of the person with DM,[17] to the Strategies for the care of the person with DM[18] and the Manual of the diabetic foot[1] by highlighting the competence of the nurse in the actions of prevention of the diabetic foot.

The fragments of the following statements exemplify the specific actions developed by the nurse when examining the feet of people with DM.

> "[...] she really examines me, asks a lot of questions until she finds out what the problem is, and when she finds it necessary, she'll send us to the doctor, if not, we leave the place feeling well." (P17)

> "[...] it's like an exam, she looks, investigates, and guides. She said I have a very good sensitivity." (P4)

> "[...] she spends a good deal of her time doing that foot exam, she looks at the foot, but it is only once in a while, once in a year. When she looks, tells me to move my fingers, sees if it is numb, and passes that needle to feel." (P5)

The evaluation of the feet is a fundamental step in the clinical evaluation performed by the nurse and aims to identify the risk factors that must be modified in order to prevent ulceration and consequent amputations.[1] The recommended periodicity for foot evaluation is differentiated, in the feet with preserved sensitivity the periodicity is annual whereas for the feet with a history of ulcer and / or amputation the periodicity is quarterly.[1,3,18-19]

In this perspective, what is expected of the nurse's role in the nursing consultation to the person with DM is that efforts are made to create conditions for the person affected by the illness to develop skills to overcome problems and to coexist better with this condition.

It was also observed that the actions developed by nurses to prevent diabetic foot were not limited to the physical examination, health education actions were also developed, which made it possible to sensitize people to the development of self-care skills.[20] Fragments of the speeches exemplify this understanding.

> [...] she talks about food, physical exercise, bruises, to be careful, about the type of care for a person with diabetes, diabetic foot care, all of this. [...] she speaks a lot, everything that is necessary. She also talks about kidney problems, visual problems, infection, for example, diabetic foot. She explains how it occurs and that if you keep diabetes at normal levels these complications may not happen, and says that if you get hurt you must look for someone to see how to proceed. [...] to moisturize the foot with cream, because my foot is too dry, and sometimes I have some cracks in the foot, especially in the heel. (P4)

> "[...] warns us to wear closed shoes so as not to hurt them, so I only use slippers here, if I go down the street I'll get my shoes." (P5)

The actions of health education to people with DM on the mechanisms that can cause injuries to the feet favor people to be aware of the need to care for their feet, both with hygiene measures, hydration and protection with appropriate footwear, and with the daily inspection of the feet in search of some signs of injury.[3,12]

Nurses play an important role in the prevention of diabetic foot, in education actions and as responsible for early detection of any changes in skin and foot sensation, in foot care, guidance on the use of socks and shoes.[21]

The nursing consultation, besides the physical examination of the feet, also has the purpose of providing the follow-up and encouragement to self-care, based on teaching of guidelines of care related to the prevention of diabetic foot. These measures should be systematically implemented and continued in order to reduce the incidence of diabetic foot and improvement of the quality of life of people with DM.[22]

The nursing consultation should be understood as the opportunity for communicative dialogue, narrowing the relational and interpersonal situation in the therapeutic environment to validate the procedure and not only a technical procedure.[23]

Although the studies have recommended the importance of feet examination associated with health education actions for the prevention of diabetic foot, it has been verified that there are still professionals who have limited themselves to the actions of education, as expressed in the following speech.

> [...] the nurse knows me, she knows my problem, at first she still told me, now when I take information with her, it's just minor things, but she says what everyone says, it's diabetes, one has to do treatment. This speech is normal [...] She spoke of the injuries that have to be taken care of, she told me to keep the diabetes normalized because I can lose vision, or I could have to go to hemodialysis for the kidneys, that I have to take care not to get hurt. That's it. (P20)

By mentioning that the nurse " says what everyone says, this speech is normal", it allows us to infer that the education actions practiced by the PHC nurse does not take into account the individual needs of the people facing the illness, since the speeches are identical for people with different needs, and are reproduced, indistinctly, by all health professionals.

Thus, health education actions that do not value the knowledge and needs of the person with DM may not be able to sensitize the person to adopt new habits and lifestyle.[24]

Health education as a form of care should involve the person's participation in this process, giving this person autonomy and the possibility to question the health-disease-care process.[25]

In this sense, it was possible to verify that in the physical examination of the feet, there is presence of lesions, onychomycosis, onicocryptosis, compromised sensitivity and ineffective hygiene.

The literature has reiterated that the assessment of feet by health professionals, especially by the nurse, is able to prevent injuries and amputations in about 70%.[1]

It is possible to learn from the speeches that the effective actions related to foot prevention appear very peripherally in

the data set, and that, to a large extent, the actions are limited to health education and not to the examination of the feet. It also allows us to infer that these actions are part of focal, discontinuous and unsystematic initiatives.

The omissions in nurses' performance in the prevention of diabetic foot portray the fact that, to a large extent, nurses have not assumed responsibility and did not fulfill their duty of care by suppressing their evaluation of the feet of people with DM. Perhaps, because they do not considerer preventive actions as central to the scope of their work and prioritize routine actions in their work *to enable the work of the medical professional.*

The subtopics titled "Inespecificity of actions for the prevention of diabetic foot" and "The model focused on the disease" reaffirms this scenario and contributes to the understanding of the omission of the nurse's clinical role in the scenario studied.

Although glycemic and blood pressure controls are valued measures for the prevention of diabetic foot, they are not configured as specific actions and are part of the routine screening for medical care in the Family Health Strategy (FHS). These actions are developed for all people and have not considered the particularity of this chronic condition.

This opens up the possibility of further studies to investigate the significance of capillary glycemia measurement in health services screening for nurses.

Although blood glucose control is valued in the nurses' work process, the literature has reiterated that physical examination and foot care reduce lower limb amputation by about 70%, whereas only glycemic control has shown no effect on mortality or macro vascular complications.[1] The fragments of the following statements exemplify this understanding.

> [...] I don't know, but she stays there, she punctures our finger, she weighs us, she takes our blood pressure, when she goes to the doctor she does the screening, you know, and when we need to be evaluated we go there and she does it. (P5)

> [...] She checks the diabetes, the blood pressure, weigh us, measures and then records it and that's it, and after that we wait to see the doctor. She speeds up the care when the case is more serious, when it is something that she can solve, then we don't even need to go to the doctor. She asks what's going on, if it's anything to do with diabetes, what is it, then she tells us to wait, that this will go away. (P6)

The speeches allow us to grasp initiatives of general and collective actions and the mobilization of attributes aimed at curative actions. The understanding of collective actions contrasts with individualized care, because the actions are the same for all, they do not raise individual needs and end up neglecting the individual's singularity, especially in the process of becoming ill.

The reorientation of the system directed to the promotion of health aims to minimize morbidities and also the expenses with the installation and the advance of pathologies, mainly the chronic ones. However, the biomedical model still predominant in Brazil translates into a medical care model with curative proposals, which leaves aside the educational process, the communication between professional and user, and escapes from the proposal of the care model that is recommended in the Family Health Program.[26]

The assistance model for the actions of the FHS is that which considers the man as a social being and not only a biological one, and that can gradually focus on the subject and not the disease.[27] The difficulty of putting this model into practice is due to the training of health professionals according to the biomedical model, which historically has influenced the way of thinking of the people who use this assistance.

In this sense, the organization of the work process in health is still centered in the disease, with priority to the control of glycemia, the distribution of medicines, the realization of exams, among others.

This scenario contributes to a growing increase in care costs, which could be avoided by prevention.

In this understanding, one cannot lose sight of the historical and social "place" from which the nurse exercises or not the preventive actions aimed at people with DM and from where the people in question seek the services offered. This mutual relationship determines and is determined by social, political, economic and historical conjunctures, and delineates the conditions of action possibility for the professional and the clients. The following fragments exemplify this interpretation.

> "[...] it was full when the doctor was the one talking, but when it was a trainee, a nurse, a health worker, then people would leave. [...] because they believe more in the doctor." (P6)

> "[...] she doesn't do anything there to prevent [...] they worry when there is something." (P16)

> "[...] to this day she looks only from afar, that's it. Looks from afar like this, like we're looking (looks at the foot). Never needed it either." (P17)

On the other hand, there are those who, through unsuccessful experiences due to ineffective control of the disease, refer to the importance of preventive actions to avoid the complications of DM.

> [...] well, she doesn't say anything to us, you know, now, she doesn't say anything. It would be good to explain to the people how it is, how to prevent it, because now even I know it, but what about the rest that do not know? I suffered a lot and it was for my foolishness, if I had taken care of myself it before it wouldn't lead to all this. (P8)

Efforts must be carried out to ensure that the model of care based on actions for health promotion and prevention, humanization and universal access can actually be implemented in the FHS. To do so, it

is necessary to modify the process of training health professionals, allowing a paradigm shift, from biomedical to the person-centered model of care and that the health professionals feels committed and co-responsible with each other, which will certainly influence people with DM. Other proposals for the consolidation of the FHS model are the improvement of investments, the need for managers to understand the philosophy of the model, the improvement of working conditions, thus avoiding the rotation of health workers, which ends up hampering the bond. The diversity of urban realities in Brazilian municipalities is still a major challenge.[28]

The nursing consultation itself can be used as a discontinuity in the disease-centered model, with periodic evaluations and longitudinal follow-up. The nurse, by establishing bond and trust with people with DM, can identify risk factors for diabetic foot by examining the feet, proposing preventive actions and encouraging people to self-care. [18,29-30]

Although the purpose of this study was not to investigate the (in)visibility of the nurse, this was one of the crucial points that emerged from the interpretive work. Participants had difficulty identifying the nurse within the health team. It was necessary to give clues so that some could recognize this professional in order to make this study viable. Some participants did not know that the "head" of the unit was a nurse, they were surprised by this information, while others knew the nurse, but called it "the boss". In addition, some participants could not distinguish the actions of the nurse and the nursing technician when questioned about the actor of the actions they often referred to the technician.

The invisibility of the profession and the devaluation in the perception of the others as agents of care in the space of relations is still a reality. The concreteness of this professional's visibility can be achieved through identification, posture and verbal communication. In order for nursing to be more visible to society and clients, in terms of comprehensiveness and representativeness, it is up to these professionals to educate and diffuse the knowledge of their actions and their importance to the other, although much has already been advanced and conquered.[31]

The nurse should systematically promote the prevention of diabetic foot, empowering people for autonomy and self-care and self-examination of the feet, which contributes to reducing complications and improving the quality of life.

CONCLUSION

It is evident in this study that, in the view of the participants, the PHC nurse acts as the head of the unit, assuming as a priority the administrative duties, mobilizing actions for medical care and distancing itself from clinical evaluation. On the other hand, it points out that PHC nurses have performed foot evaluation, although it is not a systematic action incorporated into their work process, which demonstrates the lack of continuity of the preventive measures of the diabetic foot.

The PHC nurse should reflect on how its practice replicates the health model in which it is embedded. This practice needs to be articulated in health promotion, prevention and treatment.

This study allowed us to analyze the importance of the nurse in the prevention of diabetic foot, and, above all, the necessity of this professional to play its clinical role with the people with DM, which favors the visibility of this professional within the society, changing the ways of caring.

Although this study is a cut-back of local reality, it brings contributions to science by enabling research from the perspective of those who receive care.

The limits of this study are related to the cross-sectional design, the number of study participants and the data collection technique. Perhaps the participant observation through the immersion in the field could favor other elements for analysis.

Longitudinal studies are suggested to evaluate the follow-up of the nurse in the assessment of the feet of people with DM and the significance of capillary glycemia measurement in the health services screening process performed by nurses.

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