KNOWLEDGE OF THE PRIMARY HEALTH CARE NURSE ABOUT DIABETES MELLITUS

CONHECIMENTO DO ENFERMEIRO DA ATENÇÃO PRIMÁRIA DE SAÚDE SOBRE DIABETES MELLITUS

CONOCIMIENTO DEL ENFERMERO DE LA ATENCIÓN PRIMARIA DE SALUD SOBRE DIABETES MELLITUS

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ABSTRACT

Objective: to investigate nurses' knowledge in primary health care units about Diabetes Mellitus. **Method:** a qualitative and accomplished study with 13 nurses from an instrument of sociodemographic and cultural characterization and questions related to knowledge about Diabetes Mellitus. The data was organized and analyzed by the Content Analysis technique, in the Thematic Analysis modality. **Results:** from the analysis, the central theme emerged "Distance from theory to practice of care for people with diabetes" and the subtopics << Deficit of knowledge of the disease >>; << Deficit of knowledge of the treatment >>; << Deficit of knowledge about insulin conservation and waste management >>; << Deficit of knowledge about care >>; << Deficit of knowledge about the rights of people with Diabetes Mellitus >>. **Conclusion:** the results point to the distance from the theory to the practice of care for people with Diabetes Mellitus. They thus identify the need for continuing education in health services. **Descriptors:** Diabetes Mellitus; Nursing; Knowledge; Primary Health Care; Primary Nursing; public Health Nursing.

RESUMO

Objetivo: investigar o conhecimento do enfermeiro nas unidades de atenção primária à saúde sobre Diabetes Mellitus. **Método:** estudo qualitativo e realizado com 13 enfermeiros a partir de instrumento de caracterização sociodemográfica e cultural e questões relacionadas ao conhecimento sobre a Diabetes Mellitus. Os dados foram organizados e analisados pela técnica de Análise de Conteúdo, na modalidade Análise Temática. **Resultados:** da análise, emergiram o tema central <<Distanciamento da teoria à prática do cuidado às pessoas com diabetes>> e os subtemas <<Déficit de conhecimento da doença>>; <<Déficit de conhecimento do tratamento>>; <<Déficit de conhecimento sobre a conservação da insulina e o gerenciamento de resíduos>>; <<Déficit de conhecimentos sobre os cuidados>>; <<Déficit de conhecimentos sobre os direitos da pessoa com Diabetes Mellitus>>. **Conclusão:** os resultados apontam para o distanciamento da teoria à prática do cuidado às pessoas com Diabetes Mellitus. Identificam, assim, a necessidade da educação permanente nos serviços de saúde. **Descritores:** Diabetes Mellitus; Enfermagem; Conhecimento; Atenção Primária à Saúde; Enfermagem Primária; Enfermagem em Saúde Pública.

RESUMEN

Objetivo: investigar el conocimiento del enfermero en las unidades de atención primaria sobre la salud sobre la Diabetes Mellitus. **Método:** estudio cualitativo y realizado con 13 enfermeros, a partir de instrumento de caracterización sociodemográfica y cultural y cuestiones relacionadas al conocimiento sobre la Diabetes Mellitus. Los datos fueron organizados y analizados por la técnica de Análisis de Contenido, en la modalidad Análisis Temático. **Resultados:** del análisis, emergieron el tema central << Alejamiento de la teoría a la práctica del cuidado a las personas con diabetes >> y los subtemas: << Déficit de conocimiento de la enfermedad >>; << Déficit de conocimiento del tratamiento >>; << Déficit de conocimiento sobre la conservación de la insulina y la gestión de residuos >>; << Déficit de conocimientos sobre los cuidados >>; << Déficit de conocimientos sobre los derechos de la persona con Diabetes Mellitus >>. **Conclusión:** los resultados apuntan al alejamiento de la teoría a la práctica del cuidado a las personas con Diabetes Mellitus. Identifican, así, la necesidad de la educación permanente en los servicios de salud. **Descritores:** Diabetes Mellitus; Enfermería; Conocimiento; Atención Primaria de Salud; Enfermería Primaria; Enfermería em Salud Pública.

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INTRODUCTION

Diabetes Mellitus (DM) is currently considered a worldwide epidemic. It is estimated that the world population with this disease is in the order of 382 million people and that it should reach 471 million in the year 2035.¹ Due to its high prevalence and the serious complications that contribute to raise rates of disability and morbidity and mortality,² DM is one of the most commonly treated chronic conditions in primary health care and one of the main health problems, becoming a major challenge for health systems, health professionals and people living with disease.

Because it is a chronic condition, it imposes on the person the need to appropriate knowledge for the self-management of the illness process. In this context, it is emphasized the importance of nurses incorporating new strategies capable of encouraging the empowerment of people with diabetes so that they take care of themselves in order to promote, maintain and preserve health and well-being.³

It is incumbent upon this professional to develop health education actions with a view to the person's guidelines for self-management of the disease, to encourage the practice of self-care, to guidelines for lifestyle changes, to monitor risk factors, to prevent complications, monitoring and evaluation.⁴

When considering the relevance of nurses in health education and in the monitoring of people with DM, their actions should be based on scientific knowledge for the implementation of emancipatory practices. Thus, highlighting the role of nurses in the education process causes concerns that translate into the following question: The nurse has sought updated knowledge about Diabetes Mellitus to act as health educators?

In order to deepen the knowledge on the subject, the databases and databases PUBMED (Public Medline), LILACS (Latin American and Caribbean Literature in Health Sciences) and IBICS (Spanish Bibliographic Index of la Salud) were searched, with the controlled descriptors extracted in the Health Descriptors (HDES) knowledge, nurse and diabetes mellitus and their equivalents, in the Portuguese language and in Spanish, articles produced in the period from 2010 to 2016 on this subject. From the analysis, four articles were obtained and, in addition, there was a shortage of studies that evaluated nurses' knowledge about DM.

It was found that one of the studies was developed with Australian nurses and that

they had a good knowledge on pathophysiology (88%), blood glucose monitoring (87%), diets requirements (79.5%) and local administration of insulin (93%). However, knowledge about the correct timing of insulin action and storage was poor, resulting in 38% and 31%, respectively. The study concluded that there are deficits in the knowledge of these professionals and continuous training seems to be one of the alternatives.⁵

A study conducted with 18 professionals inserted in the adult emergency service detected that the Nursing team had knowledge about the complications of diabetes and its signs and symptoms, as well as the strategies of Nursing care to the client in this condition. However, there were limitations regarding the practice of such care.⁶

It was verified that the authors adopted, for the most part, the quantitative approach. Still according to the bases analyzed, there is a shortage of a study carried out in Brazil focusing on the investigation of nurses' knowledge about DM, especially with nurses of primary care. The studies cover nurses' training experiences on DM and their knowledge regarding acute complications. Studies on DM have prioritized the knowledge of the sick person about their illness.

In this perspective, the integrative review aimed at identifying scientific evidences referring to nurses' knowledge about DM found that, in general, nurses had a significant deficit of knowledge regarding oral hypoglycemic agents, insulin therapy, nutritional care and complications, which may impair their ability to assist clients with diabetes.⁷

The analysis of the literature points out an important gap in the knowledge to be sought, contributing to the originality of this work when investigating the updated knowledge of the primary health care nurse from the qualitative approach.

OBJECTIVE

- To investigate nurses' knowledge in primary health care units on Diabetes Mellitus.

METHOD

A qualitative, analytical and exploratory study, based on the guidelines of the Brazilian Society of Diabetes 1 and the recommendations of the Ministry of Health.⁸ The study was carried out with 13 nurses who worked in the primary health care of units of

the urban area of a municipality of the south of Minas Gerais. The municipality has 13 Family Health Strategy Units (FHSU), two Basic Health Units (UBS), and a specialized center for the care of people with chronic diseases. It was adopted with inclusion criteria: being a nurse and working in primary health care units with people with Diabetes Mellitus. Data were obtained from December 2014 to May 2015, through a semi-structured interview and recorded with an MP3 recorder, using a form developed by the researchers, composed of two parts. The first one refers to the socio-demographic and cultural characterization of the participants and the second one brings 12 unstructured questions regarding DM knowledge, containing data on definition, symptoms, diagnosis, treatment, foot care and the rights of the person with diabetes, built on from the Brazilian DM Guidelines. The data were transcribed immediately after each interview.

For the organization and analysis of the data, the assumptions of the Thematic Content Analysis were followed⁹: the ordering of the statements was done after the transcription of the interviews, reading and re-reading the material. The relevant ideas that constitute the units of meaning were selected, which were codified, grouped according to their similarity and organized into one theme and five sub-themes.

According to Resolution 466/12 of the National Health Council,¹⁰ the study was approved by the Human Research Ethics Committee of the Federal University of Alfenas-MG, with the CAAE: 39312014.8.00005142 and approval number 924.027. Participants signed the Term of Free and Informed Consent and, to preserve anonymity, the participants had their name replaced by the letter E, followed by the Arabic numeral 1, 2, 3, successively.

RESULTS

Of a total of 16 nurses, 13 were part of the study and three did not participate for the following reasons: not feeling prepared to answer the questions, not to be found after three appointments or to be in a vacation period coincident with the data collection. Of the thirteen participants, 11 were in FHSU (84.61%), one (7.69%) in BHU and one (7.69%) in the Specialized Care Center for People with Chronic Conditions. Regarding the sociodemographic and cultural profile of the participants, it was verified that the totality was female, the mean age was 40.3 years, with an average graduation time of 15.23

years and the average time worked in the unit of 45.20 months.

Regarding training in the subject in question, four (30.76%) said they had never taken refresher course on DM; four (30.76%) completed the refresher course two years ago; two (15.38%) completed the course three years ago; one (7.69%) a year ago; one (7.69%) reported having already undergone refresher courses but did not remember how long and one (7.69%) did not remember having participated in refresher courses.

From the analysis of the data, the central theme emerged: "distance from theory to practice of care for the person with Diabetes" and the subtopics "deficit of knowledge of the disease"; "Treatment knowledge deficit"; "Lack of knowledge about insulin conservation and waste management", "lack of knowledge about care", "lack of knowledge about the rights of people with Diabetes Mellitus".

DISCUSSION

◆ **Central theme: distance from theory to practice of care for people with DM.**

This topic represents the knowledge gaps evidenced about the different aspects related to DM that the participants presented about the DM update, which corroborates the fragility of care. The following, are the five sub-themes:

◆ **Sub-theme: Deficit of knowledge of the disease**

It was found that most of the participants mentioned, incompletely, the definition of DM and, one of them defined the endocrine physiology in a wrong way, since it attributed the production of insulin to the kidneys. The fragments that elucidate this analysis are presented below:

- [...] is a kidney dysfunction that, we can not explain, is a kidney dysfunction in the production of insulin. (E13)
- [] Diabetes [...] has several types of diabetes, it may be diabetes that the person is born with the lack of insulin, which is produced by the pancreas, some problem in the pancreas, or it produces too much or it produces little , it also has diabetes that can be acquired during pregnancy, some problem in the pancreas or lack of insulin or excess insulin can lead to diabetes. The non-production of insulin. (E7)

Regarding the clinical manifestations, it was verified that the majority knew some of the main clinical manifestations of DM, according to the following testimony:

- [...] When the person discovers, she is with weight loss, drinks a lot of water, makes a

lot of pee, eats too much and loses weight, basically it is. (E8)

When questioned about the complementary examinations recommended to the person with DM and their reference values, it was verified that the knowledge is limited, since the participants mentioned some of the tests recommended and the uncertainty as to their reference values.

[...] The main tests to diagnose is fasting glycemia, there are some others also that is think glycemia, glycated glycemia, have some, a little more complex, but usually with fasting blood glucose test the doctor already closes diagnosis, so control is capillary glycemia. If I'm not mistaken it had a change a little while ago, at the beginning I learned it was up to 110, now it looks like it's up to 100, 99, 110. (E1)

Regarding the reference values of the laboratory tests, no study was found in the national literature.

A study by Yacoub et al,¹¹ conducted in Jordan, found that only 36.8% of the participants accurately reported blood glucose test results. Similar results were found in an investigation conducted with nurses from Nigeria where only 24.9% of these had good knowledge regarding blood glucose monitoring.¹²

Research carried out with nurses in Turkey concluded that they feel uncomfortable in guiding clients regarding the monitoring of glycemic test and glycated hemoglobin.¹³

The purpose of the research on nurses' knowledge about the examinations and their results is fundamental, since the monitoring of the examinations can subsidize the treatment and prevention of diseases.⁴

It was found that almost all the participants revealed limited knowledge regarding the complications as well as their classification, as presented in the following testimony:

[...] In the short term would then be the question of the long-term complications, which would be blindness, the issue of renal overload, which can lead the individual to hemodialysis, and the question of care members with feet, because often the lack of sensitivity, we speak the diabetic foot, is leading to an amputation. (E10)

A study with Nursing professionals from an adult emergency service presented divergent results in view of the fact that nurses had knowledge about the acute complications of DM, the recognition of signs and symptoms associated with the severity of the disease, the determination of urgency in the care of people with diabetes, the sequence of Nursing

care in acute complications, the recognition of risks and complications during Nursing care.⁶

It is important to emphasize, in this context, that it is incumbent on the Nursing professional to guide, with clear and easy-to-understand language, the people with DM on the disease, treatment and complications, in order to minimize the impact of illness on their lives and to stimulate self-management to achieve the best quality of life.

In order to perform these actions, it is fundamental that nurses take ownership of the updated knowledge about DM and about the sociocultural context of people who are sick to develop health education actions that are consistent with reality.

♦ Sub-theme: treatment knowledge deficit

Regarding the forms of treatment, it was verified that only two participants referred to non-pharmacological and pharmacological treatment in a conjugated way, as portrayed in the testimony below:

[...] It can do drug treatment and non-drug treatment. The non-medicated you will get with exercise, diet, these things. And the drug oral hypoglycemic agents, insulin. (E6)

Non-pharmacological treatment, involving changes in lifestyle (SEM) has been considered the basis for the treatment of DM. When necessary, pharmacological treatment, associated with the use of oral hypoglycemic agents and insulins, is associated.⁸

It is up to the nurse to commit to the health education of the population contributing to the improvement of the client's quality of life and the adoption of strategies that allow him to live a healthy life.¹³

Regarding the knowledge of the hypoglycemic agents and their mechanism of action, all participants acknowledged their lack of knowledge, mainly in relation to their mechanism of action, as can be seen in the following testimony:

[...] I no longer go into detail in this matter, no lack of self interest, or lack of time even. But I know that one acts by leading into the cell and another acts by pulling the cell. (E8)

Similar data were found in an international study that detected that a third of the nurses mentioned the lack of knowledge regarding the mechanisms of action of hypoglycemic agents.

The knowledge that nurses have about medicines is not always enough to promote education for the person with DM and

emphasizes that the low social status of the profession may interfere with the credibility of the client in relation to the guidelines provided.¹⁴ In this sense, the knowledge deficit of the nurses, coupled with the lack of knowledge of the client, is an obstacle to the improvement of treatment and quality of life in diabetics.²

Although the literature has widely advocated the role of nurses as a mediator of knowledge to motivate people about the importance of treatment and to promote adherence to treatment, it has been realized that nurses have not effectively taken on this role, nor sought for updates to guide people on the treatment. Nurses' distance from clinical practice and the updating of knowledge may be related to their greater involvement with administrative activities, the lack of recognition of their relevance in educational actions and difficulties in dealing with people with chronic conditions.

When investigated on insulin therapy, it was found that the majority of the participants were unaware of the insulins available in Brazil and their time of action, as presented in the testimony.

[...] NPH and regular I confuse a bit, but, usually, I often look in the books, in the bibliographies. I confuse, I do not know if NPH acts faster or if it is the other. (E5)

The results of this study are consistent with work in Turkey, which found that 39% of nurses reported inadequate knowledge about insulin types.¹⁶ Research conducted with 164 nurses from Northern Ireland found that practitioners presented knowledge deficits in relation to the action insulin, dosage, storage, technique, the need for rotation of the injection site and the pharmacological action.¹⁵

Regarding the location of the correct site for insulin application, a study conducted with 277 nurses from Jordanian hospital institutions concluded that 44.8% correctly reported the sites of application.¹¹

These data resemble this study on the administration of insulin therapy in terms of sites and techniques for the application, since most of the participants did not know how to properly inform the application technique and also revealed the partial knowledge about the application sites and regional anatomy, as can be seen in the testimonial below.

[...] may be in the region of the lateral deltoid, in the vastus lateralis of the thigh, I can do in the right periumbilical region, I can do in this clavicular region. The technique you do at a 90° angle, depending on the region you pick you do a fold, you

will do the aseptic fold with alcohol, make the application, with insulin. (E7)

It should be added that, during the interviews, it was possible to perceive that some participants seemed apprehensive about having to explain the technique of insulin administration, which may have corroborated the simplistic explanation of the procedure without going to the details and also to the misuse of terminology.

It was verified that most of the scientific production on the knowledge of the insulin application sites has adopted, as a participant, the person with DM. Thus, the result of this study is innovative for the scientific production, mainly national, and it fills a important gap on the knowledge of the nurse in this subject.

In relation to the technique for the capillary glycemia, limited knowledge and lack of knowledge about other possible sites for capillary glycemia were observed, in addition to the digital pulp, as can be seen in the following testimonial:

[...] Asepsis of the finger, nowadays we already have a few lancetinhas, before we were pierced with a needle, today we already have a few lancetinhas that we press the tip of the finger of the person and makes the collection of a drop of blood on the slide that is connected to the capillary glycemia apparatus. (E1)

Capillary glycemia can be performed on the lobes of the ears, forearm and calf, it is pointed out that these sites can improve the adherence of people to treatment and also avoid micro and macrovascular complications of DM.¹⁶ Nurses need to guide people with Diabetes on self-monitoring of glycaemia, since it directs the development of skills and decision-making in relation to treatment, nutrition and physical activities, and is associated with the well-being of the person and also to the prevention of diseases⁴.

♦ Sub-theme: lack of knowledge about insulin conservation and waste management

With regard to insulin retention and solid waste disposal, it was found that the majority of study participants demonstrated a lack of knowledge, as the following testimony reveals:

[...] It has to be stored, it has to be refrigerated, to be kept in the refrigerator, usually we ask to put it in the refrigerator door. (E1)

Research conducted with nurses from Jordan presented similar results, considering that only 18.1% correctly defined the place for insulin storage.¹¹

The literature recommends that insulin should be stored in a refrigerator between two and eight degrees Celsius if the ambient temperature is above 30 ° C.^{8,17} It should also be stored in the middle shelves down to the drawer. vegetables¹. Insulin should be withdrawn from the refrigerator 15 to 30 minutes before its application, since cold insulin causes pain.¹⁷

It was found that knowledge about insulin transport did not meet the scientific recommendations, as evidenced in the fragment.

[...] If it is transported, it has to be transported in a styrofoam box, sometimes with a small piece of ice if it is too long, if this route is too long, if it is not too long inside the Styrofoam box, be transported. (E1)

The divergence between the nurse's report and the recommendations of the Ministry of Health, which determines that domestic transport should be carried out in a thermal bag or styrofoam box, without ice, or in a common bag, without exposure to sunlight⁸ was verified.

Management for the disposal of solid waste resulting from the treatment of DM is the responsibility of the nurse, with a view to preventing accidents with sharps and contamination. Although the literature has emphatically focused on discarding, it has been noticed that the professional has not yet incorporated this knowledge into practice.

The disposal is done here in the piercing device, we advise the patient to bring it inside a PET bottle or margarine jar and we discard it here. (E8)

The results are similar to those found in the literature, concluding that more than 26% of the participants reported disposing of needles and syringes in household trash.¹⁸

Nurses should be concerned with guiding people in relation to the correct disposal of materials^{1,18} in order to prevent contamination of the environment and the professionals responsible for collecting waste. This material can not be discarded, under any circumstances, in the public solid waste system¹⁷; must be made in its own container or in a hard-walled bottle and unbreakable material as a softener. Plastic bottle of soft drink is not indicated due to the fragility of its walls. It is further recommended that the container, after being filled, should be sent to the health facility and, therefore, proper disposal be carried out.^{1,8}

When questioned about the reuse of syringes, it was found that half of the participants did not agree with the reuse of

syringes, as presented in the testimony. Others did not position themselves, since they claimed ignorance about the subject.

I do not pray for reuse, we donate one amount per month. It will know if it does not pollute, it is one in each application. (E2)

The reuse of the syringe and needles is a means used by people with DM to ensure the use of the drug and to save money, since there is a lack of necessary inputs.¹⁷ There is a lack in the literature of prospective risk assessment studies and complications related to reuse syringes and needles.

Syringes and needles for the application of insulin are for single use, and sterility conditions are not guaranteed after use, because when these materials are reused they may lose their characteristics and offer risks and / or damages to health. One study showed that only one participant did not reuse syringes and needles, and the others reused more than nine times. This is due to the fact that the distribution of syringes and needles is not enough for many people and, in the search for cost reduction with treatment, patients resort to reuse.¹⁹

The main complications related to needle reuse refer to the presence of lipohypertrophy, pain, infection and bleeding at the site that may be associated with loss of lubrication and needle sharpening and bevel alteration, among others. The reuse of the syringe is also not recommended due to the loss of the graduation scale favoring imprecision in the dose injected. Therefore, nurses should discourage this practice.¹⁷

♦ Sub-theme: lack of knowledge about care

It has been found that nurses' knowledge about foot, skin and nail care is still common sense. They mention the importance of skin hydration, nail cut and loss of sensitivity. It was noticed that the clinical evaluation of the feet of people with DM is not part of the work routine of the nurse. The following fragment elucidates these interpretations.

The importance of taking care of the foot is because of the diabetic foot, because of the loss of their sensitivity, they hurt very easy, so, so, we ask the doctor to look at all diabetic patients, to do diabetic foot evaluation, advises them on shoes not to hurt, ask them if they are even losing the sensitivity and the evaluation is done here, until you will have an agenda just for that, I will take all diabetic patients who take insulin to do the diabetic foot evaluation first so we can continue the day after day. (E7) [emphasis added]

A study of 40 diabetic patients and five nurses on diabetic foot concluded that nurses were advised to advise on smoking, shoeing and nail cutting.²⁰ These results are in agreement with research conducted with 16 nurses from the Health Strategy of However, when comparing the nurses' responses with those of the participants, it was noticed that 85% of the participants wore inadequate shoes, 47.5% made incorrect cuts and 45% presented feet resected.²⁰

Another study points out that PHC nurses have performed foot evaluation, however, this is not a systematic action incorporated into their work process, thus demonstrating the absence of preventive measures of the diabetic foot.²²

Nursing consultation is a private activity of the nurse²³ and, specifically, in relation to people with DM, clinical evaluation should be performed with emphasis on body weight, height, waist circumference, body mass index, cardiopulmonary auscultation, health assessment visual acuity, cardiopulmonary auscultation, skin and attachments, gynecological assessment of the lower limbs and the foot.⁸ The Nursing consultation directs the establishment of the therapeutic plan with a view to metabolic control and the strengthening of the affective bond.⁴

Although the role of the nurse along with people with DM has been defined and defended in official documents, the dichotomy between theory and clinical practice has been observed. This dichotomy is evidenced in the statements in which the clinical evaluation, especially in relation to the feet, is delegated to the physician or obtained through self-report. They also mentioned that the Nursing consultation is not part of the nurses' daily work. Research carried out on 50 medical records of people with diabetic neuropathy concluded that 100% of nurses' records had no reports regarding the evaluation of signs and symptoms of diabetic neuropathy.²⁴

On the other hand, the results of this study diverge from that conducted with nurses at the basic health units of Curitiba, which found that ten nurses reported performing lower limb sensitivity tests in the Nursing consultation.²¹

Thus, it can be considered that nurses lose the opportunity to perform the Nursing consultation, which represents an important instrument in Primary Care, subsidizing the identification of Nursing diagnoses and interventions according to the needs of the person.

● Sub-theme: knowledge deficit about the rights of the person with Diabetes

The rights of the person with DM are ensured by the laws and ordinances of the three spheres of government that provide that people with DM receive free of charge, from the Unified Health System (UHS), the medicines and the materials necessary for their application and the monitoring of blood glucose capillary.

The client is still entitled to appointments, in advance, so that the waiting time does not exceed thirty minutes, and clear guidelines that facilitate the process of understanding the changes in the health and illness process, treatment and care required.²⁶

Through the testimonies, nurses' knowledge about the rights of the person with DM is still incipient, as explained below:

Rights? Legal? You know I never cared about rights, no. This I have never looked, so rights of care, he has yes, priority of care, we have a programmed schedule for these diabetics and this within the SUS he has the right to consult how many times in the year, now right so, another form of right I do not know, but within the care here he has. (E7)

Because it is a chronic, controllable condition, through pharmacological and non-pharmacological treatment, most people require state support to enable treatment and professionals to clarify them in order to achieve those rights.

By informing people of their rights, the nurse has the purpose of helping people to obtain the necessary health care, defending their rights, seeking the guarantee of quality of care, thus serving as a link between the person seeking care and the health care environment.²⁷

Informing people of their rights has been considered an important requirement in Nursing care.²⁸ Some attributes that are necessary for the effectiveness of this care, such as the need to establish effective communication, both with the person seeking care and with their families and the rest of the care team.²⁹

Although the thematic of the study on DM is commonplace in the case of primary care nurses, an updated knowledge deficit is perceived. Caring for these people requires specific skills and knowledge about the disease from the nurses, since only then can they guide the person and his family about their state of health and clarify their doubts.³⁰

During the data collection, it was observed that many participants felt uncomfortable and apprehensive to answer the questions and, through the reports, it was possible to

perceive that the study provoked the rethinking of their work with the people with DM and sensitized the participants to reflect how much knowledge about the topic is important, and the need to broaden knowledge and seek updates. The fact of rethinking their work process demonstrates the professionals' commitment to the clientele and the need to improve their clinical practice.

CONCLUSION

The results point to the participants' lack of knowledge regarding the conceptualization of DM, diagnostic exams and their reference values, complications, treatment, care, insulin conservation, solid waste management and the rights of the person with DM. This distancing of knowledge can be attributed to the fact that nurses take on, the administrative function of Primary Care services as a priority, moving away from clinical practice in the work process, which is counterproductive to the model of assistance advocated. Thus, the results of this study identify the need for continuing education in health services, in order to provide updated knowledge for these professionals and the implementation of protocols in the Nursing consultation for the practice of clinical practice.

Often, only the knowledge of the person with DM is collected and evaluated, and it is forgotten that health professionals are the mediators of this knowledge, and that they play a relevant role in awakening, in the other, the interest and power for empowerment and self-management of the process of illness.

The results of this study, although they portray a local reality, with few participants, which are the main limitations of this study, they bring important contributions to the Nursing science when showing the lack of knowledge of the nurses about DM.

Faced with this reality, new researches seeking to investigate the knowledge of health professionals should be carried out, addressing not only this subject, but also several others, since it constitutes an adequate strategy to carry out the needs diagnosis and implement adequate and contextualized actions for improvement of the work process in health.

REFERENCES

1. Sociedade Brasileira de Diabetes (SBD). Diretrizes da Sociedade Brasileira de Diabetes: 2015-2016. São Paulo; 2016 [cited 2016 Nov 25]. Available from:

<http://www.diabetes.org.br/profissionais/images/docs/DIRETRIZES-SBD-2015-2016.pdf>

2. Rodrigues JA, Lima FJS, Santos AG. Atuação do enfermeiro com pacientes com diabetes mellitus na melhoria da qualidade de vida. RAS [Internet]. 2015 [cited 2017 May 22]; 13(46):84-90. Available from: http://seer.uscs.edu.br/index.php/revista_ciencias_saude/article/view/3102/pdf

3. Castro-Meza NA, Pérez-Zumano SE, Salcedo-Álvarez RA. La enseñanza a pacientes con diabetes: significado para profesionales de enfermeira. Enferm Univ [Internet]. 2017 [cited 2017 May 10];14(1):39-46. Available from: <http://www.index-f.com/reu/14/03946.php>

4. Chaves MO, Teixeira MRF, Silva SED. Percepções de portadores de diabetes sobre a doença: contribuições da Enfermagem. Rev Bras Enferm [Internet]. 2013 [cited 2017 May 30];66(2):215-21. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672013000200010&lng=en&nrm=iso

5. Hollis M, Glaister K, Lapsley JA. Do practice nurses have the knowledge to provide diabetes self-management education? Contemp Nurse. 2014 [cited 2017 May 30];46(2):234-41. Available from: <http://www.tandfonline.com/doi/abs/10.5172/conu.2014.46.2.234>.

6. Oliveira DM, Schoeller SD, Hammerschmidt KSA, Vargas MAO, Girondi JBR. Nursing staff knowledge in relation to complications of diabetes mellitus in emergency services. Acta Paul Enferm [Internet]. 2014 [cited 2017 Apr 23];27(6):520-5. Available from: http://www.scielo.br/pdf/appe/v27n6/en_1982-0194-appe-027-006-0520.pdf

7. Alotaibi A, Al-Ganmi A, Gholizadeh L, Perry L. Diabetes knowledge of nurses in different countries: An integrative review. Nursing Educ Today [Internet]. 2016 [cited 2016 Dec 18];39:32-49. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27006032>

8. Ministério da Saúde (BR). Estratégias para o cuidado da pessoa com doença crônica: diabetes mellitus/ Cadernos de Atenção Básica, nº 36. [Internet]. Brasília: Ministério da Saúde; 2013 [cited 2016 Nov 23]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/estrategias_cuidado_pessoa_diabetes_mellitus_cab36.pdf

9. Bardin L. Análise de conteúdo. ed. Lisboa (Portugal): Edições 70; 2013.

10. Ministério da Saúde (BR). Conselho Nacional de Saúde. Resolução Nº 466, de 12 de

dezembro de 2012. Aprova as diretrizes e normas regulamentadoras de pesquisa envolvendo seres humanos. [Internet]. Brasília: 2012 [cited 2015 Dec 15] Available from:

http://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html

11. Yacoub MI, Demeh WM, Darawad MW, Barr JL, Saleh AM, Saleh MY. An assessment of diabetes-related knowledge among registered nurses working in hospitals in Jordan. *Int Nurs Rev* [Internet]. 2014 [cited 2017 May 14];61(2):255-62. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/24571542>

12. Oyetunde MO, Famakinwa TT. Nurses' Knowledge of contents of diabetes patient education in Ondo-state, Nigeria. *Journal of Nursing Education and Practice* [Internet]. 2014 [cited 2017 May 24];4(4):1-8. Available from:

<http://www.sciedu.ca/journal/index.php/jnep/article/view/2779>

13. Ugur E, Demir H, Akbal E. Postgraduate education needs of Nurses' who are caregivers for patients with diabetes. *Pak J Med Sci* [Internet]. 2015 [cited 2017 May 12];31(3):637-42. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4485286/pdf/PJMS-31-637.pdf>

14. Pham L, Ziegert K. Ways of promoting health to patients with diabetes and chronic kidney disease from a nursing perspective in Vietnam: A phenomenographic study. *Int J Qual Stud Health Well-being* [Internet]. 2016 [cited 2017 May 08];10(11):[about 5 p] Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4864829/pdf/QHW-11-30722.pdf>

15. Robb A, Reid B, Laird EA. Insulin knowledge and practice: a survey of district nurses in Northern Ireland. *Br J Community Nurs* [Internet]. 2017 [cited 2017 May 08];22(3):138-45. Available from: https://www.researchgate.net/publication/314200060_Insulin_knowledge_and_practice_A_survey_of_district_nurses_in_Northern_Ireland

16. Bornhausen AP, Reginatto CJ, Subtil VM, Subtil EM, Zanotto LD, Krieger D, et al. Hemoglicoteste: influência dos locais de punção sobre os níveis de glicose e intensidade de dor. *ABCS Health Sci* [Internet]. 2014 [cited 2017 May 08];39(3):173-176. Available from: https://www.researchgate.net/publication/272386830_Hemoglicoteste_influencia_dos_locais_de_puncao_sobre_os_niveis_de_glicose_e_intensidade_de_dor

17. Sociedade Brasileira de Diabetes (SBD). Posicionamento Oficial SBD nº 01/2017

Recomendações sobre o tratamento injetável do diabetes: insulinas e incretinas. São Paulo, 2017 [cited 2017 May 22]. Available from: <http://www.diabetes.org.br/publico/images/2017/posicionamento-oficial-sbd-01-2017.pdf>

18. Batista JMF, Becker TAC, Zanetti ML, Teixeira CRS. O ensino em grupo do processo de aplicação de insulina. *Rev Eletr Enf* [Internet]. 2013 [cited 2017 Apr 08];15(1):71-9. Available from: <http://dx.doi.org/10.5216/ree.v15i1.16179>

19. Gaertner F, Schneider A, Spanevello S, Colet C. Procedimentos relacionados ao uso de insulina por portadores de diabetes mellitus tipo i e tipo ii. *Revista Contexto & Saúde*. 2014 Dec [cited 2017 Apr 08];14(27):44-53. Available from: <https://www.revistas.unijui.edu.br/index.php/contextoesaude/article/view/2891>

20. Cubas MR, Santos OM, Retzlaff EMA, Telma HLC, Andrade IPS, Moser ADL et al. Pé diabético: orientações e conhecimento sobre cuidados preventivos. *Fisioter Mov* [Internet]. 2013 [cited 2016 Nov 24]; 26(3): 647-55. Available from: <http://www.scielo.br/pdf/fm/v26n3/a19v26n3.pdf>

21. Arbuino AS, Alves AM, Visentin A, Scussiato LA. O conhecimento do enfermeiro na prevenção da neuropatia diabética em unidades de saúde de Curitiba -PR. *Cad da Esc de Saúde* [Internet]. 2015 [cited 2017 May 18];1(13):1-13. Available from: <http://revistas.unibrasil.com.br/cadernosaud/index.php/saude/article/view/21>

22. Pereira LF, Paiva FAP, Silva AS, Sanches RS, Lima RS, Fava SMCL. Nurses' actions in diabetic foot prevention: the look of the person with diabetes mellitus. *J. res.: fundam. care.* [Internet]. 2017 Nov [cited 2017 Oct 18];9(4):1008-14. Available from: http://www.seer.unirio.br/index.php/cuidadofundamental/article/view/5702/pdf_1

Conselho Federal de Enfermagem. COFEN nº 0544/2017 Dispõe sobre a consulta de enfermagem [Internet]. 2017 [cited 2017 May 22]. Available from: http://www.cofen.gov.br/resoluco-cofen-1591993_4241.html

24. Santos CO, Santos CQ, Almeida VR. O Registro do enfermeiro na assistência ao usuário com neuropatia diabética na atenção básica. *Nursing* [Internet] 2016 [cited 2017 May 22];17(220):1183-6. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IisScript=iah/iah.xis&src=google&base=BDENF&lang=p&nextAction=lnk&exprSearch=28797&indexSearch=ID>

25. Ministério da Saúde (BR). Lei 11347, de 27 de setembro de 2006. Dispõe sobre a distribuição gratuita de medicamentos e materiais necessários à sua aplicação e a monitorização da glicemia capilar aos portadores de diabetes inscritos em programas de educação para diabéticos [Internet]. Brasília 2006 [cited 2015 Nov 26]. Available from:

http://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2006/Lei/L11347.htm

26. Ministério da Saúde (BR). Portaria nº 1286 de 26 de out de 1993, art 8º, nº 74. Dispõe sobre o direito dos pacientes [Internet]. Brasília 1993 [cited 2015 Nov 26]. Available from:

http://www.lex.com.br/doc_4362_portaria_N_1286_DE_26_DE_OUTUBRO_DE_1993

27. Nogario ACD, Barlem ELD, Tomaschewski-Barlem JG, Lunardi VL, Ramos AM, Oliveira ACC. Nursing actions in practicing inpatient advocacy in a burn unit. Rev Esc Enferm USP [internet]. 2015 [cited 2017 Oct 18];49(4):580-588. Available from:

http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342015000400580

28. Barlem ELD, Lunardi VL, Tomaschewski JG, Lunardi GL, Lunardi Filho WD, Schwonke CRGB. Moral distress: challenges for an autonomous nursing professional practice. Rev Esc Enferm USP [Internet]. 2013 [cited 2017 July 22];47(2):506-10. Available from: <http://www.scielo.br/pdf/reeusp/v47n2/33.pdf>

29. Josse-Eklund A, Jossebo M, Sandin-Bojö AK, Wilde-Larsson B, Petzäll K. Swedish nurses' perceptions of influencers on patient advocacy: a phenomenographic study. Nurs Ethics. [Internet]. 2014 [cited 2017 May 18];21(6):673-83. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/24477259>

30. Rodrigues JÁ, Lima FJS, Santos AG. Nurses' role in the improvement of diabetes mellitus patients' quality of life. RAS [Internet] 2015 Dec [cited 2017 May 18];13(46):84-90. Available from:

<http://seer.uscs.edu.br/index.php>

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