# Nursing diagnoses in elderly people with diabetes *mellitus* according to Orem's Self-Care Theory

*Diagnóstico de enfermagem em idosos com diabetes mellitus segundo Teoria do Autocuidado de Orem*

*Diagnóstico de enfermería en ancianos con diabetes mellitus según Teoría del Autocuidado de Orem*

**Francielle Renata Danielli Martins Marques**[I]
ORCID: 0000-0002-8578-9615

**Patrícia Bossolani Charlo**[I]
ORCID: 0000-0002-8262-2086

**Grazieli Adrieli Rodrigues Pires**[I]
ORCID: 0000-0002-9673-9218

**Cremilde Aparecida Trindade Radovanovic**[I]
ORCID: 0000-0001-9825-3062

**Lígia Carreira**[I]
ORCID: 0000-0003-3891-4222

**Maria Aparecida Salci**[I]
ORCID: 0000-0002-6386-1962

[I] *Universidade Estadual de Maringá. Maringá, Paraná, Brazil.*

**Corresponding author:**
Maria Aparecida Salci
E-mail: masalci@uem.br

**ABSTRACT**

**Objective:** To identify nursing diagnoses and conditioning factors of self-care in older adults with diabetes mellitus, in the light of Orem's Theory of Self-Care. **Methods:** Exploratory, descriptive study with a qualitative approach, conducted with the theoretical framework of Orem's Theory of Self-Care. It was developed with 12 older people with diabetes, in a country's southern municipality, between October and November 2019. For data collection, it was used individual interviews and focus groups. The data was submitted to thematic and content analysis directed to taxonomy II of NANDA International. **Results: Twenty** nursing diagnoses related to universal self-care requirements and health deviations were identified. All diagnoses were anchored in the supportive-education nursing system. **Final considerations**: The development of the disease and the consequences of chronic hyperglycemia were poorly recognized by the elderly, interfering with low adherence to self-care practices and disease control.
**Descriptors:** Diabetes Mellitus; Self-Care; Nursing Diagnosis; Elderly; Nursing Theory.

**RESUMO**

**Objetivo:** Identificar os diagnósticos de enfermagem e os condicionantes do autocuidado em pessoas idosas com diabetes *mellitus*, à luz da Teoria do Autocuidado de Orem. **Métodos:** Estudo exploratório, descritivo, de abordagem qualitativa, conduzido pelo referencial teórico da Teoria do Autocuidado de Orem. Foi desenvolvido com 12 idosos com diabetes, em município do Sul do país, entre outubro e novembro de 2019. Para coleta de dados, utilizou-se entrevista individual e grupo focal. Os dados foram submetidos à análise temática e de conteúdo dirigida à taxonomia II da NANDA Internacional. **Resultados:** Identificaram-se 20 diagnósticos de enfermagem relacionados aos requisitos de autocuidado universais e desvios de saúde. Todos os diagnósticos estavam ancorados no sistema de enfermagem apoio-educação. **Considerações finais:** O desenvolvimento da doença e as consequências da hiperglicemia crônica foram pouco reconhecidos pelos idosos, interferindo na baixa adesão às práticas de autocuidado e no controle da doença.
**Descritores:** Diabetes Mellitus; Autocuidado; Diagnóstico de Enfermagem; Idoso; Teoria de Enfermagem.

**RESUMEN**

**Objetivo:** Identificar los diagnósticos de enfermería y condicionantes del autocuidado en personas ancianas con diabetes *mellitus*, basado en la Teoría del Autocuidado de Orem. **Métodos:** Estudio exploratorio, descriptivo, de abordaje cualitativo, conducido por la Teoría del Autocuidado de Orem. Desarrollado con 12 ancianos con diabetes, en municipio del Sur brasileño, entre octubre y noviembre de 2019. Para recolecta de datos, se utilizó entrevista individual y grupo focal. Los datos sometidos al análisis temático y de contenido dirigida a la taxonomía II de la NANDA Internacional. **Resultados:** Identificaron 20 diagnósticos de enfermería relacionados a los requisitos de autocuidado universales y desvíos de salud. Todos los diagnósticos estaban anclados en el sistema de enfermería apoyo-educación. **Considraciones finales:** El desarrollo de la enfermedad y las consecuencias de la hiperglucemia crónica fueron poco reconocidos por los ancianos, interfiriendo en la baja adhesión a las prácticas de autocuidado y en el control de la enfermedad.
**Descriptores:** Diabetes Mellitus; Autocuidado; Diagnóstico de Enfermería; Anciano; Teoría de Enfermería.

## INTRODUCTION

Diabetes mellitus (DM) is considered a worldwide epidemic. It is the cause of 71% of all deaths worldwide. In Brazil, it causes about 5% of all deaths from chronic noncommunicable diseases (NCDs)[1]. Type 2 DM (DM2) accounts for 90% to 95% of all DM cases, and poor eating habits and physical inactivity are the main modifiable risk factors for developing the disease[2]. The change in lifestyle and the increase in obesity were factors that contributed to the growing worldwide prevalence of DM2[3].

The growing importance of this disease as one of the leading causes of death in the population over 60 years of age[2] emphasizes the longitudinality in elderly care as a fundamental strategy in Public Health for monitoring the chronic conditions present in this population. The acute and chronic complications of DM2, such as coronary artery disease, peripheral arterial disease, and cerebrovascular disease, occur due to persistent hyperglycemia and decompensated metabolic control in older people with DM2[2,4]. The test considered the gold standard to determine metabolic control is the glycated hemoglobin (HbA1c), whose values considered appropriate for the elderly are between 7% and 8% [2], but the goals should be individualized, given risk factors and presence of comorbidities[2].

The nurse's role stands out when it comes to monitoring older people with DM2, by identifying problems, giving guidance on the disease, and providing health education to make them take responsibility for their self-care[5]. The sharing of responsibilities between health professionals and the elderly with chronic conditions synthesizes the active role that these social actors should play to achieve positive results, capable of stabilizing and controlling the disease through adherence to treatment[6]. Self-care in the treatment of DM2, besides adherence to drug therapy and glycemic monitoring, involves healthy eating, regular physical activity, proper foot care, ability to resolve conflicts and deal positively with the presence of a chronic condition[4].

A theoretical framework of reference for self-care in nursing professional practice is Orem's Theory of Self-Care, which involves the theoretical constructs of Self-Care, Self-Care Deficits and Nursing Systems, all interrelated, providing support and foundations for nursing practice[7]. Orem conceptualizes "nursing" as a human service to help people obtain and recover skills and states that the individual's physical, psychological, interpersonal, and social aspects of health are inseparable[5,8].

In this context, nurses need to assess individualized self-care capacity and perform the nursing process (NP) in five steps: 1) collection, systematic, and organized data analysis; 2) identification of people's needs; 3) planning; 4) implementation; and 5) evaluation of care[9]. The second stage should be supported by taxonomic classification documents, such as the Nursing Diagnosis (ND) classification of NANDA I[10].

Orem's Theory of Self-Care for older people with DM becomes applicable, mainly due to the chronicity of this morbidity and the continuous need for effective self-care. For this reason, this study is relevant considering the need and incentive for nurses to develop the Systematization of Nursing Care and implement the NP - in this case, highlighting the NDs, the basis for the implementation of other steps of the care process.

## OBJECTIVE

To identify nursing diagnoses and conditioning factors of self-care in older adults with diabetes mellitus, in the light of Orem's Theory of Self-Care.

## METHODS

### Ethical aspects

All ethical and legal precepts regulated by Resolutions 466/2012 and 510/2016 of the National Health Council were respected. The Permanent Committee for Project Evaluation and the Permanent Committee for Ethics in Research with Human Beings (COPEP) approved this research under Opinion Nº. 1.161.338. All participants signed the Informed Consent Form (ICF). To preserve participants' confidentiality and anonymity, they were identified by the letter "P," followed by numbers from 1 to 12 to classify the order of their speeches (P1, P2… P12).

### Type of study

This is an exploratory, descriptive study with a qualitative approach[11]. It used the COREQ (*Consolidated criteria for reporting qualitative research*) protocol to improve the presentation of the results of this research.

### Methodological procedures

#### Study setting

A study conducted in a Basic Health Unit (UBS) in the Southern Brazilian region which participated in the regional mentoring process for bronze seal and had a health team engaged in care of people with DM2.

#### Data source

Twelve people with DM2, from every risk stratum, who met the inclusion criteria participated in the study: being 60 years old or older, not presenting physical or psychological conditions that prevented them from participating in the interview and focus group, being in treatment for at least 12 months and assiduously attending the individual and group services offered by the UBS team. The study excluded people under 60 years old and those unable to express themselves orally. Nobody who was invited refused to participate in the research.

#### Collection and organization of data

Data collection occurred between October and November 2019. For this procedure, a room next to the UBS was made available, a place routinely used by the team when there is the need for meetings/training/group work. The location for conducting the research and scheduling the participants had the support of the UBS nurse.

For the research process, they used the techniques of individual interviews and focus groups. The choice for the focus group was

due to the possibility of facilitating the dialogue, interaction, and exchange of experiences among the participants, fundamental factors to understand the perceptions, practices, and attitudes experienced by the group participants. The interviews were conducted using a question guide developed by the researchers, which focused on sociodemographic characteristics and clinical history (classification of metabolic control, time of DM2 diagnosis, and presence of polypharmacy), with apparent and content validation[12] performed by eight members of the Study and Research in Chronic Conditions Group (GEPECRON). In order to proceed with the validation, the following steps were performed: deepening of the theme, apparent analysis related to semantics and clarity of the questions, and theoretical analysis of each item regarding content and relevance[12].

Two dates were scheduled for the individual interviews, followed by the focus group, with six people participating on each date. On both days, two researchers with a bachelor's degree in nursing, master's students, and experience in the techniques used, participated in the data collection, giving a personal introduction, and explaining the importance and reasons for participating in the research. Individually, they established a relationship with each participant and carried out the interview, which lasted an average of 20 minutes. After the individual interviews, the participants gathered in a semicircle to start the focus group, which lasted approximately 70 minutes. The trigger question for the focus groups aimed to understand knowledge about self-care practices related to DM2: "How do you practice self-care regarding diabetes?" Participants were encouraged to answer each question. Based on the group's speeches, new questions were asked until the presentation of new conditioning factors of self-care was exhausted, or there was redundancy in the information, reaching data saturation.

All interviews and recorded content obtained in the two focus groups were transcribed into a Microsoft Word document. They were individually organized, assigning each transcription to the corresponding participant so that the self-care conditioning factors mentioned were individually identified[11]. Then, this information was presented to the participants, identifying their respective conditions of self-care to reveal the findings and confirm the veracity of the information obtained[11].

### Data analysis

To organize and systematize the data, we adopted the technique of thematic analysis[11], which consists of the stages of pre-analysis, analysis, and interpretation; and the directed content analysis[13], based on consolidated studies on a phenomenon to support the choices and decisions of codes and categories of the study, for which we used the taxonomy II of NANDA-I[10]. In the pre-analysis[11], a loose reading of the transcribed material was performed, identifying self-reported health conditions, process, or vulnerability, resulting in the main excerpts that composed the record units..

In the stage of analysis[11], the excerpts were coded according to convergent and divergent passages, giving rise to units of meaning, categorized into problems, potential risks, and health promotion status. In interpretation[11], the NDs were identified, corresponding to the nurse's clinical judgment about a health condition, process, or vulnerability of an individual, family, group, or community to support future nursing interventions[10]. For the directed content analysis[13], which used taxonomy II of NANDA-I[10], the process of identifying NDs was established by clinical reasoning[14].

The researchers' scientific knowledge and experiences, together with the inferences obtained through interviews and focus groups, allowed the clinical reasoning[14] with solidity in the evaluation of each person. The identified problems, potential risks, or health promotion status were grouped by similarity, considering the components (title, domain, and defining characteristics). Then, the NDs were correlated with the theoretical framework[7-8], interpreted based on critical and reflective inferences[11].

Once the product of analysis was obtained, the accuracy of the NDs found was verified. The accuracy of the ND is validated when the nurse can clearly identify and link the defining characteristics to the related factors and/or risk factors found with the evaluation of the individual, family, group or community[10]. Thus, the technique of validation by consensus[15] was applied, in order to establish a unanimous opinion about the pertinence and relevance of a given ND. For the validation[15], three experts were selected meeting the following criteria: being linked to the Graduate Nursing Program, being part of GEPECRON, having experience with care work in PHU and having experience in applying the ND and nursing classifications or taxonomies. The disagreement of one or more specialists conditioned the non-validation of the respective NDs[15].

The NDs, therefore, were derived from the data obtained by the two collection techniques, with no prior indication of the themes presented in the results. Pre-analysis, analysis, and interpretation[11] were performed with the help of MAXQDA® software, version 20.0.8, reference 230594870. After validating the NDs, a tree with the self-reported health conditions, process, or vulnerability was elaborated, and the relations with the defining characteristics expressed by each ND were pointed out.

### RESULTS

Twelve people with DM2 participated in the study, eight women and four men; in the age range between 60 and 79 years; most with less than five years of disease diagnosis and poor metabolic control classification; and half of them used polypharmacy, with daily consumption of five or more medications. Chart 1 describes the identified NDs, presenting only the leading health conditions, processes, or vulnerability to corroborate the respective ND.

As for the self-care requirements, the NDs were related to the universal and health deviation ones, according to Chart 2. Only developmental requirements were not associated with the ND because specific aspects of the life cycle processes were not identified in the research participants but correlated to the chronic condition researched.

All NDs in the older adults with DM2 corresponded to the supportive nursing education system. As for the focus of the NDs, eleven were related to health problems, four to potential risk, and five to health promotion (Chart 3). The fact that most NDs indicate failures in actions highlights the role of nurses in promoting interventions aimed at promoting the practice of self-care.

**Chart 1 -** Nursing diagnoses, according to NANDA-I taxonomy II, in older people with type 2 diabetes mellitus according to the defining characteristics, based on self-reported health conditions, process, or vulnerability, Maringá, Paraná, Brazil, 2019

| Self-reported health conditions, process, or vulnerability by older adults with type 2 diabetes mellitus | Defining Characteristics | Domain | Nursing Diagnosis |
|---|---|---|---|
| *My foot used to fit a toe in the cracks* [...] *after I learned to take care of myself, it healed.* (P12)<br>*I'm walking.* (P11)<br>*I went to the prevention exam wearing flip-flops, and the nurse told me that I shouldn't wear them, so I try not to wear them anymore.* (P7) | Express desire to improve self-care.<br>Expresses desire to increase knowledge about self-care strategies. | 4. Activity/resting | Disposition to improve self-care |
| *I participated in the smoking group. I didn't quit, but I reduced smoking.* (P4) | Express desire to improve goal setting. | 9. Coping/stress tolerance | Improved disposition for resilience |
| *I learned that my glycated* [hemoglobin] *must be below 7.* (P3)<br>*My glycated* [hemoglobin] *was 9.5... normal is between 6 and 5.* (P11)<br>*I have learned to always look at my feet. I look at them every day.* (P3) | Express desire to increase understanding of health information to make health care choices. | 1. Health Promotion | Improved disposition for health literacy |
| *Walking in closed shoes, which I have changed since I was told to. I used to wear flip-flops.* (P1)<br>*After I went back to taking the medicine, the heat in my legs decreased.* (P10) | Express desire to improve daily life choices to achieve goals. | 1. Health Promotion | Improved disposition for health maintenance |
| *I need to eat every 3 hours.* (P7) | Express desire to improve nutrition. . | 2. Nutrition | Improved disposition for nutrition |
| *We know, but we don't take care of ourselves.* (P11)<br>*I smoke. But I don't smoke in front of others.* (P5) | Lack of adherence to health activities | 4. Activity/resting | Self-neglect |
| *I was doing it* [exercising] *at the academy, but stopped because it is too busy at the farm.* (P10) | Insufficient motivation for physical activity.<br>Insufficient knowledge about the benefits of physical exercise | 1. Health Promotion | Sedentary lifestyle |
| *They* [health professionals] *already told me not to do that* [smoking] *anymore, but I never had a problem because of that.* (P1)<br>*They* [health professionals] *told me that I can't eat dulce de leche, but I do.* (P12) | Negative perception of the recommended health care strategy | 1. Health Promotion | Risk-prone health behavior |
| *It's no use to take care of my diet, because the more I take care of myself, the more it* [the blood sugar] *goes up. So, I don't care anymore.* (P5) | Lack of interest in improving health behaviors | 1. Health Promotion | Inefficient health maintenance |
| *My diabetes is low in the morning, and high at night.* (P2) | Lack of adherence to the diabetes control plan | 2. Nutrition | Risk of unstable blood sugar |
| *I get up all night to pee.* (P10) | Nocturia | 3. Elimination and exchange | Impaired urinary elimination |
| *I walk holding the broomstick.* (P1) | Increased susceptibility to falls | 11. Safety/protection | Risk of falls |
| *It looks like you have fire in your leg and burning in your feet.* (P8)<br>*Sometimes I can't cover my foot because it burns so much.* (P3) | Insufficient knowledge about the disease process | 4. Activity/resting | Risk of ineffective peripheral tissue perfusion |
| *I heard that sweetener could do more harm than sugar, so every day I use one.* (P6)<br>*Who has diabetes cannot go out alone in the street.* (P7)<br>[Who has diabetes] *can't do anything.* (P9) | Incorrect information or information provided by others | 5. Perception/cognition | Poor knowledge |
| *My sister had a heart attack because of diabetes. I am afraid I will die early like her.* (P4) | Fear of premature death | 9. Coping/stress tolerance | Death-related Anxiety |
| *When I want to stop smoking, I will stop.* (P5) | Denying weaknesses | 9. Coping/stress tolerance | Defensive coping |

To be continued

Chart 1 (concluded)

| Self-reported health conditions, process, or vulnerability by older adults with type 2 diabetes mellitus | Defining Characteristics | Domain | Nursing Diagnosis |
|---|---|---|---|
| *Some people think we are cocky, because we only wear shoes on the street, we don't wear flip-flops. That's why sometimes we must wear flip-flops.* (P6) | Perception of community vulnerability | 9. Coping/ stress tolerance | Ineffective community coping |
| *I don't like to talk about it* [complications]. (P1) | Does not admit the impact of the disease on life | 9. Coping/ stress tolerance | Ineffective denial |
| *My entire heel is cracked.* (P5) *My foot is dry, the heel cracks, so it can develop a wound, I'm afraid.* (P6) | Alteration in skin integrity | 11. Safety/protection | Risk of Infection |
| *When my foot is very cracked, I roll it over the tile.* (P8) | Insufficient knowledge about protection of tissue integrity | 11. Safety/protection | Risk of impaired tissue integrity |

**Chart 2 -** Nursing diagnoses, according to NANDA-I taxonomy II, according to Orem's Theory of Self-Care, Maringá, Paraná, Brazil, 2019

**Nursing diagnoses based on universal requirements**

Self-neglect
Sedentary lifestyle
Risk-prone health behavior
Death-related anxiety
Ineffective health maintenance
Impaired urinary elimination
Disposition to improve self-care
Improved disposition for resilience
Improved disposition to health literacy
Improved disposition for health control
Improved disposition for nutrition

**Nursing diagnoses based on health deviation requirements**

Risk of ineffective peripheral tissue perfusion
Poor knowledge
Risk of unstable blood sugar
Defensive coping
Ineffective community coping
Ineffective denial
Risk of Infection
Risk of falls
Risk of impaired tissue integrity

**Chart 3 -** Nursing diagnoses, according to NANDA-I taxonomy II, related to the health problem, potential risk, and health promotion, Maringá, Paraná, Brazil, 2019

**Nursing diagnoses related to health problems**

Self-neglect
Sedentary lifestyle
Risk-prone health behavior
Ineffective health maintenance
Impaired urinary elimination
Poor knowledge
Death-related anxiety
Defensive coping
Ineffective community coping
Ineffective denial

**Nursing diagnoses related to potential risk**

Risk of unstable blood sugar
Risk of ineffective peripheral tissue perfusion
Risk of infection
Risk of falls
Risk of impaired tissue integrity

**Nursing diagnoses related to health promotion**

Disposition to improve self-care
Improved disposition for resilience
Improved disposition to health literacy
Improved disposition for health maintenance
Improved disposition for nutrition

## DISCUSSION

The ability to diagnose in nursing involves continuous reasoning and judgment processes that support the nursing procedures to be adopted. Clinical reasoning is a skill to be built and refined through daily practice so that nurses can judge diagnostic inferences in clinical practice[14]. Therefore, studies on ND aim to improve the accuracy of nurses' critical thinking and care planning, bringing scientific research closer to the needs identified by care services and promoting critical thinking in nursing[14]. The nurse's autonomy in performing the NDs assists the person/family/community with enough critical elements to propose interventions to the identified problems, besides recognizing Nursing as the science of care[16].

The use of Orem's Theory of Self-Care as a guide to conduct nurses' actions in the implementation of the NP has stood out as a strategic field for the implementation of interventions aimed at promoting self-care to people with DM2[17]. In this study, we identified 20 DEs supported by Orem's Theory of Self-Care regarding the role of nurses as a guide and support of self-care practice for the older people with DM2.

The ND "Self-neglect," "Risk-prone health behavior," and "Ineffective health maintenance" were related to lack of therapeutic adherence. This result corroborates findings in a study[18] predominated by

older adults with chronic conditions, showing a poor knowledge about their risk factors, highlighting the role of health professionals in providing complete and clarifying information.

In the elderly, as is the case of this study, the "Sedentary lifestyle" is a frequent ND. Joint stiffness, presence of pain, lack of family support, and lack of physical conditioning were some of the reasons given by the older adults for not practicing physical activity in similar studies[19-21].

Studies[19,22-23] revealed that the ND "Risk of unstable sugar" has significant improvement when associated with nursing-supported care. Insufficient knowledge about DM2 was responsible for low adherence to the therapeutic plan, resulting in glycemic decompensation[17].

Impaired urinary elimination", exemplified by the symptoms of polyuria and nocturia, is also a frequent finding in people with DM2[22] because of increased blood glucose and decreased renal reabsorption and dehydration[4].

The "Risk of falls" should be a concern of nurses in the older population since falling reflects frailty with consequent cascading damages that potentiate the emergence of geriatric disabilities[19-20]. However, the association of the risk of falls with acute or chronic complications of DM2, such as hypoglycemia, sarcopenia due to insulin resistance, imbalance due to proprioception alteration, or loss of protective sensitivity caused by diabetic polyneuropathy, cannot be ruled out[2]. The NDs "Risk of ineffective peripheral tissue perfusion," "Risk of impaired tissue integrity," and "Risk of infection" in people with DM2 may relate to signs and symptoms compatible with complications resulting from peripheral diabetic neuropathy[2]. In this sense, health education for the elderly during nursing consultations has an enlightening role in preventive foot care, in the orientation of routine physical examination at home, and the use of appropriate footwear[24]. A systematic review[25] on the effectiveness and efficacy of educational actions against complications related to DM2 showed that interventions performed by nurses led to a reduction in foot ulcers, as well as in peripheral vasculopathy and neuropathy.

The "poor knowledge" of the older people with DM2 was related to the complications and lack of adherence to drug and non-drug treatment found in this study. The empowerment of people with chronic conditions in their treatment is essential for balancing the health-disease process[18-22].

The ND "Death-related Anxiety" is usually linked to the picture of people with some chronic condition. In this case, the defining characteristic was fear related to premature death, denoting prior knowledge of the informant about the risk of early mortality from DM[2].

The NDs "Defensive coping" and "Ineffective community coping" occur when people do not have a clear understanding of their health condition or suffer from stigmatization in society[26]. Ineffective denial" is part of a stage when the person still refuses to accept the disease process and often relates to lack of emotional support[27].

In this study, the NDs associated with the universal self-care requirement confirmed similar research results[18,28-30], which related the ND to the intake of water and food, physiological elimination processes, impaired mobility, maintenance of balance between physical activity and rest, referring to the dangers to life, functioning, and well-being[21]. Other studies[17,28,30-31] also related the NDs

to the requirement of self-care of health deviations regarding the lack of participation of the person about their process of illness, inadaptation of reality to their needs, and unawareness about the treatment and evolution of the disease[5,8].

Nurses' actions to promote support and health education highlight the importance of mutual accountability between professionals and users as a way to contemplate appropriate care, expand the knowledge of people about aspects of the disease and contribute to self-management of DM2[32]. The Nursing Systems Theory points out this relationship of reciprocity and co-responsibility for care, especially for people with chronic conditions that demand a routine of daily care to maintain their health[33].

Orem describes the Nursing Systems and identifies them as "fully compensatory" when the person is unable to perform self-care actions; "partially compensatory," a situation in which both the person and the nurse perform self-care actions; and "supportive-education," when the individual is able, through the nurse's guidance, to perform and learn[5,8]. In this field, the results of this study are anchored in the supportive-education system[28], pointing out the role of nurses in the health education process.

It is the nurse's role to identify the deficits and define the modalities of support so that the assistance is in line with the self-care needs and the ability of people to perform the actions[19]. The construction of an ND can be focused on the problem, health promotion, or potential risk[10]. The NDs "Self-neglect"[18,29], "Sedentary lifestyle"[18,28-29], "Risk-prone health behavior"[18,28], "Ineffective health maintenance"[28], "Impaired urinary elimination"[21], "Poor knowledge"[28-29], "Death-related anxiety," "Defensive coping"[26], "Ineffective community coping," and "Ineffective denial"[31] are known as problem-focused NDs[10] as they present an undesirable human response to a specific condition. The NDs "Risk of unstable blood sugar"[23], "Risk of ineffective peripheral tissue perfusion"[21], "Risk of infection"[29], "Risk of impaired tissue integrity"[21,26], and "Risk of falls"[20,28] are designated as potential risk[10] because they represent situations of susceptibility for the development of an undesirable response to health conditions. And the NDs "Disposition to improve self-care"[28], "Improved disposition for resilience"[33], "Improved disposition for health literacy," "Improved disposition for health maintenance"[28], and "Improved disposition for nutrition"[34] represent the Health Promotion domain and express motivational desires[10].

Most studies on NDs are conducted in people seen in the outpatient or hospital environment, making them focus on the problem and potential risks. Since PHC is a point of care whose essence is in prevention and health promotion, the low number of research on ND at this level of contact made it difficult, in this study, to discuss the NDs contained in the Health Promotion domain.

We understand that Orem's Theory of Self-Care as theoretical support to systematize nursing care allows providing comprehensive and individualized care to the elderly with DM. Self-care actions occur through educational support, guidance, counseling, and building interpersonal relationships between the nurse, the older person, and the family[35].

## Study limitations

Study limitations include the construction of results in a single context; and the fact that the characteristics of the participants

influenced them. Therefore, it is recommended that studies be carried out in different scenarios involving other conditions of the health/disease process.

### Contributions to the Fields of Nursing or Public Health

The study praises one of the stages, which consists of the NP: the nursing diagnosis. The entire implementation of nursing care is carried out based on this stage. Directing the research to the older people with DM2 was a choice that reflects the concern with the problem involving public health. The pertinence and relevance of this study lie in the search to consolidate the practice of nurses with systematized care, aiming at integrality and providing support to people for the development of self-care, according to Orem's Theory of Self-Care, which is timeless.

## FINAL CONSIDERATIONS

Twenty nursing diagnoses were identified, predominantly those related to health deviation concentrated on the problem and belonging to the support-education system. It was observed that many older adults with DM2 are unaware of the disease development process and the consequences of chronic hyperglycemia.

That fact has resulted in poor adherence to self-care practices, thus hindering the control of the disease, which is considered a severe public health problem.

It is noteworthy that Orem's Theory of Self-Care allowed us to know the conditioning factors or self-care deficits of the older adults with DM2, making this reference contemporary to the concept of promoting and preventing health complications in the population. That allows us to reflect that self-care is learned through human interaction, i.e., it results from the relationship between health professionals and people with DM2.

With this study, we hope that systematized nursing actions will be encouraged. By elaborating nursing diagnoses, nurses intervene in a targeted, safe, and effective manner. We also expect to promote the application of nursing theories - especially Orem's Theory of Self-Care - in care practices, mainly when associated with the use of nursing diagnoses in PHC.

## FUNDING

## REFERENCES

1. World Health Organization (WHO). Noncommunicable Diseases (NCD) Country Profiles [Internet]. Geneva: World Health Organization. 2018 [cited 2020 May 6]. Available from: https://www.who.int/nmh/publications/ncd-profiles-2018/en/

2. Sociedade Brasileira de Diabetes. Diretrizes da Sociedade Brasileira de Diabetes 2019-2020. São Paulo. Editora: Clannad; 2019.

3. Carrillo-Larco RM, Barengo NC, Albitres-Flores L, Bernabe-Ortiz A. O risco de mortalidade entre pessoas com diabetes tipo 2 na América Latina: uma revisão sistemática e metanálise de estudos de coorte de base populacional. Diabetes Metab Res Rev. 2019;35(4):e3139. https://doi.org/10.1002 / dmrr.3139

4. American Diabetes Association. Standards of medical care in diabetes-2017. Diabetes Care [Internet]. 2017 [cited 2020 Feb 19]. Available from: http://care.diabetesjournals.org/ content/diacare/suppl/2016/12/15/40.Supplement_1.DC1/DC_40_ S1_final.pdf

5. Foster PC, Bennett AM. Dorothea E. Orem. In: George JB. Teorias de enfermagem: os fundamentos à prática profissional. 4ª ed. Porto Alegre: Artes Médicas;2000. p. 83-101.

6. Eid LP, Leopoldino SAD, Oller GASA, Pompeo DA, Martins MA, Gueroni LPB. Factors related to self-care activities of patients with type 2 diabetes mellitus. Esc Anna Nery. 2018;22(4):e20180046. https://doi.org/10.1590/2177-9465-ean-2018-0046

7. George JB, (Ed.). Teorias de enfermagem: os fundamentos para a prática profissional. 4. ed. Porto Alegre: Artes Médicas Sul; 2000.

8. Orem DE, Taylor SG. Reflections on nursing practice science: the nature, the structure, and the foundation of nursing sciences. Nurs Sci Q. 2011;24(1):35-41. https://doi.org/10.1177/0894318410389061

9. Horta WA. Processo de enfermagem. Rio de Janeiro: Guanabara Koogan;2011.

10. Herdman TH, Kamitsuru S. Diagnósticos de enfermagem da NANDA: definições e classificação 2018-2020. Porto Alegre: Artmed;2018.

11. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. 9ª ed. São Paulo: Hucitec;2006. 406 p.

12. Joventino ES, Oriá MOB, Sawada NO, Ximenes LB. Apparent and content validation of maternal self-efficiency scale for prevention of childhood diarrhea. Rev Latino-Am Enfermagem 2013;21:371–9. https://doi.org/10.1590/S0104-11692013000100012

13. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res 2005;15:1277–88. https://doi.org/10.1177/1049732305276687

14. Carvalho EC, Oliveira-Kumakura ARS, Morais SCRV. Raciocínio clínico em enfermagem: estratégias de ensino e instrumentos de avaliação. Rev Bras Enferm. 2017;70(3):662-8. https://doi.org/10.1590/0034-7167-2016-0509

15. Carlson J. Processo de validação de consenso: um método de pesquisa padronizado para identificar e vincular os termos relevantes da NANDA, NIC e NOC para as populações locais. Int J Nurs Terminol Classif [Internet]. 2006 [cited 2021 May 18];17 (1):23-4. Avaible from: https://www.ncbi.nlm.nih.gov/pubmed/17117929

16. Santos GLA, Valadares GV, Santos SS, Moraes CRBM, Mello JCM, Vidal LLS, et al. Prática colaborativa interprofissional e assistência em enfermagem. Esc Anna Nery. 2020;24(3):e20190277. https://doi.org/10.1590/2177-9465-ean-2019-0277

17. Mendonça SCB, Zanetti ML, Sawada NO, Barreto IDC, Andrade JS, Otero LM. Construction and validation of the Self-care Assessment Instrument for patients with type 2 diabetes mellitus. Rev Latino-Am Enfermagem. 2017;25:e2890. https://doi.org/10.1590/1518-8345.1533.2890

18. Cunha GH, Lima AK, Maia AM, Correia MA, Barbosa K, Oliveira RCR. Diagnósticos de enfermagem segundo a teoria do autocuidado em pacientes com infarto do miocárdio. Aquichan. 2018;18(2):222-233. https://doi.org/10.5294/aqui.2018.18.2.9

19. Muñiz GM, Gómez BA, Becerril LC, Solano GS. Lifestyle of the elderly person living with diabetes and characterization of nursing diagnoses. Texto Contexto Enferm. 2019;28:e20170552. https://doi.org/10.1590/1980-265X-TCE-2017-0552

20. Ribeiro IA, Lima LR, Volpe CRG, Funghetto SS, Rehem TCMSB, Stival MM. Frailty syndrome in the elderly in elderly with chronic diseases in Primary Care. Rev Esc Enferm USP. 2019;53:e03449. https://doi.org/10.1590/S1980-220X2018002603449

21. Sampaio FC, Oliveira PP, Mata LRF, Moraes JT, Fonseca DF, Vieira VAS. Profile of nursing diagnoses in people with hypertension and diabetes. Invest Educ Enferm. 2017;35(2):139-53. https://doi.org/10.17533/udea.iee.v35n2a03

22. Costa PCP, Duran ECM. Evidências clínicas para hipertensos e diabéticos na saúde da família. Rev Enferm UFPE. 2018;12(8):2194-204. https://doi.org/10.5205/1981-8963-v12i8a235849p2194-2204-2018

23. Teixeira AM, Tsukamoto R, Lopes CT, Silva RCG. Risk factors for unstable blood glucose level: integrative review of the risk factors related to the nursing diagnosis. Rev Latino-Am Enfermagem. 2017;25:e2893. https://doi.org/10.1590/1518-8345.1688.2893

24. Scain SF, Franzen E, Hirakata VN. Riscos associados à mortalidade em pacientes atendidos em um programa de prevenção do pé diabético. Rev Gaúcha Enferm. 2018;39:e20170230. https://doi.org/10.1590/1983-1447.2018.20170230

25. Menezes MM, Lopes CT, Nogueira L. de S. Impacto de alterações educacionais na redução de complicações diabéticas: revisão sistemática. Rev Bras Enferm. 2016;69(4):773–84. https://doi.org/10.1590/0034-7167.2016690422i

26. Brito JLOP, Pôrto SCAS, Sousa MJF, Souza Neto VL, Silva RAR. Diagnósticos, intervenções e resultados esperados de enfermagem para pacientes com HIV / Aids: revisão integrativa. Rev Bras Ciênc Saúde. 2017;21(2):165–72. https://doi.org/10.4034/RBCS.2017.21.02.10

27. Leite MS, Aguiar LC. Diagnósticos de enfermagem em pacientes submetidos à colostomia. Enferm Foco [Internet]. 2017 [cited 2020 Jun 01];8(2):72-6. Available from: http://revista.cofen.gov.br/index.php/enfermagem/article/view/1227

28. Moura PC de, Braga LM, Domingos CS, Rodrigues NV, Correia MDL, Oliveira LVA. Diagnósticos e intervenções de enfermagem em hipertensos e diabéticos segundo a Teoria de Orem. Rev Rene. 2014;15(6):1039-46. https://doi.org/10.15253/2175-6783.2014000600018

29. Becker TAC, Teixeira CRS, Zanetti ML. Nursing diagnoses for diabetic patients using insulin. Rev Bras Enferm. 2008;61(6):847-52. https://doi.org/10.1590/S0034-71672008000600009

30. Santos KC, Fonseca DF, Oliveira PP, Duarte AGS, Melo JMA, Souza RS. Men's health care: construction and validation of a tool for nursing consultation. Rev Bras Enferm. 2020;73(3):e20190013. https://doi.org/10.1590/0034-7167-2019-0013

31. Santos MCF, Nóbrega MML, Silva AO, Bittencourt GKGD. Nursing diagnoses for elderly women vulnerable to HIV/AIDS. Rev Bras Enferm. 2018;71(Suppl 3):1435-44. https://doi.org/10.1590/0034-7167-2017-0086

32. Barbiani R, Dalla Nora CR, Schaefer R. Nursing practices in the primary health care context: a scoping review. Rev Latino-Am Enfermagem. 2016;24:e2721. https://doi.org/10.1590/1518-8345.0880.2721

33. Bezerra AC, Silva VM, Nogueira PSF, Martins RDST, Vieira RPR, Pessoa SMF. Diagnósticos de enfermagem dos domínios autopercepção e enfrentamento / tolerância ao estresse relacionado à infertilidade feminina. Rev Eletr Enf. 2016;18:e1177. https://doi.org/10.5216/ree.v18.37659

34. Beluci ML, Barros SP, Fontes CMB, Trettene ADS, Mondini CCDSD. Diagnósticos e intervenções de enfermagem em pacientes com enxerto ósseo alveolar no pós-operatório. Rev Enferm UERJ. 2017;25:e19872. https://doi.org/10.12957/reuerj.2017.19872

35. Ulloa Sabogal IM. Nursing process in the person with diabetes mellitus from a perspective on self-care. Rev Cubana Enfermer [Internet]. 2017 [cited 2020 Mar 20];33(2). Available from: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-03192017000200019&lng=es.