



## Terminology subset for the International Classification of Nursing Practice in Diabetes Mellitus\*

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**Highlights:** **(1)** Provision of the guiding document for nursing practice in diabetes. **(2)** Methodological innovation in the development of ICNP® subsets. **(3)** Advances in knowledge of the basic human needs of people with diabetes. **(4)** The potential of standardized language for coding and monitoring data. **(5)** Improving clinical reasoning during nursing consultations.


**Objective:** to describe the process of developing a terminological subset for the International Classification of Nursing Practice in Diabetes Mellitus, based on Horta's Basic Human Needs Theory and Bandura's Social Cognitive Theory. **Method:** a methodological study based on the identification in the literature of 313 statements of nursing diagnoses pertinent to diabetes care, selected and validated by a consensus of nurses from different states of Brazil, specialists in diabetes, using the nominal group technique. **Results:** 156 nursing diagnosis/result statements were selected, of which 111 (71.15%) related to psychobiological needs, 42 (26.92%) to psychosocial needs and three (1.92%) to psychospiritual needs. A total of 433 nursing interventions were developed. The diagnostic statements were validated on the basis of a consensus among the experts, with an average content validity index of 0.89: 0.87 for psychobiological needs, 0.93 for psychosocial needs, and 0.77 for psychospiritual needs. **Conclusion:** the study validated the terminological subset for the International Classification of Nursing Practice in Diabetes, favoring clinical reasoning, the qualification of the Nursing Process, and the improvement of self-care practices in diabetes. It has made it possible to use nursing's own language based on a globally recognized classification.

**Descriptors:** Nursing Diagnosis; Diabetes *Mellitus* Type 2; Nursing Process; Primary Health Care; Standardized Nursing Terminology; Nursing Care.

\* Paper extracted from doctoral dissertation "Construction, validation and application of the icnp® catalog for people with type 2 diabetes mellitus in primary health care", presented to Universidade Federal de Minas Gerais, Escola de Enfermagem, Belo Horizonte, MG, Brazil.

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### How to cite this article

Chaves FA, Torres HC, Chianca TCM. Terminology subset for the International Classification of Nursing Practice in Diabetes Mellitus. Rev. Latino-Am. Enfermagem. 2024;32:e4188 [cited \_\_\_\_/\_\_\_\_/\_\_\_\_]. Available from: \_\_\_\_\_ URL 

## Introduction

Diabetes Mellitus (DM) represents a challenging chronic condition for health professionals, given the complexity involved in caring for and effectively promoting behavioral changes throughout life<sup>(1)</sup>.

Early diagnosis, along with drug treatment and the adoption of healthy habits, combined with self-care education, are crucial in improving glycemic control and the quality of life of people living with DM. In addition, these approaches contribute to preventing or delaying complications and disabilities, as well as reducing premature mortality associated with the disease. These goals are in line with the Sustainable Development Goals, which are specifically aimed at promoting the health and well-being of the population<sup>(2-4)</sup>.

Nursing as a science of care plays a fundamental role in supporting people with DM to become protagonists of their own self-care. The nursing process should be person-centered, offering opportunities for them to express their needs and concerns, participate in the decision-making process about their treatment, and thus feel motivated to follow an appropriate therapeutic plan, reflecting on the choices and consequences for their lives<sup>(5-6)</sup>.

Among the terminologies available in the nursing field, the International Classification for Nursing Practice (ICNP<sup>®</sup>), developed by the International Council of Nurses (ICN), stands out. This classification is considered a care technology that favors clinical reasoning and decision-making during the stages of the Nursing process, providing safety, quality, and visibility to the care actions implemented and documented by Nursing<sup>(7)</sup>. Although there are terminological subsets of the ICNP<sup>®</sup> in Brazil aimed at caring for people with DM in specialized care<sup>(8)</sup>, and in other health conditions<sup>(9-11)</sup>, a specific subset that addresses basic human needs and behavior change for self-care practices has not yet been identified<sup>(12)</sup>.

Considering nursing's involvement in improving professional practice and the continuous development of the ICNP<sup>®</sup><sup>(13-14)</sup>, this study proposes the development of an ICNP<sup>®</sup> terminology subset for DM in Primary Health Care (PHC) based on Nursing Diagnoses (ND), Outcomes (OR) and Nursing Interventions (NI). It is believed that this proposal for terminological standardization can contribute to a better organization of diagnostic

problems in this population, helping nurses to identify priorities in caring for people with DM. It will also provide systematic and retrievable data on health care, giving nursing greater credibility, visibility, autonomy, and professional satisfaction<sup>(15)</sup>.

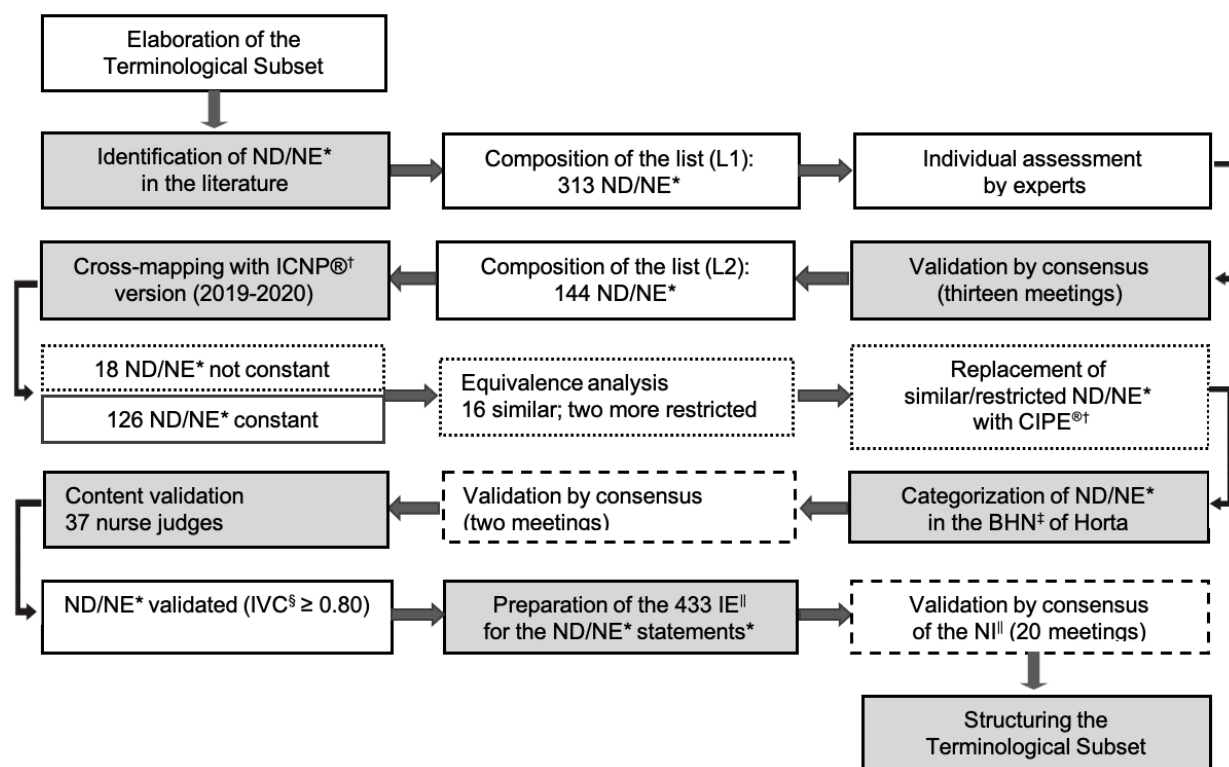
In this sense, Wanda Horta's Theory of Human Needs<sup>(16-17)</sup> and Albert Bandura's Social Cognitive Theory<sup>(18-20)</sup> are pertinent for guiding the nursing process during care and anchoring the development of the terminological subset. Horta highlighted the importance of identifying the person's psychobiological, psychosocial, and psychospiritual needs, with a view to supporting them through educational practices that encourage independence and self-care, making them agents of their own change<sup>(16-17)</sup>. Bandura can complement Horta's theory by explaining human behavior and the applicability of the educational process in fostering the development of skills for people to deal effectively with their health condition<sup>(18-20)</sup>.

The aim of this study is to describe the process of developing a terminological subset for the International Classification of Nursing Practice in Diabetes Mellitus, based on Horta's Basic Human Needs Theory and Bandura's Social Cognitive Theory.

## Method

### Study type

This is a methodological study that adapted the method proposed by the ICN<sup>(21)</sup> and Nóbrega, et al.<sup>(22-23)</sup>, in seven stages: 1- identification of ND/NR statements in the national and international literature; 2- selection and validation by consensus of specialist nurses; 3- cross-mapping with the pre-coordinated ND/NR and primitive terms contained in the ICNP<sup>®</sup> version (2019-2020)<sup>(24)</sup>; 4- categorization of the ND/NR statements according to Horta's Basic Human Needs (BHN); 5- content validation by judges; 6- construction and validation by consensus of the EI statements by specialist nurses; and 7- structuring of the terminological subset for people with DM in PHC<sup>(21-23)</sup>. The methodological path for developing the ICNP<sup>®</sup> terminological subset for people with DM in PHC is systematized in Figure 1.



\*ND/NR = Nursing Diagnosis/Nursing Results; †International Classification for Nursing Practice; ‡BHN = Basic Human Need; §IVC = Content Validity Index; ¶NI = Nursing Interventions; †DM = Diabetes Mellitus; \*\*PHC = Primary Health Care

Figure 1 - Flowchart of the methodological path for the development of the ICNP® Terminological Subset for people with DM<sup>†</sup> in PHC<sup>\*\*</sup>. Brazil, 2023

### Time period

The study was carried out between January and August 2023.

### Selection criteria

The selection criteria for identifying ND/NR statements applicable to the care of people with DM in PHC were as follows: 1. search of national and international literature and ICNP® version (2019-2020)<sup>(24)</sup>; 2. selection and validation by consensus of a group of ten nurses with experience in nursing care, health management and research, from different Brazilian states, six from Minas Gerais, two from São Paulo and one from Santa Catarina; 3. exclusion of ND/NR statements that were unclear to the group of nurses, as well as those that were too generic (e.g. adherence) or too specific (e.g. improved pain). Exclusion of ND/NR statements that had unclear conceptual and operational definitions for the group of nurses, as well as statements that were considered too generic (e.g. adherence) or too specific (e.g. improved lower limb pain); 4. Preference for pre-coordinated terms in ICNP® version (2019-2020)<sup>(24)</sup>, rather than constructing new ND/NRs through combinations of

primitive terms. This choice aimed to avoid creating ND/NR that were similar or synonymous with pre-existing terms coded in ICNP®.

By following these criteria, the group of nurses ensured the selection of relevant ND/NR statements and validation by consensus, which contributed to the construction of a consistent terminological subset applicable to nursing practice in the care of people with DM in PHC. The development of the subset was communicated to the ICN for information and possible contributions.

### Sample

313 ND/NR statements relevant to the identification of diagnostic problems in the care of people with DM in PHC were identified.

### Data collection and analysis

In the first stage, ND/NR statements were identified in the national and international literature and in ICNP® version 2019-2020<sup>(24)</sup>. The following databases were used for the searches: Scientific Electronic Library Online (SciELO), Latin American and Caribbean Health Sciences Literature (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE), Cochrane Library,

Scopus, Web of Science, Embase, Cumulative Index to Nursing, and Allied Health Literature (CINAHL). The terms came from the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH), with the following search strategies: ("Diabetes Mellitus") AND ("Nursing diagnosis" OR "Nursing process" OR "standardized Nursing terminology") and ("Diabetes Mellitus") AND ("Nursing diagnosis" OR "Nursing process" OR "standardized Nursing terminology").

Articles published between 2013 and 2023 in Portuguese, English, and Spanish that used ICNP® language terminology to describe the stages of the nursing process for people with DM in healthcare services were included. The time frame aimed to include the most up-to-date versions of ICNP® and the languages most commonly used in the majority of publications on the subject were selected. Articles in which it was not possible to identify the relationship with the topic by reading the title and abstract; review articles, previous notes and editorials, as well as gray literature (theses, dissertations, books) were excluded.

Based on the search strategy, a total of 262 articles were found, from which 194 duplicate articles were excluded. After reading the remaining 68 articles, 56 were excluded because they were not related to DM and the nursing process. Of the remaining 12, six articles were excluded because they did not use ICNP® terminology to describe the stages of the nursing process. The ND/NR extracted from ICNP® version 2019-2020<sup>(22)</sup> and from the remaining six articles were organized into a list called (L1) in Microsoft Office Excel® 2016 software.

In the second stage, comprising selection and validation by consensus, the group of specialist nurses, made up of ten professionals, individually assessed the relevance of the ND/NR statements in L1. Thirteen virtual meetings were then held to discuss and reach a consensus on the selection or exclusion of each statement, using the Nominal Group Technique (NGT)<sup>(25)</sup>. These discussions resulted in a new consensual list of ND/NR statements, called L2, which characterized validation by consensus.

In the third stage, the ND/NR statements selected in the L2 were submitted to the cross-mapping process, establishing the semantic comparability between them and the pre-coordinated and primitive concepts in the ICNP® version (2019-2020)<sup>(24)</sup>. Constant and non-constant statements in the classification were identified. All the terms were also analyzed in terms of the degree of equivalence of the mapping according to the recommendations of the ISO/TR 12300:2016 Standard and were classified as 1- equivalence of lexical and conceptual meaning; 2- equivalence of meaning, but with synonymy; 3- source term is broader and has

less specific meaning than the target term; 4- source term is narrower and has more specific meaning than the target term; 5- no mapping is possible<sup>(26-27)</sup>.

In the fourth stage, the ND/NR statements selected were categorized according to Wanda Horta's Basic Human Needs, and validation by consensus was carried out in two virtual meetings. Content validation was then carried out (Stage 5), with a new group of specialist nurses completing an online questionnaire with open and closed questions on the relevance of ND/NR statements per BHN. The group of experts was selected using the Lattes Platform and the snowball technique. The sample was non-probabilistic; for convenience. The inclusion criteria were: nurses with at least two years' experience in PHC, working in management or care, linked to the DM program in their units; and knowledge of nursing language/diagnostic systems. The exclusion criterion was nurses on leave of absence. Nurses who didn't complete the entire instrument or who didn't reply to the e-mail within the pre-established period were considered to have dropped out of the survey<sup>(28)</sup>.

To assess the degree to which the specialists agreed with the ND/NR statements, a Likert-type scale was used with the following response options: 1- totally disagree, 2- partially disagree, 3- indifferent, 4- partially agree, and 5- totally agree. Below each question, there was a field for the experts' comments and observations.

The Content Validity Index (CVI), defined by the sum of the relative frequencies of answers four and five of the participants, was calculated to check the level of agreement of the experts in relation to the relevance of the ND/NR statements by BHN. A CVI greater than or equal to 0.80 was considered to indicate validation, both for the evaluation of each item and for the overall evaluation of the ND/NR statements by BHN<sup>(29-30)</sup>.

In stage six, the construction of the Nursing Interventions (NIs) was carried out based on the ND/NR statements validated and categorized by BHN. The researchers, supported by the specialist nurses, drew up the NIs following the standards of ISO 18104:2016<sup>(31)</sup>. The clinical guidelines recommended by the American Diabetes Association<sup>(1)</sup>, the model of the seven behaviors for self-care developed by the American Association of Diabetes Educators<sup>(2)</sup>, and the Brazilian Diabetes Society<sup>(32-33)</sup> were considered for this construction. Twenty virtual technical meetings were held until a consensus was reached on the relevance of each EI statement per ND/NR group.

Finally, stage seven consisted of structuring the ICNP® terminology subset, following the guidelines adapted from the method proposed by the ICN<sup>(21)</sup> and Nóbrega, et al.<sup>(21-23)</sup> for its structural composition, which included the

message to readers; the importance for Nursing; inclusion of Nursing in the study's theoretical model; tutorial for using the terminology subset; and references.

### Ethical aspects

The study was approved by the Brazil Platform under the Certificate of Submission for Ethical Appraisal (CSEA) number: 63844522.7.0000.5149. The participants signed the Free and Informed Consent Term (FICT) in two copies, in accordance with Resolution 466/12 of the National Health Council<sup>(34)</sup>.

### Results

The results indicate that, based on the literature search and ICNP<sup>®</sup> version (2019-2020)<sup>(24)</sup>, 313 ND/NR

statements were identified that were relevant to identifying diagnostic problems in the care of people with DM. Of these, 144 were selected by the group of nurses to make up the list (L2), of which six were risk (4.2%), 65 were positive (45.13%), and 73 were negative (50.7%).

Most of the statements selected (87.5%) were already included in the ICNP<sup>®</sup> version (2019-2020)<sup>(24)</sup>, which demonstrates the relevance and suitability of the classification for addressing the nursing needs of this population. However, 18 (12.5%) statements were identified that were not present in ICNP<sup>®</sup>. Of these, 16 had synonyms with constant statements, and two were replaced by pre-coordinated terms already coded in the classification, ensuring the accuracy and quality of the information, as shown in Figure 2.

Listing (L1)	Analysis of constancy in ICNP <sup>®</sup> * version (2019-2020)	Degree of equivalence	Listing (L2) statements contained in ICNP <sup>®</sup> * version (2019-2020)
Adequate knowledge of the disease	not constant	2	Knowledge about the disease (10023826)
Adequate knowledge of medication	not constant	2	Knowledge about medication (10025968)
Adequate knowledge of exercise	not constant	2	Knowledge of physical exercise (10023786)
Inadequate knowledge of medication	not constant	2	Lack of knowledge about medication (10025975)
Inadequate knowledge about exercise	not constant	2	Lack of knowledge about physical exercise (10022585)
Inadequate knowledge about Diabetes Mellitus	not constant	2	Lack of knowledge about the disease (10021994)
Deficit in self-care for eating	not constant	4	Lack of self-care (10023410)
Total self-care deficit for bathing, dressing, hygiene	not constant	4	Lack of self-care (10023410)
Unfamiliarity with the disease	not constant	2	Lack of knowledge about the disease (10021994)
Unfamiliarity with the medication regimen	not constant	2	Lack of knowledge about medication (10025975)
Lack of adherence to the therapeutic regimen	not constant	2	Non-adherence to therapeutic regimen (10022155)
Preserved skin integrity	not constant	2	Skin integrity, effective (10028501)
Impaired orientation in time and space	not constant	2	Disorientation (10001235)
Orientation in time and space preserved	not constant	2	Orientation, improved (or increased) (10028586)
Adequate body weight	not constant	2	Weight, within normal limits (10027392)
Risk of diabetic foot	not constant	2	Risk of diabetic foot ulcer (10042666)
Impaired sleep and rest	not constant	2	Sleep, impaired (10027226)
Preserved sleep	not constant	2	Sleep, adequate (10024930)

\*ICNP<sup>®</sup> = International Classification for Nursing Practice

Figure 2 - Cross-mapping, evaluation of the degree of equivalence of the listing (L1) with ICNP<sup>®</sup>\* (2019-2020)<sup>(24)</sup> and replacement with pre-coordinated terms in the listing (L2). Brazil, 2023

After the identification and selection process, the 144 ND/NR statements were categorized according to Horta's BHN<sup>(16-17)</sup>. The SRs "Skin integrity, effective" and "Skin integrity, improved" were related to the ND/NRs "Risk of skin integrity, impaired", "Risk of diabetic foot ulcer", and "Skin integrity, impaired". Due to these repetitions, 156 statements were considered for the categorization process, rather than 144. Thus, of the 156 ND/NR statements, 111 (71.15%) were related to psychobiological needs; 42 (26.92%) to psychosocial needs, and three (1.92%) to psychospiritual needs.

After categorization, the L2 list was submitted to the content validation process (Stage 5). A total

of 120 nurses were invited and, after withdrawals, the sample totaled 37 nurses. With regard to the profile of the professionals, it was found that the majority were aged between 30 and 39 (45.95%), were female (83.78%), had experience in PHC (64.86%) and in caring for people with DM (83.78%). In terms of level of education, 12 (32.43%) had a master's degree, 12 (32.43%) had a specialization degree, nine (24.32%) had a doctorate and two (5.41%) had a residency. The professionals met the selection criteria recommended in the literature<sup>(28-30)</sup>. Table 1 shows the number and proportion of judges according to state/country of residence.

Table 1 - Number and proportion of nurse judges according to state/country of residence. Brazil, 2023

State/country of residence	N*	(%)
Minas Gerais (BR <sup>†</sup> )	27	72.97
São Paulo (BR <sup>†</sup> )	5	13.51
Bahia (BR <sup>†</sup> )	1	2.70
Ceará (BR <sup>†</sup> )	1	2.70
Paraná (BR <sup>†</sup> )	1	2.70
Sergipe (BR <sup>†</sup> )	1	2.70
Florida (USA <sup>‡</sup> )	1	2.70
<b>Total</b>	<b>37</b>	<b>100</b>

\*N = Absolute number of nurse judges; <sup>†</sup>BR = Brazil; <sup>‡</sup>USA = United States of America

Analysis of the nurses' data showed that 74 (47.4%) of the diagnostic statements had CVI  $0.9 \leq x < 1$ ; 63 (40.4%) were classified with CVI  $0.8 \leq x < 0.9$  and six (3.8%) with CVI=1. The ND/NR statements with CVI=1 were "Acceptance of health condition, impaired", "Polypharmacy (or Polypharmacy)", "Skin integrity, impaired", "Risk of diabetic foot ulcer", "Hypoglycemia" and "Hyperglycemia", demonstrating the importance of these diagnoses in the practice of PHC professionals.

The ND/NR referring to oxygenation and spirituality needs had a mean CVI of  $<0.8$  and were therefore excluded from the terminology subset. These statements are: "Risk of impaired respiratory system function" (CVI=0.70); "Impaired respiratory system function" (CVI=0.73); "Effective respiratory system function" (CVI=0.73); "Spiritual distress" (CVI=0.73); and "Decreased spiritual distress" (CVI=0.76). The average

CVI of the BHNs according to the classification was: 0.87 for psychobiological BHNs, 0.93 for psychosocial BHNs, and 0.77 for psychospiritual BHNs.

In stage 6, a total of 433 EIs were drawn up, of which 353 (81.5%) referred to psychobiological needs, 72 (16.6%) to psychosocial needs, and eight (1.8%) to psycho-spiritual needs. Table 2 shows the distribution of ND/NR/NI statements per BHN for the terminological subset for people with DM in PHC and the average CVI per BHN of ND/NR statements.

In step 7, the terminological subset for the International Classification of Nursing Practice in Diabetes Mellitus was structured, based on Horta's Basic Human Needs Theory<sup>(16-17)</sup> and Bandura's Social Cognitive Theory<sup>(18-20)</sup>. The final structure of the subset is partially shown in Figure 3 and can be accessed in full via the following link: <https://sites.google.com/view/cuidaremdiabetes>.

Table 2 - CVI of ND/NR\* statements and distribution of the number of ND/NR\* and NI<sup>†</sup> statements by BHN<sup>‡</sup>. Brazil, 2023

Wanda Horta BHN <sup>‡</sup>	Psychobiologica	ND/NR*	CVI <sup>§</sup>	NI <sup>†</sup>
Hormone regulation	Psychobiological	3 (1.9%)	0.99	32 (7.4%)
Physical integrity	Psychobiological	6 (3.8%)	0.96	53 (12.2%)
Therapeutic	Psychobiological	18 (11.5%)	0.94	33 (7.6%)
Sleep and rest	Psychobiological	6 (3.8%)	0.90	13 (3.0%)
Physical activity	Psychobiological	5 (3.2%)	0.90	23 (5.3%)
Hydration	Psychobiological	4 (2.6%)	0.89	14 (3.2%)
Elimination	Psychobiological	12 (7.7%)	0.89	43 (9.9%)
Perception of the sense organs	Psychobiological	10 (6.4%)	0.88	24 (5.5%)
Vascular regulation	Psychobiological	8 (5.1%)	0.88	23 (5.3%)
Physical safety and the environment	Psychobiological	15 (9.6%)	0.86	18 (4.2%)
Nutrition	Psychobiological	8 (5.1%)	0.85	29 (6.7%)
Immune regulation	Psychobiological	2 (1.3%)	0.84	6 (1.4%)
Sexuality and reproduction	Psychobiological	2 (1.3%)	0.82	9 (2.1%)
Neurological regulation	Psychobiological	9 (5.8%)	0.80	22 (5.1%)
Oxygenation	Psychobiological	3 (1.9%)	0.72	11 (2.5%)
Recreation and leisure	Psychosocial	2 (1.3%)	0.97	4 (0.9%)
Health education/learning	Psychosocial	19 (12.2%)	0.94	21 (4.8%)
Gregariousness	Psychosocial	4 (2.6%)	0.93	6 (1.4%)
Self-esteem, self-confidence, self-respect	Psychosocial	15 (9.6%)	0.92	27 (6.2%)
Communication	Psychosocial	2 (1.3%)	0.89	14 (3.2%)
Spirituality	Psychospiritual	3 (1.9%)	0.77	8 (1.8%)
<b>Total</b>		<b>156 (100%)</b>	<b>0.89</b>	<b>433 (100%)</b>

\*ND/NR = Nursing Diagnosis/Nursing Results; <sup>†</sup>NI = Nursing Interventions; <sup>‡</sup>BHN = Basic Human Needs; <sup>§</sup>CVI = Content Validity Index

Psychobiological BHN <sup>‡</sup> : hormonal regulation	
ND/NR <sup>†</sup>	Blood glucose level, within normal limits (ICNP code <sup>®</sup> 10033685)
ND/NR <sup>†</sup>	Blood glucose level, within normal limits (ICNP code <sup>®</sup> 10033685)
NI <sup>§</sup>	1- Analyze the glucose monitoring data. 2- Guide the correct use of the glucose monitor, according to the manufacturer's instructions; 3- Reinforce the glycemic targets, according to age group (pre-, postprandial, and at bedtime); 4- Guide glycemic monitoring at home or in PHC, according to the treatment objective; 5- Guide the signs and symptoms of hypoglycemia and hyperglycemia; 6- Carry out continuing diabetes education; 7- Encourage self-care behaviors.
ND/NR <sup>†</sup>	Hyperglycemia (ICNP code <sup>®</sup> 10027550)
ND/NR <sup>†</sup>	Blood glucose level, within normal limits (ICNP code <sup>®</sup> 10033685)
ND/NR <sup>§</sup>	Acute hyperglycemia: 1- Check for signs/symptoms of hyperglycemia; 2- Monitor capillary glycemia; 3- Stimulate hydration; 4- Administer insulin, according to the prescribed therapeutic adjustment; 5- Refer to the emergency network, if necessary. Recurrent hyperglycemia: 1- Analyze blood glucose monitoring data; 2- Guide the correct use of the glucose monitor, according to the manufacturer's instructions; 3- Obtain information on adherence to the therapeutic regimen; 4- Provide guidance on glycemic targets according to age group; 5- Guide capillary blood glucose monitoring at home or in PHC, as indicated; 6- Identify the causes of hyperglycemia in order to prevent new episodes; 7- Screen for chronic complications; 8- Refer to the support team, if necessary.
ND/NR <sup>†</sup>	Hypoglycemia (ICNP code <sup>®</sup> 10027566)
ND/NR <sup>†</sup>	Blood glucose level, within normal limits (ICNP code <sup>®</sup> 10033685)
NI <sup>§</sup>	Acute hypoglycemia: 1- Check for signs/symptoms of hypoglycemia; 2- Monitor capillary blood glucose; 3- Treat hypoglycemia according to institutional protocols; 4- Refer to the emergency network if necessary. Recurrent hypoglycemia: 1- Analyze the blood glucose monitoring data; 2- Guide the correct use of the glucose monitor, according to the manufacturer's instructions; 3- Obtain information on adherence to the therapeutic regimen; 4- Guide the signs and symptoms of hypoglycemia and correction; 5- Guiding the family member/caregiver to call the emergency service in cases of severe hypoglycemia and no response to initial care; 6- Guiding capillary blood glucose monitoring at home or in PHC, as indicated; 7- Identifying the causes of hypoglycemia in order to prevent further episodes; 8- Referring to the support team, if necessary.

<sup>‡</sup>BHN = Basic Human Needs; <sup>†</sup>ND/NR = Nursing Diagnosis/Nursing Result; <sup>®</sup>ICNP = International Classification for Nursing Practice; <sup>§</sup>IE = Nursing Interventions

Figure 3 - Terminology subset for the International Classification of Nursing Practice<sup>®</sup> in Diabetes Mellitus. Brazil, 2023

## Discussion

The development of a standardized language in nursing, including the use of Standardized Language Systems (SLP), is fundamental to guaranteeing the quality and safety of the services provided by nurses. The ICN considers the use of SLPs to be essential as a strategy for qualifying nursing services, strengthening professional identity and improving clinical practice<sup>(21,35)</sup>.

When developing a terminological subset, it is necessary to choose a theoretical model that justifies its importance for nursing knowledge and guides the nursing process when caring for a specific client or health condition. This model can be based on existing Nursing theories or a combination of several theories, including other professional domains<sup>(21-23)</sup>.

In the case of the ICNP<sup>®</sup> terminology subset for people with DM in PHC, the theoretical model adopted was proposed by Horta<sup>(16-17)</sup> and Bandura<sup>(18-20)</sup>, in line with the guidelines of the American Association of Diabetes Educators<sup>(2)</sup>. These references emphasize care from the perspective of developing the person's autonomy for self-care practices, through the process of health education and the behavioral changes necessary for self-care practices in DM. In addition, they help and support the person with DM in building healthy coping, adhering to the therapeutic regime and increasing confidence in their ability to deal with problems, negative emotions or challenging situations. For Bandura, an effective predictor of behavior change is self-efficacy, which refers to the confidence a person has in their ability to effectively perform a certain behavior and achieve the desired result<sup>(18-20)</sup>.

Developing a terminological subset requires careful attention, accuracy and experience on the part of the researchers<sup>(28-30)</sup>. The ICN encourages the search for new research methodologies and techniques to collect the terms and concepts relevant to the clientele in question, guaranteeing the quality and reliability of the final product<sup>(21)</sup>.

In this study, the identification of terms considered clinically and culturally relevant to nursing practices focused on DM in PHC (Stage 1) was adapted. The researchers searched the literature, official DM documents and ICNP<sup>®</sup> version (2019-2020)<sup>(24)</sup> for terms that were already pre-coordinated, i.e. had already been combined in the form of ND/NR statements. In this way, there was no need for the decomposition and normalization process in terms of spelling,

gender, number and degree, as recommended by Nóbrega, et al.<sup>(22-23)</sup>.

In addition to this modification, in Stage 2, the researchers proposed that the selection of ND/NR statements be carried out and validated by consensus by a group of diabetes expert nurses, members of the Nursing Department of the Brazilian Diabetes Society from different geographical locations in Brazil. This same group was responsible for collaborating with the categorization of ND/NR statements according to Horta's BHN (Stage 4) and, subsequently, with the construction and validation by consensus of NI statements (Stage 6).

It was observed that the NGT contributed to collaboration and the sharing of knowledge and experience between participants from different geographical locations, helping to qualify the process of selecting, constructing and validating ND/NR/IE statements<sup>(25)</sup>. Participants were very engaged in the virtual meetings and group discussions. All the nurses had an equal opportunity to interact and share their opinions. The potential of this group of expert nurses is that they are part of institutions that are nationally and internationally recognized for disseminating evidence-based clinical guidelines for DM. This situation allows ND/NR/NI statements to be in line with the best clinical practices and enables the potential dissemination of the terminological subset to PHC nurses in the country<sup>(25,30)</sup>.

Among the ND/NR statements selected and validated for psychobiological BHN, those related to elimination and vascular regulation needs stand out, such as: risk of cardiac function, impaired (10037314); cardiac function, impaired (10022931); risk of gastrointestinal system function, impaired (10046431); gastrointestinal system function, impaired (10022931); risk of urinary system function, impaired (10045453); renal function, impaired (10023169) and sexual performance, impaired (10001288). These choices are justified by the high incidence of Autonomic Diabetic Neuropathy (ADN) in people with DM, which can involve the cardiovascular system, the digestive system and the urogenital system, compromising quality of life and increasing morbidity and mortality rates. Nervous system involvement in DM is widespread, frequent and extremely variable. Prevalence can vary from 7.7% to 90%, depending on factors such as the duration of the disease, gender and method of investigation<sup>(36-39)</sup>.

In this sense, Diabetic Peripheral Neuropathy (DPN) also stands out. This is caused by persistent hyperglycemia, which, through glucotoxicity, can generate early vascular and metabolic alterations



in the neural components. With dysfunctional peripheral nerves, people with NPD experience a loss of sensory afference, translated as a reduction or absence of protective sensitivity, with impairments in the ability to perceive incipient or even apparent ulcerations on the feet<sup>(38)</sup>. The possible complications of this damage are related to ND/NR: risk of impaired skin integrity (10015237); impaired skin integrity (10001290); risk of diabetic foot ulcer (10042666); diabetic ulcer (10042181); pain (10023130); inadequate pain control (10039910); difficulty coping with pain (10040731); sensory deficit (10022730), among others. It can be seen that the average CVI for these ND/NR statements was 0.93, which points to the importance attributed by nurses to knowing, monitoring, and identifying the risk factors for loss of skin integrity, as well as avoiding the development of diabetic ulceration by treating the lesion early and carrying out educational practices aimed at self-care for the feet of people with DM on a routine basis<sup>(39)</sup>.

Despite the predominance of psychobiological needs in the terminological subset for people with DM in PHC, ND/NR/NI statements related to psychosocial needs were also identified and selected (26.7% of ND/NR and 16.6% of IE). It should be noted that in a context in which care is comprehensive, the behavior of people with DM tends to be motivated by several BHN that are intertwined and concomitant. It is therefore possible to analyze a person's attitudes during care and see evidence of their physiological, safety, love, esteem and self-realization needs, among others<sup>(16)</sup>.

When using the scientific method in nursing practice, nurses identify nursing diagnoses after an initial assessment, plan, implement and make a final assessment. Thus, based on clinical reasoning, guided by the NP, nurses identify changes in the person's state of health, prioritize the problems that need immediate intervention and implement actions to correct or minimize health risks, while taking into account other BHN so that balance can be re-established<sup>(40-41)</sup>.

An example of this is the correlation established between the ND/NR statements: "non-adherence to the therapeutic regimen (10022155)" and the barriers to self-care for people with DM, which can be identified through the ND/NR statements: "lack of knowledge about the disease (10021994); lack of knowledge about the dietary regimen (10021939); lack of knowledge about medication (10025975); lack of knowledge about physical exercise (10022585)", among others. It can be seen that lack of knowledge about the disease is a diagnostic problem that can influence the appearance

of other diagnostic problems (non-adherence to treatment) and possible future clinical complications. In other words, an unbalanced psychosocial need can contribute to other psychosocial and psychobiological needs being negatively affected if the balance is not re-established<sup>(16)</sup>. In this case, nurses can consider health education as an important nursing intervention to be implemented in order to strengthen self-care and the person's adherence to treatment<sup>(42)</sup>.

The average CVI for psychospiritual needs was <0.8. This disagreement may be related to the difficulty, in clinical practice, for nurses to establish connections in the context of care, with spirituality and religiosity. It is common to be unaware of the concepts and/or to believe that these concepts are abstract and subjective. Identifying real or potential needs/problems related to this BHN can support people's healthy coping with their health condition. Experiencing a sense of spiritual well-being, reducing internal conflicts and re-signifying the health condition are ways of stabilizing the body, mind and soul, promoting behaviours and feelings of hope, love and faith, which allow people with DM to improve their coexistence with the disease and maintain self-care practices<sup>(43)</sup>.

With regard to NI (Stage 6), the main recommendations are focused on the health education process and include the seven behaviors necessary for self-care in DM: healthy coping; effective communication; high-quality nutritional food; daily physical activity to promote cardiovascular health; adherence to the prescribed medication regimen; monitoring of clinical data to support interpretation and assertive decision-making; identification of risks (e.g.: hyperglycemia and hypoglycemia); and implementation of strategies to minimize and/or prevent complications and adverse events arising from the disease and other therapeutic regimens. hyperglycemia and hypoglycemia) and the implementation of strategies to minimize and/or prevent complications of the disease and adverse events arising from the drug regimen and other therapeutic regimens<sup>(2-3,22)</sup>.

The stage of structuring the terminological subset (Stage 7) gave rise to the technical document: "Terminological Subset for the International Classification of Nursing Practice in Diabetes Mellitus", which can be accessed via the link: <https://sites.google.com/view/cuidaremdiabetes>.

The terminological subset developed can assist nurses in caring for people with DM during the nursing process, enabling the use of a standardized language and facilitating the coding of data in information systems.

This contributes to the monitoring of care indicators, comparison between studies, and interoperability between information systems, as well as improving clinical reasoning during nursing consultations and other care activities<sup>(27)</sup>.

This study has contributed to advancing knowledge and debate on the needs of nursing care that considers the particularities and potential of the care provided to a specific clientele (people with DM), in a specific context (PHC). In addition, it was possible to innovate the methodological approach through validation by consensus, using the NGT which allows all DM specialists to take part in the discussions, qualifying the choices made by the group.

A limitation of the study was the small number of specialists who agreed to take part in the content validation stage and a challenge was the need to standardize and standardize the EIs drawn up in accordance with the recommendations of the International Organization for Standardization (ISO) 18104:2014<sup>(31)</sup> and the subsequent clinical application of the terminological subset.

It is believed that the subset will be able to provide safe and systematic guidance to nurses in caring for people with diabetes, favoring the implementation of the Nursing Process and the improvement of self-care practices in diabetes. The availability of a guiding document for the nursing process, using standardized professional language, contributes to giving greater visibility and quality to the nursing consultation in PHC, giving nurses a greater role in caring for people with DM and greater appreciation of the profession, in terms of its role in clinical protocols and public policies.

## Conclusion

This study made it possible to validate the content of 156 ND/NR and to construct 433 Nursing IS for the care of people with diabetes, contributing to greater accuracy and reliability of the terminological subset for the International Classification for Nursing Practice. The composition of a Nursing language based on a globally recognized classification system favors clinical reasoning and qualifies the Nursing Process, allowing Nursing greater safety and autonomy.

Increased knowledge and identification of the basic human needs of people with diabetes make it possible for nurses to provide more assertive, humanized, and personalized care, which favors changes in behavior toward self-care practices in diabetes and the

development of skills for people to deal effectively with their health condition.

## Acknowledgments

Thanks to Agma Leozina Viana Souza, Nilce Botto Dompieri, Rosilei Teresinha Weiss Baade, Antonia Tayana da Franca Xavier, Maria Eugênia Silva Hitchon, Maria Gabriela Secco Cavicchioli, Alexandra Dias Moreira, members of the Nursing Department of the Brazilian Diabetes Society, for their collaboration in structuring the ICNP® Terminology Subset for people with Type 2 Diabetes Mellitus in PHC.

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**Conflict of interest: the authors have declared that there is no conflict of interest.**

Received: Sep 13<sup>th</sup> 2023  
Accepted: Feb 2<sup>nd</sup> 2024


Associate Editor:  
Maria Lúcia Zanetti

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