

USE OF THE TERMINOLOGICAL SUBSET “COMMUNITY NURSING” FOR HYPERTENSIVE AND/OR DIABETIC USERS

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ABSTRACT

Objective: to determine the accuracy measures of clinical indicators of nursing diagnoses contained in the Terminological Subset “Community Nursing” for hypertensive and/or diabetic users.

Method: methodological diagnostic accuracy study. The study population consisted of 363 hypertensive and/or diabetic users under follow-up care in three Health Centers in the city of Campinas, from August 2017 to February 2018. Data were collected through anamnesis. Data analysis consisted of the characterization of the population through descriptive statistics, and the analysis of clinical indicators and their respective Nursing Diagnoses was performed through accuracy measures.

Results: 25 Nursing diagnoses were listed, related to 37 clinical indicators, which could be used in the hypertensive and/or diabetic population. It is emphasized that three were not contained in the Terminological Subset “Community Nursing”, and it is recommended that they be introduced in the International Council of Nurses.

Conclusion: through the evaluation of accuracy measures, the Terminological Subset “Community Nursing” can and should be used in Brazil in the hypertensive and/or diabetic population.

DESCRIPTORS: Standardized terminology in nursing. Nursing process. Nursing care. Primary health care. Terminology. Classification.

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UTILIZAÇÃO DO SUBCONJUNTO TERMINOLÓGICO “ENFERMAGEM COMUNITÁRIA” PARA USUÁRIOS HIPERTENSOS E/OU DIABÉTICOS

RESUMO

Objetivo: determinar as medidas de acurácia dos indicadores clínicos dos diagnósticos de enfermagem contidos no Subconjunto Terminológico “Enfermagem Comunitária” para usuários hipertensos e/ou diabéticos.

Método: estudo metodológico, de acurácia diagnóstica. A população do estudo foi composta de 363 usuários hipertensos e/ou diabéticos em acompanhamento em três Centros de Saúde do Município de Campinas, no período de agosto de 2017 a fevereiro de 2018. Os dados foram coletados por meio de anamnese. A análise dos dados consistiu na caracterização da população por meio da estatística descritiva, e a análise dos indicadores clínicos e seus respectivos Diagnósticos de Enfermagem foi realizada por meio das medidas de acurácia.

Resultados: foram elencados 25 Diagnósticos de Enfermagem, relacionados a 37 indicadores clínicos, passíveis de serem utilizados na população hipertensa e/ou diabética. Ressalta-se que três não estavam contidos no Subconjunto Terminológico “Enfermagem Comunitária”, sendo recomendada a introdução deles no Conselho Internacional de Enfermeiros.

Conclusão: por meio da avaliação das medidas de acurácia, o Subconjunto Terminológico “Enfermagem Comunitária” pode e deve ser utilizado no Brasil na população hipertensa e/ou diabética.

DESCRITORES: Terminologia padronizada em enfermagem. Processo de enfermagem. Cuidados de enfermagem. Atenção primária à saúde. Terminologia. Classificação.

USO DEL SUBCONJUNTO TERMINOLÓGICO “ENFERMERÍA COMUNITARIA” PARA USUARIOS HIPERTENSOS Y/O DIABÉTICOS

RESUMEN

Objetivo: determinar las medidas de precisión de los indicadores clínicos de los diagnósticos de enfermería contenidos en el Subconjunto Terminológico “Enfermería Comunitaria” para usuarios hipertensos y/o diabéticos.

Método: estudio metodológico, de precisión diagnóstica. La población de estudio estuvo compuesta por 363 usuarios hipertensos y/o diabéticos en seguimiento en tres Centros de Salud de la ciudad de Campinas, de agosto de 2017 a febrero de 2018. Los datos se recolectaron mediante anamnesis. El análisis de los datos consistió en caracterizar a la población mediante estadística descriptiva y el análisis de los indicadores clínicos y sus respectivos Diagnósticos de Enfermería se realizó mediante medidas de precisión.

Resultados: se enumeraron 25 Diagnósticos de Enfermería, relacionados con 37 indicadores clínicos, que pueden ser utilizados en la población hipertensa y/o diabética. Cabe señalar que tres no estaban incluidos en el subconjunto terminológico “Enfermería comunitaria”, y se recomienda que se introduzcan en el Consejo Internacional de Enfermeras.

Conclusión: a través de la evaluación de las medidas de precisión, el Subconjunto Terminológico “Enfermería Comunitaria” puede y debe ser utilizado en Brasil en la población hipertensa y/o diabética.

DESCRIPTORES: Terminología de enfermería estandarizada. Proceso de enfermería. Cuidado de enfermería. Primeros auxilios. Terminología. Clasificación.

INTRODUCTION

The International Classification for Nursing Practice (ICNP®) is a standardized terminology and information tool used to describe and document nursing practice in a variety of scenarios, languages and geographic regions worldwide.¹ It is a standardization of scientific terminologies used by nursing, based on existing classifications, which brings together terms and concepts of nursing diagnoses, outcomes and interventions.¹

ICNP® terminological subsets are defined as clusters of nursing diagnoses, outcomes and interventions that favor the adoption of a unified language for a selected group of users, nursing care context, or for a nursing phenomenon.²

The Terminological Subset “Community Nursing” was produced in Scotland and first published in 2011 and revised in 2013, 2015 and 2017.³ In Scotland, community nursing is a key component of the health system, which provides ongoing care services to individuals of all ages, families and communities.³ The objective to construct this Terminological Subset was to facilitate the documentation of community nursing practice, describe and compare data from community nurses in Scotland and other countries, and to promote communication within nursing and in other professions.³

In Brazil, community nursing practice takes place in Primary Health Care (PHC). PHC proposes the development of actions aimed at family and community care, designated by territory and population enrolled.⁴ Among the interventions performed in PHC, its important role in the control of chronic non-communicable diseases (NCDs), such as Arterial Hypertension (AH) and Diabetes mellitus (DM), is highlighted, which aims to avoid the worsening and the onset of complications.⁴

It is believed that the use of the Terminological Subset “Community Nursing” in PHC may provide nurses who provide care to the hypertensive and/or diabetic population with greater confidence in the decision-making process. However, it is necessary to identify whether the Nursing Diagnoses (NDs) contained therein contemplate the Brazilian needs, and, for this, it is necessary to validate this Terminological Subset for its use in Brazil.

In ICNP, a ND can be understood as assigning a title to a decision regarding a nursing phenomenon that is the focus of nursing actions by the nurse.¹ Currently there are several approaches that allow the validation of NDs, such as Content Analysis, Clinical Validation, among others.⁵ The intention is that these methods improve the classifications of ND and strengthen the capacity of nurses to identify the nursing phenomenon presented by the individual.⁵

Content analysis is one of the validation methods used for the construction of terminological subsets, with the objective of confirming their relevance to clinical nursing practice, evaluating the pertinence, clinical applicability to the context or population to whom care is intended, among other relevant aspects.⁵ After its dissemination, it is important to verify its applicability in the different geographical contexts of nursing practice, and to evaluate whether ND is present in a population in a given region, clinical validation can be used.⁵

Clinically validating means obtaining data on the existence of clinical indicators and ND in a clinical setting.⁵ Although clinical validation of terminological subsets is recommended, a specific method for this evaluation was not found in the literature.

Alternative proposals were proposed for the clinical validation of ND, including the analysis of accuracy or accuracy measures.⁵ The accuracy of an ND consists of the ability of it to represent what should be represented, in other words, correspond to the real state of the user, through the identification of clinical indicators of the individual.⁶ The accurate identification of ND in hypertensive and/or diabetic PHC users can influence the success of treatment, with positive consequences for the user, their family and society, since it reduces complications, the number of hospitalizations as well as mortality due to cardiovascular diseases.⁷

In nursing, diagnostic accuracy studies aim to identify the accuracy of the clinical indicators of an ND in a specific population, thus, it is evaluated which indicator predicts the occurrence of the investigated diagnosis with greater accuracy.⁶ In the present study, the clinical indicators were defined based on two concepts: the one with the best evidence - findings in the literature that support decision-making; and the user's preferences - consideration of the user as a participant in their health-disease-care process, considering that the nurse's role in the ESF permeates the formation of relationships, longitudinal follow-up, the construction of a relationship based on trust between professional-user and the joint choice of the best solution according to the conditions presented.

The importance of this study is based on the need for dissemination of the ICNP[®] Terminological Subsets, on the need for research that determines diagnostic accuracy in specific populations, in this case, hypertensive and diabetic PHC, since the precise identification of the ND will allow the choice of more appropriate interventions, improving the nursing care and health of these individuals.

Thus, the aim of this study was to determine the accuracy measurements of the ND clinical indicators contained in the Terminological Subset "Community Nursing" for hypertensive and/or diabetic users.

METHOD

A methodological diagnostic accuracy study, which evaluates the relationship that occurs between a diagnostic test and the reference pattern. The study was carried out in stages, using the recommendation of the International Council of Nurses (ICNP) for the construction of ICNP[®] catalogs as a reference, identified in the literature as the best clinical indicators that supported the choice of the relevant statements of the ND destined to this population, contained in the ICNP[®] Terminological Subset "Community Nursing".

An integrative literature review was conducted, which found 31 clinical indicators related to hypertensive and/or diabetic patients attended in PHC, a result already published in another study.⁸ Afterwards, using clinical reasoning to identify NDs, diagnostic inference was performed based on the existence of clinical indicators, pathophysiological process and user response to certain situations, combined with the clinical ability of the researchers.⁹ Thus, the 31 clinical indicators were related to 18 NDs contained in the Terminological Subset "Community Nursing" and to three ND that were not in the subset, but which were present in the ICNP[®], "Hyperglycemia", "Hypoglycemia" and "impaired tactile perfusion", which were added by the need for a ND that reflected the response of hypertensive and/or diabetic users.

The statements of the 21 NDs, with their respective clinical indicators, of the ND Set for hypertensive and/or diabetic users, were tested with the specified user population by means of accuracy measures. The most common accuracy measures are sensitivity, specificity and predictive value.¹⁰

Sensitivity is the probability of truly positive individuals, and has the presence of the clinical indicator in users with ND.¹⁰ Specificity refers to the probability of truly negative individuals, and has the absence of the clinical indicator in users without ND.¹⁰ The positive predictive value is the probability of the occurrence of a ND in the presence of the clinical indicator.¹⁰ The negative predictive value is the probability of the absence of a ND in the absence of the clinical indicator.¹⁰

The study population was composed of hypertensive and/or diabetic users under follow-up care at three Health Centers in the city of Campinas, from August 2017 to February 2018. The sites were chosen as they provided viability to the study, since the number of hypertensive and diabetic patients who attended the Health Centers was known.

Users older than 18 years of age, of both sexes, who had a medical diagnosis of AH and/or DM were included. The sample size considered the objective of estimating the proportion of diabetic, hypertensive and diabetic/hypertensive individuals who presented a certain clinical indicator/ND. In

the sample calculation, a p-ratio equal to 0.50 was considered, whose value represents the maximum variability of the binomial distribution, thus generating an estimate with the largest possible sample size. A population of 6,584 individuals was considered for the calculation of the sample size. In addition, a sampling error of 5% and a significance level of 5% were assumed. Thus, the sample consisted of 363 participants, divided proportionally according to the number of users in each of the user groups of the studied population, 206 hypertensive subjects, 72 diabetics and 85 diabetic/hypertensive individuals.

The study participants were selected for convenience when they attended the health center for medical appointments to receive medication or other types of care. At the time of data collection, the user was asked about their medical diagnosis of AH and/or DM and was invited to participate in the research. Users who agreed to participate received guidance on the research and signed the Informed Consent Form (ICF).

Data collection and diagnostic inference were performed by diagnosticians, who judged whether clinical indicators and ND were present or absent in each hypertensive and/or diabetic user in the study.¹⁰⁻¹¹

Diagnostic inference is considered as the reference standard for accuracy measures. To minimize the bias at the time of diagnostic inference, nurses were trained to act as diagnosticians.¹¹ Although criticisms point to the existence of an imperfect gold standard in this method, it should be considered that NDs represent human phenomena, which in most cases cannot be directly measured, and are identified and prioritized by people (nurses) to people (users).¹⁰⁻¹¹

The training of diagnosticians aims to improve their knowledge, the identification of signs and symptoms in the user, and the use of their skills in the diagnostic process.¹¹ Members of a "Study and Research Group on Nursing Care Management" of the research "Health and Nursing Care Process" were invited to participate in training for two days with a total of 12 hours.

In the first meeting, which lasted for four hours, with the presence of 10 nurses, the objective of the study was explained and what their attributions would be in the process and participation was requested to verify the accuracy of the ND clinical indicators contained in the ND Set for hypertensive and/or diabetic users. Furthermore, the Systematization of Nursing Care (SNC), the Nursing Process (NP), and diagnostic inference and accuracy were contextualized.

The second meeting, which lasted for eight hours, with the presence of six nurses, was divided into two periods: the first, between 8 hours and 12 hours, included specific topics, such as ethics in research with human beings, contextualization of PHC, ESF, HA, DM, ICNP® (2017 version), Terminological Subset "Community Nursing" (2017 version), ND Set for hypertensive and diabetic users. In the second period of training, which lasted between 13 hours and 17 hours, nurses were evaluated on their ability to perform the correct diagnostic inference, through the application of clinical cases. This step aims to identify which diagnosticians had satisfactory performance in the diagnosis process.¹¹

Clinical histories were constructed and applied to each diagnostician, in which the presence or absence of ND was verified, according to the judgment.¹¹ This step was performed according to the attribute classification method, which verifies the individual's ability to correctly classify two states.¹¹

According to the proposed method, the number of clinical histories depends on the number of participants. When the number of participants in the training is equal to or greater than three, 12 cases should be applied.¹¹ Thus, each nurse received a set of 12 clinical histories, developed by the researchers, who performed half of them with the presence of a ND and the other half with the absence of the ND in question.¹¹ Each case study had between three and six diagnoses contained in the ND Set for hypertensive and/or diabetic users, totaling 26.

After completion, the performance of each diagnostician was evaluated based on four characteristics: efficacy, false negative rate, false positive rate and trend.¹¹ Efficacy assesses the diagnostician's ability to correctly judge whether the clinical indicator and ND are present or absent. It was calculated by the number of correct identifications divided by the number of cases analyzed.¹¹ The false negative rate is related to the classification of an ND as absent when it is present. It was calculated by the number of cases that were incorrectly classified as negative, divided by the number of cases with the diagnosis.¹¹ The false positive rate refers to the chance of a ND being absent when it is present. It was calculated by the number of cases incorrectly classified as positive, divided by the number of cases without diagnosis.¹¹ The tendency relates to the diagnostician's predisposition to accept or reject a ND. It was calculated as the ratio between the trend of false negative by the trend of false positive.¹¹

Values greater than or equal to 0.8 for efficiency, values lower than or equal to 0.10 for false negative and false positive rates, and between 0.80 and 1.20 for the trend were considered acceptable.¹¹ After the analysis, three researchers were eligible to make diagnostic inference in this study, and were called diagnosticians

Data on the frequency of clinical indicators and ND studied, as well as socioeconomic and clinical aspects of the population, were organized using *Microsoft Office Excel* 2016 spreadsheets. The clinical validation analysis was performed in two stages: the first consisted of the population characterization, treated by descriptive statistics, and in the second stage, the measurement accuracy of the clinical indicators and their respective ND were analyzed. These measurements were calculated based on the diagnostic inference of the occurrence of ED, and a value of 50% was established as a cutoff point. Fischer's Chi-Square or Exact Test was applied for the associations involving qualitative variables and variables related to the presence of clinical indicators. The presentation of the data referring to the ND comprises the statement of the ND followed by its numerical code designated by the ICNP, in parentheses.

The study was approved by the research ethics committee, and complies with Resolution 466 of December 12th, 2012, which discusses research with human beings.

RESULTS

Population Characterization

Among the 363 users interviewed, 61.9% (n=225) were female and 63% (n=229) lived with a partner. It was observed that 93.4% (n=339) of the individuals were over 50 years old, 46% (n=167) were retired, 80.16% (n=291) had a *per capita* income of up to two minimum wages. Regarding risk factors, 99.7% (n=362) had at least one risk factor, including family history of SAH or DM, sedentary lifestyle, smoking, alcoholism, overweight, obesity, self-reported inadequate nutrition, dyslipidemia.

Regarding the blood pressure value of the 363 participants, the mean Systolic Blood Pressure (SBP) was 134 mmHg (SD: 19.7), and Diastolic Blood Pressure (DBP) was 79 mmHg (SD: 12.3). In addition, 53.26% (n=155) of the 291 hypertensive users had SBP values ≥ 140 mmHg and/or DBP ≥ 90 mmHg.

Concerning glycemia, 38.8% (n=61) of the 157 diabetic users had values above 180 mg/dl. The cutoff point 180mg/dl was assigned, a goal established by the Brazilian Diabetes Society for postprandial glycemia, for the evaluation of the results obtained through capillary glucose at the time of data collection, since there was a non-knowledge about the user's fasting time. The mean momentary blood glucose of the participants was 79.9 mg/dl (SD: 71.2).

In relation to laboratory tests, 43.8% (n=159) underwent examinations in the last year, of which 76.1% (n=121) in the last semester and 48.2% (n=175) did not obtain information on the performance of tests. Among the diabetic users, 39.5% (n=62) had glycated hemoglobin tests, and of these 53.2% (n=33) had altered tests (>7% in adults and >7.5% in the elderly).

Regarding comorbidities, 27% (n=98) presented at least one comorbidity, including stroke, heart disease, nephropathy, retinopathy, peripheral arterial disease, diabetic neuropathy, lower extremity ulcer (LEM) and lower extremity amputation.

Accuracy of clinical indicators and their respective ND

The “Community Nursing” ND Set for hypertensive and/or diabetic users was composed of 25 NDs, related to 37 clinical indicators (Tables 1, 2 and 3). Among these 25 ND, three are not listed in the Terminological Subset “Community Nursing” which are “Hyperglycemia”, “Hypoglycemia” and “Impaired Tactile Perfusion”, but is recommended for inclusion in this Subset.

Among the 25 NDS, 22 present the accuracy measures, 18 initially inferred by the researchers of the study, four inferred by the diagnosticians during the clinical validation stage (alcohol abuse, tobacco abuse, anxiety, impaired sleep), and three that do not present the accuracy measures, because they were inferred by the study researchers after data analysis.

Table 1 – Accuracy measures of clinical indicators of nursing diagnoses of the “Community Nursing” Nursing Diagnosis Set for hypertensive users. Campinas, SP, Brazil, 2019. (n=291)

Nursing Diagnoses	Clinical indicators	Se*	SP†	PPV‡	NPV§	p-value
Side effect of the medication (10011626)	Headache	1.0	0.9	0.5	1.0	<0.003
Blood pressure changed (10022954)	Headache	1.0	0.9	0.5	1.0	<0.001
	Blood Pressure increase	1.0	1.0	1.0	1.0	<0.001
	Microalbuminuria	1.0	0.9	0.4	1.0	0.010

*Se: sensitivity; †SP: Specificity; ‡PPV: positive predictive value; §NPV: negative predictive value. || p-value obtained through fisher’s exact test.

Table 2 – Accuracy measures of clinical indicators of nursing diagnoses of the “Community Nursing” Nursing Diagnosis Set for diabetic users. Campinas, SP, Brazil, 2019. (n=157)

Nursing Diagnoses	Clinical indicators	Se*	SP§	PPV	NPV¶	p-value
Acute confusion (10000449)	Hypoglycemia	-	0.9	0	1.0	-
Lack of knowledge about disease (10021994)	Amputation	1.0	0.9	0.3	1.0	0.019†
Hyperglycemia (10027550)	Increased blood glucose	1.0	1.0	1.0	1.0	<0.001*
	Decreased tactile sensitivity	1.0	0.9	0.5	1.0	<0.001†
	Decreased pain sensitivity	1.0	0.9	0.5	1.0	<0.001†
	Microalbuminuria	1.0	0.9	0.8	1.0	<0.001†
	Nocturia	1.0	1.0	1.0	1.0	<0.001†
	Polydipsia	1.0	1.0	1.0	1.0	<0.001†
	Polyphagy	1.0	1.0	1.0	1.0	<0.001†
Polyuria	1.0	0.9	0.6	1.0	<0.001†	

Table 2 – Cont.

Nursing Diagnoses	Clinical indicators	Se*	SP§	PPV 	NPV¶	p-value
Hypoglycemia (10027566)	Hypoglycemia	1.0	1.0	1.0	1.0	0.006 [†]
	Weakness	1.0	1.0	1.0	1.0	0.006 [†]
	Sweating	-	1.0	-	1.0	-
	Tachycardia	-	1.0	-	1.0	-
	Tremor	-	1.0	-	1.0	-
Impaired mobility (10001219)	Amputation	1.0	0.9	0.3	1.0	0.019 [†]
	Lower extremity ulcer	1.0	0.6	0.2	1.0	0.019 [*]
Non-compliance to the security regime (10022140)	Increased glycated hemoglobin	1.0	1.0	1.0	1.0	<0.001 [*]
	Decreased painful sensitivity	1.0	0.9	0.5	1.0	<0.001 [†]
	Decreased tactile sensitivity	1.0	0.9	0.5	1.0	<0.001 [†]
Impaired tactile perception (10022619)	Decreased tactile sensitivity	1.0	1.0	1.0	1.0	<0.001 [†]
Impaired peripheral tissue perfusion (10044239)	Amputation	1.0	1.0	1.0	1.0	<0.001 [†]
	Decrease in capillary filling	1.0	1.0	1.0	1.0	<0.001 [†]
Risk of diabetic foot ulcer (10042666)	Decreased tactile sensitivity	1.0	1.0	1.0	1.0	<0.001 [†]
	Decreased pain sensitivity	1.0	1.0	1.0	1.0	<0.001 [†]
Diabetic ulcer (10042181)	Lower extremity ulcer	1.0	0.9	0.9	1.0	<0.001 [†]

*p-value obtained through the Chi-square test; [†]p-value obtained through fisher's exact test; ‡SE: sensitivity; §SP: Specificity; || PPV: positive predictive value; ¶NPV: negative predictive value.

Table 3 – 2012 Accuracy measures of clinical indicators of nursing diagnoses of the “Community Nursing” Nursing Diagnosis Set for hypertensive and diabetic users. Campinas, SP, Brazil, 2019. (n=363)

Nursing Diagnoses	Clinical indicators	Se.	SP§	PPV 	NPV¶	p-value
Alcohol abuse (10022234)	Verbal report of alcoholism	1.0	1.0	1.0	1.0	<0.001 [*]
Tobacco abuse (10022247)	Verbal report of smoking	1.0	1.0	1.0	1.0	<0.001 [*]
Anxiety (10000477)	Verbal account of being anxious	1.0	1.0	1.0	1.0	<0.001 [*]
Acceptance of the health condition, impaired (10029480)	Does not accept the diagnosis of the disease and treatment	1.0	1.0	1.0	1.0	<0.001 [*]
Ability to manage (control) the dietary regimen, impaired (10022592)	Individual making negative eating choices.	-	-	-	-	-
Ability to manage (control) the physical exercise regime, impaired (10022603)	Individual making negative choices about the practice of physical exercise	-	-	-	-	-
Ability to monitor the disease, impaired (10029613)	Verbal report of the individual who does not monitor blood glucose when it should be done.	-	-	-	-	-
Able to perform health maintenance (10023452)	User choices which collaborate with dietary regimen	1.0	1.0	1.0	1.0	<0.001 [†]

Table 3 – Cont.

Nursing Diagnoses	Clinical indicators	Se.	SP§	PPV 	NPV¶	p-value
Peripheral edema (10027482)	Edema	1.0	0.9	0.9	1.0	<0.001 [†]
Lack of family support (10022473)	Inappropriate family activities	1.0	1.0	1.0	1.0	<0.001 [†]
Lack of knowledge about disease (10021994)	Verbal report of lack of knowledge about the disease process	0.9	1.0	1.0	0.9	<0.001 [†]
	Verbal report of lack of knowledge about the disease process	1.0	1.0	1.0	1.0	<0.001 [†]
Lack of knowledge about physical exercise (10022585)	Sedentary lifestyle	1.0	0.2	0.1	1.0	0.001 [*]
Lack of knowledge about dietary regimen (10021939)	Overweight	0.9	0.6	0.1	0.9	<0.001 [*]
Nutritional intake, impaired (10023009)	Dyslipidemia	1.0	0.9	0.8	1.0	<0.001 [†]
	Overweight	1.0	0.6	0.2	1.0	<0.001 [*]
	Obesity	1.0	0.9	0.8	1.0	<0.001 [†]
Mobility impaired (10001219)	Verbal report of pain in lower extremities	1.0	1.0	1.0	1.0	<0.001 [†]
Non-compliance to the security regime (10022140)	Decreased visual acuity	1.0	0.9	0.3	1.0	<0.001 [†]
	Dyslipidemia	1.0	0.9	0.8	1.0	<0.001 [†]
	User choices that do not collaborate with dietary regimen	1.0	1.0	1.0	1.0	<0.001 [*]
	User choices that do not collaborate with treatment	1.0	1.0	1.0	1.0	<0.001 [†]
	Obesity	1.0	0.9	0.8	1.0	<0.001 [*]
	Verbal report of lack of knowledge about the disease process	1.0	0.9	0.3	1.0	<0.001 [†]
	Sedentary lifestyle	1.0	0.8	0.9	1.0	<0.001 [*]
Overweight (10027300)	Overweight	1.0	1.0	1.0	1.0	<0.001 [*]
Sleep, impaired (10027226)	Verbal report of sleep alterations	1.0	1.0	1.0	1.0	<0.001 [*]
Impaired vision (10022748)	Decreased visual acuity	1.0	0.9	0.9	1.0	<0.001 [†]

*p-value obtained through the Chi-square test; [†]p-value obtained through fisher's exact test; ‡SE: sensitivity; §SP: Specificity; || PPV: positive predictive value; ¶NPV: negative predictive value.

DISCUSSION

Regarding the sociodemographic characterization of the participants, there was a prevalence of females, corroborating what was found in the literature, which also shows a prevalence of women.¹² This finding may be related to the convenience sampling used in the research, which addressed individuals present in health centers, and the literature shows that women seek PHC more than men.¹³⁻¹⁴

Another characteristic of this population is the direct association between aging and the prevalence of AH and DM. This fact may be related to the demographic transition that Brazil has been going through in recent decades, characterized by increased population longevity, which is associated with increased risk factors and a consequent increase in morbidity and mortality rates in this population.¹⁴

The literature highlights the association between NCDs, specifically AH and DM, and socioeconomic factors, demonstrating that the low-income population is associated with higher morbidity and mortality.¹⁵ This fact confirms that found in this study, in which the monthly income of the majority of the population is two minimum wages. Regarding marital status, more than half of the individuals reported being married, a profile similar to other studies in the same population.¹⁶

Regarding the biopsychosocial context, the ND “Lack of family support (10022473)” (clinical indicator “inadequate family activity”) and the ND “Lack of knowledge about disease (10021994)” (clinical indicator “verbal report of lack of knowledge” and “little knowledge about the disease”) were validated by the accuracy measures, corroborating the literature, according to which family support is fundamental for the control of AH and DM,¹⁶ and knowledge about the disease is an influential factor in the individual’s attitudes towards their health and treatment adherence.¹⁴

Concerning risk factors, the clinical indicator “sedentary” was considered a predictor of the ND “Non-adherence to the safety regime (10022140)” but was not considered a predictor of the ND “Lack of knowledge about physical exercise (10022585)”. Such findings may be due to the population having knowledge about the need to perform physical activity, but not to do so due to health habits that hinder the practice. Thus, after data analysis, another ND was inference contained in the Terminological Subset “Community Nursing” to integrate the ND Set for hypertensive and/or diabetic users, the ND “Ability to manage (control) the physical exercise regimen, impaired (10022603)”.

Overweight is also considered a risk factor for chronic diseases and was a clinical indicator initially related to three ND (“Lack of knowledge about dietary regimen (10021939)”, “Nutritional intake, impaired (10023009)” and “Overweight (10027300)”), however, only one considered a predictor for a DE – “Overweight (10027300)”. It is believed that overweight was not considered a predictor of the ND “Lack of knowledge about dietary regimen (10021939)” because it is related to health habits that hinder weight loss, and not to lack of knowledge about healthy eating.

The ND “Impaired nutritional intake (10023009)” was considered a predictor of the clinical indicator “obesity”, but was not considered a predictor of the clinical indicator “overweight”. It is inferred that this finding is due to the fact found in the literature, according to which the most immediate determinant of excessive fat accumulation, and consequently obesity, is nutritional intake.¹⁷ The clinical indicator “dyslipidemia” was considered a predictor of “Nutritional intake, impaired (10023009)” and “Non-adherence to the safety regime (10022140)”, which is in accordance with the literature, since obesity and nutritional intake are risk factors for dyslipidemia.¹⁷

Due to the frequent appearance of the clinical indicators “overweight”, “obesity” and “dyslipidemia”, after analyzing the data, another ND contained in the “Community Nursing” Terminology Subset was inferred for the ND Set for hypertensive and diabetic users; the ND “Ability to manage (control) the dietary regime, impaired (10022592)”.

The “Verbal report of being anxious” was not a clinical indicator identified in the literature, but was listed by the diagnosticians during clinical validation and was considered a predictor for the ND “Anxiety (10000477)”. Anxiety was also evaluated in a study, which identified that users with higher levels of anxiety had higher progression of cardiovascular diseases.¹⁸

The “Verbal report of sleep alteration” was identified by the diagnosticians as a clinical indicator for the hypertensive and/or diabetic population is considered a predictor for the ND “Impaired sleep (10027226)”. These findings corroborate the literature, which presents a study that, when evaluating the sleep quality of hypertensive patients, identified that hypertensive individuals have worse sleep quality, and another study that, with the objective of identifying sleep quality in diabetics, identified that sleep problems are common in this population.^{19–20}

The “Verbal report of smoking” and the “Verbal report of alcoholism” were identified by the diagnosticians as clinical indicators, and are considered predictors of the ND “Tobacco abuse

(10022247)" and "Alcohol abuse (10022234)", respectively. The literature also highlights the association between tobacco and alcohol and chronic diseases.²¹

The ND "Able to perform the maintenance of health (10023452)" (clinical indicator "user choices that collaborate with the dietary regimen), "Non-compliance with the safety regime (10022140)" (clinical indicators "user choices that do not collaborate with the dietary regimen" and "user choices that do not collaborate with the treatment") and "Acceptance of the health condition, impaired (10029480)" (clinical indicator "does not allow the diagnosis of the disease and treatment") were validated by the measures of accuracy for hypertensive and diabetic users. This finding is in line with the literature, which highlights that lifestyle can influence the level of health and quality of life, in a positive or negative way.²²⁻²³

Regarding the control of AH, the high frequency of ND "Altered blood pressure (10022954)" (clinical indicators "increased blood pressure" and "headache") was observed in this study, also found in other studies, which may be associated with non-treatment, inadequate follow-up in health services or the natural course of the underlying disease.²⁴ In addition, it was found in the literature that some antihypertensive drugs may include headache as an adverse event, which may justify the clinical indicator "headache" being a predictor of the ND "Medication side effect (10011626)".²⁵

Regarding the control of DM, all clinical indicators of the ND "Hyperglycemia (10027550)" were validated, which can be justified by the symptomatology of the disease. The clinical indicator "increased glycated hemoglobin" was considered a predictor of the ND "Non-access to the safety regimen (10022140)" by the diagnosticians. This inference was made because the constant increase in blood glucose may mean non-compliance with a healthy lifestyle, with dietary regimen and adequate physical exercises. The association of glycated hemoglobin with lack of treatment compliance and higher chances of complications was also identified in a study that aimed to characterize diabetic users according to the variables related to the disease.²⁶

Considering the increase in glycated hemoglobin in more than half of the diabetic population, the ND present in the Terminological Subset "Community Nursing" "Ability to monitor the disease, impaired (10029613)" was inferred.

The non-control of AH and DM is associated with the presence of acute and chronic complications. Among the most frequent acute complications of DM is the clinical indicator "hypoglycemia", considered a predictor of the ND "Hypoglycemia (10027566)". The said MD was not considered a predictor of the clinical indicators "tremor", "tachycardia" and "sweating" because these are symptoms of a clinical condition not characteristic of PHC, leading patients to seek the emergency Room.

In relation to chronic complications, Diabetic Retinopathy (DR) is the most common cause of blindness in developing countries, accounting for approximately 80% of cases.²⁷ Hypertensive Retinopathy also affects users and accounts for approximately 15% of the causes of blindness.²⁸ In this sense, the ND "Impaired vision (10022748)" (clinical indicator "decreased visual acuity") was validated by the accuracy measures for this population. The clinical indicator "decreased visual acuity" was also related to the ND "Non-compliance to the safety regimen (10022140)", but was not considered a predictor for said ND. It is believed that it has not been validated because retinopathy can be caused by the evolution of the disease.

Nephropathy or Chronic Kidney Disease (CKD), another complication of AH and/or DM, includes microalbuminuria as a predictive factor for the development of nephropathy. Upon analyzing the accuracy measures, the clinical indicator "microalbuminuria" was considered a predictor for the ND "Hyperglycemia (10027550)" but was not considered a predictor for the ND "Altered blood pressure (10022954)". This result is attributed to the fact that few users have the microalbuminuria exam, which allows two conclusions: the examination is not being requested to this population according to protocol or professionals do not correctly record care.

Microvascular alterations may also cause changes in vascular resistance with extravasation of fluid from intravascular to extravascular, especially in the lower limbs resulting in edema. Lower extremity edema has been reported in the literature as a complaint in the hypertensive and/or diabetic population and was considered a predictor of “Peripheral edema (10027482)” by the diagnosticians.²⁹

It is believed that the ND “Hyperglycemia (10027550)” (clinical indicators “decreased tactile sensitivity”, decreased pain sensitivity) “Risk of Diabetic Foot Ulcer (10042666)” (clinical indicators “decreased tactile sensitivity”, “decreased pain sensitivity”) and “Non-compliance to the Safety Regimen (10022140)” (clinical indicators) “decreased tactile sensitivity”, “decreased pain sensitivity”), “Peripheral, impaired (10044239)” (clinical indicators “amputation” and “decreased capillary filling”) and “Diabetic ulcer (10042181)” (clinical indicator “lower limbs ulcer”) were validated by accuracy measures because they are related to neuropathic complications, arising from DM.²⁹

Initially, it was inferred that amputation and diabetic ulcer could be related to the ND “Impaired mobility (10001219)”, however, these clinical indicators were not considered predictors of said ND and a new clinical indicator was proposed by the diagnosticians, the “report of LEM pain”. It is believed that this fact occurred because, although the literature relates them, few users presented ulceration/ amputation, but many presented LEM pain.

This study is limited by the fact that it was performed in a specific context, further studies are suggested in different contexts.

CONCLUSION

The “Community Nursing” Nursing Diagnosis Set for hypertensive and/or diabetic users presents 25 NDs, correlated with 37 clinical indicators, 22 of which were validated by accuracy measures. According to this analysis, the ICNP® “Community Nursing” terminological subset can and should be used in Brazil, with the purpose of favoring the development of clinical reasoning by nurses working in PHC and assisting decision-making in nursing practice, with the objective of qualifying and individualizing the care provided to hypertensive and diabetic users.

It is evident that the present study is unprecedented for nursing as it uses diagnostic accuracy and ICNP®, identifying NDs, as well as clinical indicators, for hypertensive and diabetic users who attend PHC.

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NOTES

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There's no conflict of interest.

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