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Terminological relationships between nursing diagnoses for children with kidney diseases

Relações terminológicas entre diagnósticos de enfermagem para crianças com doenças renais

Relaciones terminológicas entre diagnósticos de enfermería para niños con enfermedades renales

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ABSTRACT

Objective: To identify the relationships between the statements of nursing diagnoses for children with kidney diseases prepared according to the International Classification for Nursing Practice (ICNP®) with the diagnoses of NANDA International (NANDA-I). **Methods:** Methodological study operationalized by the steps: 1) Survey of clinical findings through interviews and physical examination with children; 2) Elaboration of nursing diagnoses through Gordon's clinical judgment; 3) Cross-mapping of diagnostic statements between the NANDA-I and ICNP® classification systems; 4) Content validation using the Delphi technique, in two rounds, with specialist nurses. **Results:** 90 children participated. A total of 151 diagnoses were made, of which 66.3% (n=100) used ICNP® terminology and 33.7% (n=51) used NANDA-I; 55 diagnoses showed equivalence of meanings. **Conclusions:** Cross-mapping of diagnoses was achieved starting from the reality of children, using clinical reasoning and validation by specialist nurses. **Descriptors:** Nursing Process; Nursing Diagnosis; Standardized Nursing Terminology; Child Health; Kidney Diseases.

RESUMO

Objetivo: Identificar as relações dos enunciados de diagnósticos de enfermagem para crianças com doenças renais elaborados segundo a Classificação Internacional para a Prática de Enfermagem (CIPE®) com os diagnósticos da NANDA Internacional (NANDA-I). **Métodos:** Estudo metodológico operacionalizado pelas etapas: 1) Levantamento dos achados clínicos por meio de entrevista e exame físico com crianças; 2) Elaboração dos diagnósticos de enfermagem mediante o julgamento clínico de Gordon; 3) Mapeamento cruzado dos enunciados de diagnósticos entre os sistemas de classificação NANDA-I e CIPE®; 4) Validação de conteúdo utilizando a técnica Delphi, em duas rodadas, com enfermeiros especialistas. **Resultados:** Participaram 90 crianças. Foram elaborados 151 diagnósticos, dos quais 66,3% (n= 100) da terminologia da CIPE® e 33,7% (n= 51) da NANDA-I; 55 diagnósticos apresentaram equivalência de significados. **Conclusões:** O mapeamento cruzado de diagnósticos foi alcançado partindo-se da realidade de crianças, com uso de raciocínio clínico e validação por enfermeiros especialistas.
Descritores: Processo de Enfermagem; Diagnóstico de Enfermagem; Terminologia Padronizada em Enfermagem; Saúde da Criança; Nefropatias.

RESUMEN

Objetivo: Identificar relaciones de enunciados de diagnósticos de enfermería para niños con enfermedades renales elaborados segundo la Clasificación Internacional para la Práctica de Enfermería (CIPE®) con los diagnósticos de la NANDA Internacional (NANDA-I). **Métodos:** Estudio metodológico siguiendo las etapas: 1) Levantamiento de hallados clínicos mediante entrevista y examen físico con niños; 2) Elaboración de diagnósticos de enfermería mediante el juicio clínico de Gordon; 3) Mapeo cruzado de los enunciados de diagnósticos entre los sistemas de clasificación NANDA-I y CIPE®; 4) Validez de contenido utilizando la técnica Delphi, en dos rondas, con enfermeros especialistas. **Resultados:** Participaron 90 niños. Fueron elaborados 151 diagnósticos, de los cuales 66,3% (n= 100) de la terminología de la CIPE® y 33,7% (n= 51) de la NANDA-I; 55 diagnósticos presentaron equivalencia de significados. **Conclusiones:** El mapeo cruzado de diagnósticos fue alcanzado partiéndose de la realidad de niños, con uso de raciocinio clínico y validación por enfermeros especialistas.
Descriptores: Proceso de Enfermería; Diagnóstico de Enfermería; Terminología Normalizada de Enfermería; Salud del Niño; Nefropatías.

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INTRODUCTION

Considered as a public health problem, kidney disease affects, in general, between 11% and 13% of the world population. The World Health Organization (WHO) recently added kidney and urological diseases to the mortality information tracked around the world, which should be a valuable source of this data over time[1-2].

Unlike adults, in whom diabetes mellitus and hypertension are the main etiologies of kidney disease, in children there are numerous factors that can trigger this condition: genetic factors (for example, monogenic or risk alleles), perinatal factors (for example, , low birth weight and prematurity), childhood kidney diseases (e.g. congenital anomalies, glomerular diseases and renal cystic ciliopathies), onset of chronic diseases in childhood (e.g. cancer, diabetes, hypertension, dyslipidemia and obesity) and different factors lifestyle factors (for example, physical activity, diet and factors related to socioeconomic status)[2-3].

In this sense, children who are born or who develop kidney diseases in the course of their lives need short and long-term monitoring for monitoring and preventive actions aimed at preserving kidney function[4]. Therefore, it is necessary that the professionals involved in the care process of these children present skills and clinical reasoning in identifying the affected needs and conduct care planning through the optimization of conducts and the achievement of goals that encourage their quality of life[5].

As a member of the health team, nurses have, in their work method, strategies that allow the development of individual and qualified assistance through the nursing process. For this, it is through the nursing diagnosis phase that clinical decision-making about the existence of a human response is attributed, and this will determine care that meets the real needs of the individual.

However, for this care to be internationally recognized, the use of a language system for the standardization of nursing vocabulary is encouraged as a powerful instrument for clinical practice [6-7]. Therefore, the nursing diagnoses, results and interventions enunciation systems can be guided by terminologies, where the most used in the Brazilian scenario are the International Classification for Nursing Practice (ICNP®), the International NANDA (NANDA-I), the Nursing Interventions Classification (NIC) and the Nursing Outcomes Classification (NOC)[8].

Judging the relevance of these systems for research, teaching and nursing care, since they demonstrate a set of structured and organized knowledge, the realization of cross mapping is configured as a predictive method of the relationship between such systems, when based on diagnostic reasoning, it is expected to achieve the same concept for the grouping of clinical evidence, enabling interoperability and identification of divergences between systems[9]. With this, it was identified the need to carry out a study on the relationship between the main systems, since there are few studies developed with this objective, thus reflecting a gap in knowledge regarding the scenario of care for children with kidney diseases, thus revealing an incentive for Nursing[10-12].

OBJECTIVES

To identify the relationships between the statements of nursing diagnoses for children with kidney diseases prepared according to the International Classification for Nursing Practice (ICNP®) with the diagnoses of NANDA International (NANDA-I).

METHODS

Ethical aspects

The development of the research followed the national standards of ethics in research involving human beings and the resolution 466/12 of the National Health Council, being approved by the Research Ethics Committee. To carry out the first stage of the study, the Free and Informed Consent Term was requested for the children and the Free and Informed Consent Term for their guardians.

Study design, place and period

Methodological study, with a quantitative approach, operationalized by the following steps: 1) Survey of clinical findings through an interview guided by a validated script and physical examination with children with kidney diseases; 2) Elaboration of nursing diagnoses through Gordon's clinical judgment; 3) Cross-mapping of nursing diagnoses statements between the NANDA-I and ICNP® classification systems; 4) Content validation using the Delphi technique, in two rounds, with specialist nurses for diagnoses with equivalence of meanings between the systems. The research followed the standard for quality improvement studies Standards for Quality Improvement Reporting Excellence 2.0 (SQUIRE) from the Equator Network Enhancing the Quality and Transparency Of health Research, used to guide the stages of organization and structuring of the collected data.

The first stage was carried out in a reference unit in the health care of children and adolescents, located in a university hospital in the Zona da Mata region of the Brazilian northeast. This stage was carried out from May to December 2019, this period being established in order to absorb participants with these conditions. The fourth stage took place with specialist nurses, in a virtual environment, between March and June 2020. All stages were conducted by the main researcher, and by two students from the Master's course at the time.

Population or sample; inclusion and exclusion criteria

For the first stage, the participants were children diagnosed with kidney diseases and hospitalized in the unit. To reach these participants, it was based on the number of visits between 2015 and 2018, totaling 1,321. Therefore, to calculate the sample, the formula for finite populations was used, taking into account a confidence level of 95% ($Z\infty = 1.96$), sampling error of 10%, population of 1,468, so that the result was a sample of 90 participants.

The selection was by convenience, consecutively, and the following criteria were adopted: children up to twelve years of age incomplete according to the Statute of Children and Adolescents, clinically diagnosed with diseases of renal origin and being hospitalized in the hospital during the period of data collect. As exclusion criteria: children who had other diseases associated with kidney disease, such as: neoplasms, infectious, neurological and psychiatric diseases.

The fourth step was the validation of content in two Delphi rounds with specialist nurses selected through the curricula inserted in the Lattes Platform, linked to the National Council for Scientific and Technological Development (CNPq). The following inclusion criteria were used: nurses with at least a Master's degree, working with nursing diagnoses and ICNP® and focusing on chronic kidney disease in care, teaching and/or research. For this purpose, the filters on the homepage were adopted: Academic Background/Titulation: All; Country Brazil; Region/UF: All and Professional Practice: Major Area: Health Sciences; Area: Nursing; Subarea: Nursing in Child and Adolescent Health; Specialty: All.

The following formula was used to calculate the sample of experts: $n = Z^2\ 1\text{-}\alpha/2.\ p.(1\text{-}p) / e2$, where "$Z^2\ 1\text{-}\alpha/2$" = adopted confidence level; "p" = expected proportion of specialists; and "e" = difference of acceptable proportion in relation to what would be expected. A confidence level of 95% was chosen ($Z^2\ 1\text{-}\alpha/2 = 1.96$), an expected proportion of 85% of the specialists and a sampling error of 15%, reaching an ideal sample of 22 specialists. Taking into account the costly return of expert judges, a larger number was chosen.

Initially, the search was carried out by 78 specialists. With the refinement of the established criteria, 56 were invited to participate in the survey, resulting in a return of 27 in the first round and 22 in the second. The invitation letter, the Free and Informed Consent Term and a structured form were sent via Google Forms.

Study protocol

The first step consisted of surveying the clinical findings through interviews and physical examinations with children with kidney disease. For that, a data collection script was used based on Wanda de Aguar Horta's Theory of Basic Human Needs, which included the child's socioeconomic data, neurological assessment, nutrition, elimination, sleep/rest/activity, relationships, stress tolerance, safety/protection and comfort, in addition to a detailed physical examination[13]. As this guide is aimed at the practice of neonates with peripherally inserted central catheter, it meets the needs required for the current study.

The second step was the elaboration of diagnoses, seeking to identify the defining characteristics and related/risk factors according to NANDA-I, version 2018-2020 and with terms present in ICNP®, version 2019/2020[14-15]. Therefore, for the structuring of nursing diagnoses, the steps of Gordon's clinical judgment and the recommendations of ISO (International Standard Organization) 18.104:2014 - "Health informatics: categorical structures for the representation of nursing diagnoses and care actions" were followed. nursing in terminological systems", in which a term from the "Focus" and "Judgment" axis should be used[16].

It should be noted that the respective conceptual and operational definitions were constructed for each diagnosis, using the definitions of NANDA-I, in addition to the definitions of terms contained in the ICNP®, scientific articles, manuals, textbooks and dictionaries.

As for the third step, the cross mapping, three spreadsheets were created in Excel for Windows® software: one with the statements of nursing diagnoses prepared in the previous step, and two other lists with the operational definitions of the ICNP® diagnoses, version 2019. /2020 (source document) and NANDA-I, version 2018-2020 (target document). After this organization, the spreadsheets were crossed and a database was created in the Software Access for Windows®, in order to identify the equivalence of meanings of the definitions. In addition, we sought to ensure the meaning of terms and expressions, the comparison of standardized terms and expressions to the diagnostic focuses, the correlation present in the concepts and mapping of possible nursing diagnoses[10].

The statements of the diagnoses were classified according to the criteria of the degree of equivalence and cardinality assessment scale in the cross-mapping process, according to ISO/TR 12300:2016, considering the diagnoses that had a rating of 1 (lexical and conceptual meaning equivalence), 2 (Equivalence of meaning but with synonymy), 3 (Source term is broader and has less specific meaning than target term), 4 (Source term is narrower and has more specific meaning than target term) and 5 (No mapping is possible)[9].

The last step was the content validation. This step was carried out with nurses elected by the Lattes Platform. The Delphi technique was adopted in two rounds, each one lasting 35 days, which included the analysis and return period. The study researchers had a period of up to 20 days to adapt and create the new version of the list of statements, and with that, the second round began.

Twenty-seven specialist nurses participated in the 1st round and 22 in the 2nd round. In view of this, the experts judged whether or not they agreed with the equivalence of meanings between the statements and diagnostic concepts of ICNP® and NANDA-I. In case of discrepancy, suggestions were requested.

Analysis of results and statistics

To measure the proportion of nurses who agreed on the distribution aspects of the list of nursing diagnoses and their items with Basic Human Needs[17], the Content Validation Index (CVI) was adopted. The statements that presented rates above 80% (0.8) were considered valid, which were calculated by dividing, by the total number of evaluators who evaluated the cross-mapping, the total number of those who attributed a score of 3 or 4 in a four-point ordinal scale with significance from "agree" to "disagree"[18-19].

In addition, the Reliability Index was adopted, which indicates the degree to which the observed indices differed from the individuals' true score, being an index of confidence or reliability and also by the inter-rater agreement (Interrater Agreement - IRA). For its calculation, the number of items that obtained a value above 0.8 of agreement between the evaluators was divided by the total number of items in each dimension of the mapping. For statistical analysis, the Statistical Package for the Social Sciences (SPSS), version 20.0 was used.

The list of statements and their answers were allocated in a Microsoft Excel® spreadsheet, which allowed the calculation of indices and the application of the Mann-Whitney Test to verify the significance between the rounds. Through the Mann-Whitney test, for a significance level of 5%, we have evidence of statistical difference between Delphi 1 and 2 in the analyzed domains (Basic Human Needs), where we had a better evaluation in Delphi 2 in the respective domains.

RESULTS

A total of 90 children affected by kidney disease participated, 51.4% of whom were male, with a predominant age group from 2 to 10 years (67.8%), with the main medical diagnoses: nephrotic syndrome, hydronephrosis and diffuse glomerulonephritis. The first stage of the study (survey of clinical findings by means of an interview and physical examination) resulted in 217 clinical findings, which comprised the completion of the second stage.

Specialist nurses were mostly female (75%), aged between 35 and 50 years (75%), residing in the Northeast of Brazil (60%), working in higher education (90%), with a master's degree.

The second stage allowed the elaboration of 151 diagnoses, which were subjected to cross-mapping of ICNP® diagnostic statements, version 2019/2020, and with NANDA-I 2018-2020. Then, it was found that 27.1% of ICNP® diagnoses did not agree with NANDA-I. With regard to the classification of nursing diagnoses statements according to the criteria of the cross-mapping equivalence degree scale, these are presented in Charts 1 and 2, with the nursing diagnoses of psychobiological needs and nursing diagnoses of needs psychosocial respectively.

The study showed that 55 diagnoses showed equivalence of meaning with CVI greater than 0.8, being considered validated by the specialists (Tables 1 and 2). Through the Mann-Whitney test, for a significance level of 5%, there was evidence of statistical difference between Delphi 1 and 2 in the analyzed domains, where a better evaluation was obtained in Delphi 2. Because the diagnoses obtained CVI and IRA above 0.8, they present valid content because they contemplated the indices recommended by the reference adopted in this study, being considered superior in Delphi 2.

Chart 1 - Assessment regarding the degree of equivalence of the ICNP® and NANDA-I psychobiological nursing diagnoses, Natal, Rio Grande do Norte, Brazil, 2021

ICNP® Diagnostics	**NANDA-I Diagnostics**	**Equivalence**
Impaired Respiratory System Function	Ineffective breathing pattern	Equivalence 3
Dyspnoea	Ineffective breathing pattern	Equivalence 3
Impaired Weight	Overweight	Equivalence 3
Impaired Infant Feeding Behaviour	Imbalanced nutrition: less than body requirements	Equivalence 4
Non Adherence To Dietary Regime	-	Equivalence 5
Impaired Eating Behaviour	Ineffective adolescent eating dynamics	Equivalence 3
Impaired Nutritional Status	-	Equivalence 5
Risk For Impaired Nutritional Status	-	Equivalence 5
Impaired Chewing	-	Equivalence 5
Risk For Impaired Fluid Volume	Risk for imbalanced fluid volume	Equivalence 3
Risk For Dehydration	Risk for deficient fluid volume	Equivalence 3
Impaired Fluid Volume	Risk for deficient fluid volume	Equivalence 3
Risk For Electrolyte Imbalance	Risk for electrolyte imbalance	Equivalence 1
High Drinking	Excess fluid volume	Equivalence 2
Impaired Fluid Volume	Deficient fluid volume	Equivalence 2
Diarrhoea	Diarrhea	Equivalence 1
Urinary Incontinence	Disability-associated urinary incontinence	Equivalence 4
Constipation	Constipation	Equivalence 1
Effective Urination	-	Equivalence 5
Impaired Urinary Elimination	Impaired urinary elimination	Equivalence 1
Urinary Retention	Urinary retention	Equivalence 1
Enuresis	-	Equivalence 5
Impaired Sleep	Disturbed sleep pattern	Equivalence 4
Insomnia	Insomnia	Equivalence 1
Fatigue	Fatigue	Equivalence 1
Hypoactivity	-	Equivalence 5
Activity Intolerance	Activity intolerance	Equivalence 1
Risk For Activity Intolerance	Risk for activity intolerance	Equivalence 1
Impaired Balance	-	Equivalence 5
Impaired Ability To Walk	Impaired walking	Equivalence 3
Risk For Fall	Risk for child falls	Equivalence 1
Self Care Deficit	Self-neglect	Equivalence 4
Impaired Ability To Bath	Bathing self-care deficit	Equivalence 4
Impaired Ability To Feed Self	Feeding self-care deficit	Equivalence 4
Renal Colic	-	Equivalence 5

To be continued

Chart 1 (concluded)

ICNP® Diagnostics	**NANDA-I Diagnostics**	**Equivalence**
Acute Pain	Acute pain	Equivalence 1
Chronic Pain	Chronic pain	Equivalence 1
Pain During Urination	-	Equivalence 5
Abdominal Pain	-	Equivalence 5
Impaired Skin Integrity	Impaired skin integrity	Equivalence 1
Non Adherence To Dietary Regime	-	Equivalence 5
Non Adherence To Medication Regime	-	Equivalence 5
Non Adherence To Therapeutic Regime	Ineffective health self-management	Equivalence 3
Lack Of Knowledge Of Fluid Regime	Deficient knowledg	Equivalence 4
Impaired Family Ability To Manage Regime	Ineffective family health self-management	Equivalence 3
Peripheral Oedema	Excess fluid volume	Equivalence 4
Hyperthermia	Hyperthermia	Equivalence 1
Risk For Impaired Thermoregulation	Risk for ineffective thermoregulation	Equivalence 2
Hypertension	Risk for unstable blood pressure	Equivalence 4
Hypernatremia	-	Equivalence 5
Hyponatremia	-	Equivalence 5
Hyperphosphatemia	-	Equivalence 5
Hypokalemia	-	Equivalence 5
Hypercalcemia	-	Equivalence 5
Hipercalcemia	-	Equivalence 5
Hypocalcemia	-	Equivalence 5
Impaired Metabolism	Risk for metabolic imbalance syndrome	Equivalence 4
Hypervolaemia	-	Equivalence 5
Risk For Hypervolaemia	-	Equivalence 5
Risk For Electrolyte Imbalance	Risk for electrolyte imbalance	Equivalence 2
Electrolyte Imbalance	-	Equivalence 5
Impaired Electrolyte Effect	-	Equivalence 5
Ascites	-	Equivalence 5
Proteinuria	-	Equivalence 5
Ineffective Tissue Perfusion	Ineffective peripheral tissue perfusion	Equivalence 1
Risk For Ineffective Tissue Perfusion	Risk for ineffective peripheral tissue perfusion	Equivalence 1
Impaired Kidney Function	-	Equivalence 5
Impaired Genitourinary Status	-	Equivalence 5
Fluid Retention	Excess fluid volume	Equivalence 3
Effective Peritoneal Dialysis Regime	-	Equivalence 5
Risk For Impaired Psychomotor Development	Risk for delayed child development	Equivalence 3
Impaired Psychomotor Development	-	Equivalence 5
Risk For Impaired Child Development	Risk for delayed child development	Equivalence 3
Impaired Child Development	-	Equivalence 5
Risk For Delayed Growth	Risk for delayed child development	Equivalence 2
Delayed Growth	-	Equivalence 5
Impressive Aphasia	-	Equivalence 5
Impaired Cognition	Impaired memory	Equivalence 4
Agitation	-	Equivalence 5
Risk For Effective Blood Glucose Level	Risk for unstable blood glucose level	Equivalence 3
Risk For Urinary Infection	-	Equivalence 5
Infection	-	Equivalence 5
Urinary Tract Infection	-	Equivalence 5
Susceptibility To Infection	Ineffective protection	Equivalence 3

Chart 2 - Assessment regarding the degree of equivalence of the ICNP® and NANDA-I psychosocial nursing diagnoses, Natal, Rio Grande do Norte, Brazil, 2021

ICNP® Diagnostics	NANDA-I Diagnostics	Equivalence
Impaired Readiness For Positive Family Process	Caregiver role strain	Equivalence 3
Risk For Impaired Readiness For Positive Family Process	Risk for caregiver role strain	Equivalence 3
Impaired Family Process	Dysfunctional family processes	Equivalence 2
Anxiety	Anxiety	Equivalence 1
Fear	Fear	Equivalence 1
Risk For Impaired School Performance	-	Equivalence 5
Impaired Leisure Role	-	Equivalence 5
Impaired Ability To Perform Leisure Activity	Decreased diversional activity engagement	Equivalence 3
Lack Of Family Support	Caregiver role strain	Equivalence 4
Lack Of Social Support	-	Equivalence 5
Impaired Adaptation	Impaired resilience	Equivalence 3
Relocation Stress	Relocation stress syndrome	Equivalence 3
Lack Of Trust	-	Equivalence 5
Disturbed Body Image	Disturbed body image	Equivalence 5
Impaired Family Coping	Compromised family coping	Equivalence 2
Lack Of Privacy	-	Equivalence 5

Table 1 – Examples of ICNP® and NANDA-I nursing diagnoses according to cross-mapping and categorization in Psychobiological Basic Human Needs. Natal, Rio Grande do Norte, Brazil, 2021

Psychobiological Basic Human Needs	ICNP® Diagnostics	NANDA-I Diagnostics	CVI* of cross-diagnoses			CVI* of the categorization of diagnoses crossed by Needs		ARI*	
			Delphi 1	Delphi 2	Mann-Whitney	Delphi 1	Delphi 2	Delphi 1	Delphi 2
Respiratory	Impaired Respiratory System Function	Ineffective breathing pattern	0.915	1.000	0.001	0.986	1.000	0.870	0.997
	Dyspnoea	Ineffective breathing pattern	-	-					
Nutrition	Impaired Weight	Overweight	0.817	0.995	0.001	0.870	0.996	0.810	0.925
	Impaired Infant Feeding Behaviour	Imbalanced nutrition: less than body requirements	0.835	0.912					
	Non Adherence To Dietary Regime	NM*	_	_					
	Impaired Eating Behaviour	Ineffective adolescent eating dynamics	0.810	1.000					
	Impaired Nutritional Status	NM	-	-					
	Risk For Impaired Nutritional Status	NM	_	_					
	Impaired Chewing	NM	-	-					
Elimination	Risk For Impaired Fluid Volume	Risk for imbalanced fluid volume	0.902	1.000	0.001	0.811	1.000	0.858	1.000
	Risk For Dehydration	Risk for deficient fluid volume	_	_					
	Impaired Fluid Volume	Risk for deficient fluid volume	0.986	1.000					

To be continued

Table 1

Psychobiological Basic Human Needs	ICNP® Diagnostics	NANDA-I Diagnostics	CVI* of cross-diagnoses			CVI* of the categorization of diagnoses crossed by Needs		ARI*	
			Delphi 1	Delphi 2	Mann-Whitney	Delphi 1	Delphi 2	Delphi 1	Delphi 2
	Risk For Electrolyte Imbalance	Risk for electrolyte imbalance	0.959	1.000					
	High Drinking	Excess fluid volume	0.921	1.000					
	Impaired Fluid Volume	Deficient fluid volume	0.935	1.000					
	Diarrhoea	Diarrhea	1.000	1.000					
	Urinary Incontinence	Disability-associated urinary incontinence	0.845	0.995					
	Constipation	Constipation	1.000	1.000					
	Effective Urination	NM	-	-					
	Impaired Urinary Elimination	Impaired urinary elimination	0.979	1.000					
	Urinary Retention	Urinary retention	1.000	1.000					
	Enuresis	NM	-	-					
Sleep/rest	Impaired Sleep	Disturbed sleep pattern	0.990	0.999	0.067	0.848	0.995	0.909	1.000
	Insomnia	Insomnia	1.000	1.000					
	Fatigue	Fatigue	1.000	1.000					
Body mechanics	Hypoactivity	NM	-	-	0.033	0.972	0.975	0.845	0.995
	Activity Intolerance	Activity intolerance	1.000	1.000					
	Risk For Activity Intolerance	Risk for activity intolerance	1.000	1.000					
	Impaired Balance	NM	-	-					
	Impaired Ability To Walk	Impaired walking	0.953	0.975					
	Risk For Fall	Risk for child falls	1.000	1.000					
Body care	Self Care Deficit	Self-neglect	0.916	0.903	0.024	0.908	0.955	0.833	1.000
	Impaired Ability To Bath	Bathing self-care déficit	0.952	0.985					
	Impaired Ability To Feed Self	Feeding self-care déficit	0.875	0.985					
Perception	Renal Colic	NM	-	-	0.078	0.926	0.995	0.825	0.938
	Acute Pain	Acute Pain	1.000	1.000					
	Chronic Pain	Chronic Pain	1.000	1.000					
	Pain During Urination	NM	-	-					
	Abdominal Pain	NM	-	-					
Physical integrity	Impaired Skin Integrity	Impaired skin integrity	0.983	1.000	0.011	0.925	0.997	0.996	1.000
Therapy	Non Adherence To Dietary Regime	NM	-	-	0.072	0.935	0.992	0.975	0.995
	Non Adherence To Medication Regime	NM	_	_					
	Non Adherence To Therapeutic Regime	Ineffective health self-management	0.920	0.965					
	Lack Of Knowledge Of Fluid Regime	Deficient knowledg	_	_					

To be continued

Table 1

Psychobiological Basic Human Needs	ICNP® Diagnostics	NANDA-I Diagnostics	CVI* of cross-diagnoses			CVI* of the categorization of diagnoses crossed by Needs		ARI*	
			Delphi 1	Delphi 2	Mann-Whitney	Delphi 1	Delphi 2	Delphi 1	Delphi 2
	Impaired Family Ability To Manage Regime	Ineffective family health self-management	0.956	1.000					
Regulation	Peripheral Oedema	Excess fluid volume	0.882	0.962	0.001	0.810	1.000	0.896	1.000
	Hipertermia	Hipertermia	1.000	1.000					
	Risk For Impaired Thermoregulation	Risk for ineffective thermoregulation	0.837	0.986					
	Hypertension	Risk for unstable blood pressure	0.832	0.937					
	Hypernatremia	NM	-	-					
	Hyponatremia	NM	-	-					
	Hyperphosphatemia	NM	-	-					
	Hypokalemia	NM	-	-					
	Hypercalcemia	NM	-	-					
	Hypercalcemia	NM	-	-					
	Hypocalcemia	NM	-	-					
	Impaired Metabolism	Risk for metabolic imbalance syndrome	1.000	1.000					
	Hypervolaemia	NM	-	-					
	Risk For Hypervolaemia	NM	-	-					
	Risk For Electrolyte Imbalance	Risk for electrolyte imbalance	1.000	1.000					
	Electrolyte Imbalance	NM	-	-					
	Impaired Electrolyte Effect	NM	-	-					
	Ascites	NM	-	-					
	Proteinuria	NM	-	-					
	Ineffective Tissue Perfusion	Ineffective peripheral tissue perfusion	0.882	0.930					
	Risk For Ineffective Tissue Perfusion	Risk for ineffective peripheral tissue perfusion	0.892	0.982					
	Impaired Kidney Function	NM	-	-					
	Impaired Genitourinary Status	NM	-	-					
	Fluid Retention	Excess fluid volume	0.881	1.000					
	Effective Peritoneal Dialysis Regime	NM	_	_					
	Risk For Impaired Psychomotor Development	Risk for delayed child development	0.841	0.952					
	Impaired Psychomotor Development	NM	_	_					
	Risk For Impaired Child Development	Risk for delayed child development	0.821	0.997					
	Impaired Child Development	NM	-	-					

To be continued

Table 1 (concluded)

Psychobiological Basic Human Needs	ICNP® Diagnostics	NANDA-I Diagnostics	CVI* of cross-diagnoses			CVI* of the categorization of diagnoses crossed by Needs		ARI*	
			Delphi 1	Delphi 2	Mann-Whitney	Delphi 1	Delphi 2	Delphi 1	Delphi 2
	Risk For Delayed Growth	Risk for delayed child development	1.000	1.000					
	Delayed Growth	NM	_	_					
	Impressive Aphasia	NM	-	-					
	Impaired Cognition	Impaired memory	0.850	0.982					
	Agitation	NM	-	-					
	Risk For Effective Blood Glucose Level	Risk for unstable blood glucose level	1.000	1.000					
	Risk For Urinary Infection	NM	-	-					
	Infection	NM	-	-					
	Urinary Tract Infection	NM	-	-					
	Susceptibility To Infection	Ineffective protection	0.860	1.000					

**IVC - Índice de Validade de Conteúdo; *IRA - Índice de Fidedignidade (reliability) ou concordância interavaliadores; *NM – "Nenhum mapeamento é possível"*

Table 2 – Cross-mapping of ICNP® and NANDA-I nursing diagnoses and categorization in Psychosocial Basic Human Needs, Natal, Rio Grande do Norte, Brazil, 2021

Psychosocial Basic Human Needs	ICNP®	NANDA-I	CVI* of the crossing of diagnoses			CVI* of the categorization of diagnoses crossed by Needs		ARI*	
			Delphi 1	Delphi 2	Mann-Whitney	Delphi 1	Delphi 2	Delphi 1	Delphi 2
Gregarious	Impaired Readiness For Positive Family Process	Caregiver role strain	0.832	0.934	0.040	0.844	0.999	0.853	0.964
	Risk For Impaired Readiness For Positive Family Process	Risk for caregiver role strain	0.822	0.963					
	Impaired Family Process	Dysfunctional family processes	0.845	1.000					
Emotional security	Anxiety	Anxiety	1.000	1.000	__	0.820	0.999	0.848	0.995
	Fear	Fear	1.000	1.000					
Health education and learning	Risk For Impaired School Performance	NM*	_	_	___	0.861	0.925	0.832	0.997
Recreation and leisure	Impaired Leisure Role	NM	_	_	0.032	0.812	0.923	0.857	0.929
	Impaired Ability To Perform Leisure Activity	Decreased diversional activity engagement	0.852	0.923					
Love and acceptance	Lack Of Family Support	Caregiver role strain	0.827	0.965	0.034	0.821	0.983	0.860	0.991
	Lack Of Social Support	NM	_	_					
	Impaired Adaptation	Impaired resilience	0.826	0.995	0.021	0.835	1.000	0.824	0.997
	Relocation Stress	Relocation stress syndrome	0.843	0.936					
Self-esteem and self-image	Lack Of Trust	NM	-	-	_	0.835	0.998	0.823	0.935
	Disturbed Body Image	Disturbed body image	0.932	1.000					

To be continued

Table 2 (concluded)

Psychosocial Basic Human Needs	ICNP®	NANDA-I	CVI* of the crossing of diagnoses			CVI* of the categorization of diagnoses crossed by Needs		ARI*	
			Delphi 1	Delphi 2	Mann-Whitney	Delphi 1	Delphi 2	Delphi 1	Delphi 2
Participation	Impaired Family Coping	Compromised family coping	0.920	1.000	0.027	0.815	0.994	0.823	0.999
Space	Lack Of Privacy	NM	_	_	_	_	_	_	_

**CVI – Content Validity Index; *IRA – Reliability Index or inter-rater agreement; *NM – "No mapping is possible".*

DISCUSSION

The results on screen reinforce that language systems collaborate with the process of systematization of care and nursing science, as they enable the identification of the true needs of individuals, through the establishment of diagnoses, results, and nursing interventions. However, in the reality of professionals, it is necessary to encourage the use of different languages in order to resolve the present difficulties and allow the universal standardization of language for the development of evidence in the profession.

Thus, the recognition of mapping as a source of knowledge identification and a viable strategy to be incorporated in the training and improvement process is notorious[20]. However, in order to optimize this aspect, it is necessary for nurses to take ownership of the classification systems, develop assistance provided by the nursing process with the support of a theoretical framework, which contributes to the implementation of interventions with more specific, directed and effective results[21].

With these data from their practice, nurses can create evaluation protocols in order to improve patient registration information and, thus, avoid failures in care and professional qualification[22]. Studies have demonstrated the lack of elaborating results that support quality care and clinical safety. Therefore, the simultaneous use of agile methods and standardized language provide complete and accurate knowledge, resulting in the compliance of nursing records and better decision-making, in an attempt to make the elements of the nursing process understandable and measurable[23-24].

However, the results found in the current research reveal that the adoption of classification systems may present a gap in the survey of diagnoses, since the ICNP® was the system with the highest number of statements. It is known that ICNP® brings with it the construction of statements using terms that may be present in everyday situations or in signs and symptoms; therefore, it allows greater autonomy in this construction. On the other hand, for the use of NANDA-I, greater familiarity with the signs and symptoms and related factors or defining characteristics is necessary.

Although several ICNP® nursing diagnoses were found with no direct mapping in NANDA-I, the clinical reasoning process for the elaboration of diagnostic statements using both classifications led to the formulation of diagnoses with similar patterns, when add up the constant diagnoses and those with no direct mapping classified in equivalence 5. The result is 42% of ICNP® diagnoses. As practical implications based on these findings, it was observed that, using accurate clinical reasoning, nurses can make use of both systems.

This aspect is in line with a study that mapped the association between priority nursing care for patients with cerebrovascular accident (CVA) treated with thrombolytic therapy and CIN. The results concluded that there was a correspondence between all nursing care cited by nurses as priorities for stroke patients treated with thrombolytic therapy and CIN based on the main manifestations of patients. The mapping made it possible to achieve that nursing care reinforces the nurses' concern with the patient's vulnerability, since many nurses wanted preventive measures[25].

Even though an analysis was not carried out between the systems in the aforementioned study, it is relevant to reinforce at the same time that educational and organizational strategies are necessary to obtain complete, standardized and reliable nursing data. Continuing nursing education programs can educate students and nurses about the importance of a nursing care needs assessment and the use of a language system that is accessible and clear to professionals. In addition, the nursing team can use strategies to improve daily conditions, in order to increase nursing autonomy and accountability for decision-making to care for patients[26].

An aspect that deserves to be highlighted was the analysis based on basic human needs. The needs of children with kidney disease were predominant for the psychobiological needs for both systems. The use of Horta's theoretical model can support the classification of nursing diagnoses by needs, by helping nurses to develop an individualized care plan, directing interventions and promoting a better quality of the hospitalization period. Furthermore, from the knowledge of such human responses through the characteristics of each system proposed by the model, it becomes possible to predict and overlook the likely complications[13].

The results found did not identify statements of nursing diagnoses listed in psychospiritual needs. This evidence demonstrates an aspect that is still underdeveloped in the age group of this study, since the expression of emotional states or the response of these feelings can be inhibited. A study shows that pediatric patients have a lower health-related quality of life in all dimensions evaluated, with the "school" dimension being the most affected and the "emotional" the least affected. In this sense, the study suggests monitoring the health-related quality of life of children with kidney disease so that interventions can be guided to strengthen the affected dimensions, including adjustments in daily life and prevention of complications related to the disease[27]. Thus, nurses must consider

behavioral factors, such as health perceptions, social and cultural pressures, low level of health literacy and developmental demands that affect lifestyle choices[28].

Therefore, the use of terminology facilitates and organizes all the content needed by nurses, regardless of the dimension of care they are involved in. In addition, linkages between on-screen systems can help nurses make decisions about the desired outcome and appropriate interventions for a specific nursing diagnosis that can be resolved or minimized. Therefore, conceptual definitions are necessary as the nurse implements the systems accurately, and can assess their effectiveness for the adoption of a clearer diagnostic statement for their clinical judgment and care environment[29].

The cross-mapping data found here are responsible for validating the human responses indicated by nurses and also for allowing a theoretical comparison. The mapping is shown as a precedent for validating classifications, so that they allow a review of the elements and expansion of their structure.

Finally, a cross-mapping study allows to refine the language used by nurses, facilitating the exchange of information and communication and the indication of new diagnoses.

Study limitations

However, some limitations should be considered, such as sample size, selection criteria and internal validity. The nursing diagnoses presented here can be a guide for nursing care, however, they cannot be generalized, and the nurse's clinical evaluation and judgment is always necessary to identify individual needs.

Contributions to the fields of Nursing, Health or Public Policy

This article highlights the importance of connecting the ICNP® and NANDA-I systems, each with its own particularity, considering that they can be used during the stages of the nursing process, being able to guide and direct the selection of nursing diagnoses that best suit the knowledge of professionals.

CONCLUSIONS

The relationship between nursing diagnoses for children with kidney diseases considering whether the ICNP® and NANDA-I systems was achieved based on the systems models, clinical reasoning, and validation by specialist nurses. The mapping was able to provide a range of knowledge for the development of a complete care plan and for the assessment of the patients' need for the established responses.

The great diversity of diagnoses and their location in different human needs demonstrates the multiple aspects involved and the breadth of activities that can be implemented by nurses. With that said, the nurse deals with current problems in a holistic and structured way, contributing to the accurate use of the nursing process and proposing a planning of patient care.

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