

ACCURACY OF NURSING DIAGNOSES IN CRITICAL PATIENT CARE

ACURÁCIA DOS DIAGNÓSTICOS DE ENFERMAGEM NOS CUIDADOS AO PACIENTE CRÍTICO

PRECISIÓN DEL DIAGNÓSTICO DE ENFERMERÍA EN LA ATENCIÓN AL PACIENTE CRÍTICO

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ABSTRACT

Objective: to evaluate the accuracy of Nursing diagnoses of patients hospitalized in an intensive care unit. **Method:** quantitative, documentary, retrospective, and cross-sectional research. A total of 122 medical records of adult patients admitted to the intensive care unit of a public hospital in Santa Catarina were evaluated, over a period of 12 months, which contained the Nursing assessment and the Nursing diagnoses documented in the first 24 hours of the patient's hospitalization. The assessment of the accuracy of Nursing diagnoses was performed by two evaluators, using the Scale of Accuracy of Nursing Diagnoses - version 2. **Results:** 809 diagnoses were evaluated, contained in 122 medical records, documented by nine nurses. There was a predominance of Nursing diagnoses with high accuracy (n=665; 82.2%). Diagnoses with moderate accuracy (n=64; 7.9%), low accuracy (n=54; 6.6%) and null accuracy (n=26; 3.2%) were infrequent. **Conclusion:** the high degree of accuracy of the significant majority of the Nursing diagnoses evaluated indicates the level of refinement of the nurses' diagnostic clinical reasoning.

Keywords: Nursing Diagnosis; Nursing Process; Intensive Care Units; Data Accuracy.

RESUMO

Objetivo: avaliar a acurácia dos diagnósticos de Enfermagem de pacientes internados em uma unidade de terapia intensiva. **Método:** pesquisa quantitativa, documental, retrospectiva e transversal. Foram avaliados 122 prontuários de pacientes adultos internados na unidade de terapia intensiva de um hospital público catarinense, no período de 12 meses, que continham o histórico de Enfermagem e os diagnósticos de Enfermagem documentados nas primeiras 24 horas de internação do paciente. A avaliação da acurácia dos diagnósticos de Enfermagem foi realizada por duas avaliadoras, utilizando a Escala de Acurácia dos Diagnósticos de Enfermagem - versão 2. **Resultados:** foram avaliados 809 diagnósticos, contidos em 122 prontuários, documentados por nove enfermeiros. Houve predominância de diagnósticos de Enfermagem com alta acurácia (n=665; 82,2%). Diagnósticos com acurácia moderada (n=64; 7,9%), acurácia baixa (n=54; 6,6%) e acurácia nula (n=26; 3,2%) foram pouco frequentes. **Conclusão:** o alto grau de acurácia da maioria significativa dos diagnósticos de Enfermagem avaliados indica o nível de refinamento do raciocínio clínico diagnóstico dos enfermeiros.

Palavras-chave: Diagnóstico de Enfermagem; Processo de Enfermagem; Unidades de Terapia Intensiva; Confiabilidade dos Dados.

RESUMEN

Objetivo: evaluar la precisión de los diagnósticos de enfermería de los pacientes ingresados en una unidad de cuidados intensivos. **Método:** investigación cuantitativa, documental, retrospectiva y transversal. Se evaluaron 122 historias clínicas de pacientes adultos ingresados en la unidad de cuidados intensivos de un hospital público de Santa Catarina durante un período de 12 meses, que contenían la historia de enfermería y los diagnósticos de enfermería documentados en las primeras 24 horas de internación del paciente. La evaluación de la precisión de los diagnósticos de enfermería fue realizada por dos evaluadores, utilizando la Escala de Exactitud del Diagnóstico de Enfermería - versión 2. **Resultados:** se evaluaron 809 diagnósticos, contenidos en 122 historias clínicas, documentadas por nueve enfermeros. Predominó los diagnósticos de enfermería con alta precisión (n = 665; 82,2%). Los diagnósticos con precisión moderada (n = 64; 7,9%), precisión baja (n = 54; 6,6%) y precisión cero (n = 26; 3,2%) fueron infrecuentes. **Conclusión:** el alto grado de precisión de la mayoría significativa de los diagnósticos de enfermería evaluados indica el nivel de refinamiento del razonamiento clínico diagnóstico de los enfermeros.

Palabras clave: Diagnóstico de Enfermería; Proceso de Enfermería; Unidades de Cuidados Intensivos; Exactitud de los Datos.

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INTRODUCTION

The intensive care unit (ICU) demands from nurses a solid base of knowledge, skills and tools for the development of critical thinking and empowerment for clinical decision-making.¹⁻³ The Nursing process (NP) is considered the main instrument for the systematic performance of professional Nursing practice, offering the necessary conditions for individualized and comprehensive care for the patient.^{2,4,5} The NP favors the nurse's clinical reasoning process, as well as the records of information about the care provided, giving legal support and visibility to the profession.^{2,4}

The NP has five interrelated, interdependent, and recurring stages, namely: Nursing assessment (NA), Nursing diagnoses (ND), Nursing planning, implementation, and evaluation of Nursing.⁵ The NDs identified in the second stage of the NP are considered key elements of the care process, as they describe human responses to health situations in which nurses must intervene.⁶

The correct identification of NDs directs the care to be performed, providing more satisfactory results to patients and the health team.^{4,7,8} A ND is considered highly accurate when it reflects the real characteristics of the evaluated patient.

It is noteworthy that different NDs can be identified in the face of the same data set. The complexity of the process of diagnosing requires nurses to have different skills and abilities for the correct interpretation of the responses of individuals to the health problems manifested.⁹

Clinical reasoning based on scientific knowledge and standardized uniform language make it possible to identify NDs that lead to Nursing practices that are coherent and cohesive with the needs of the evaluated patients.¹⁰

It is up to the nurse to evaluate and identify the NDs that best express the human responses of the assisted patient/family/community and that represent the patients' state of health and illness, since the establishment of accurate NDs contributes to the determination of effective interventions for the achievement of satisfactory results during hospitalization.¹¹⁻¹³ A recent integrative review of the literature identified that the development of clinical reasoning improves the diagnostic capacity of nurses; that the enunciation of accurate NDs favors the choice of more adequate Nursing actions to achieve the expected health results.¹⁴

The accuracy of the NDs can be estimated using measurement instruments available in the national and international literature.¹⁴ The Lunney Scoring Method Accuracy of Nursing Diagnoses (LSM) is a North American instrument that was translated into Portuguese but did not obtain evidence of reliability in a study carried out with data written in the Brazilian context.¹⁵ Based on the Lunney's work, researchers Matos and Cruz developed the Nursing Diagnoses Accuracy Scale (NDAS) in 2006 and in 2010 it was improved, resulting in version 2 (NDAS-2). It is important to highlight that the EADE-2 was developed to be used with any classification of Nursing diagnoses.⁹

It is observed that, despite the importance of accuracy studies for clinical practice, there is still a lack of research in this area. Recognizing that accurate NDs direct the selection of Nursing interventions assertively, qualifying the care offered, is a way of rethinking Nursing care. Thus, the guiding question of the present study was: what is the degree of accuracy of the Nursing diagnoses of patients admitted to the intensive care unit of a public hospital in Santa Catarina? Therefore, the objective of the research was to evaluate the accuracy of Nursing diagnoses of patients hospitalized in an intensive care unit.

METHODOLOGY

This is a quantitative, documentary, retrospective, and cross-sectional research, developed in a general ICU of a public hospital in western Santa Catarina. The choice of hospital unit was related to the process of implementing the NP, through a partnership established between three undergraduate Nursing schools in the city. The theoretical framework adopted by the hospital is the Theory of Human Needs, by Wanda de Aguiar Horta, and the ND classification system is from NANDA-I.

The medical records of patients admitted to the ICU from December 01, 2016, to November 30, 2017, were included in the study. The sample size calculation was performed using the Sestatnet program, based on the population of patients hospitalized in the unit (n=459) during the period stipulated for the study, with a significance level of 99%. The sample (n) was estimated at 122 patients, selected by simple random sampling using the referenced program. Medical records of patients under 18 years of age, medical records without Nursing assessment (NA) records and/or NDs documented by the nurse in the first 24 hours of hospitalization were excluded.

Data collection corresponded to the first 12 months of implementation of all stages of the NP in the unit surveyed. From the selected medical records, data were collected regarding the sociodemographic and clinical characteristics of the patients, the NA, the NDs and other information that could contribute to the evaluation of the accuracy of the documented NDs.

To assess the accuracy of the NDs, the NDAS-2 was used, with the formal authorization of the authors.⁹ To estimate the accuracy of the NDs through the NDAS-2, each ND stated was individually evaluated by two researchers (double checking), after training, on the use of that scale, based on the set of hints documented in the patient's chart.

To estimate the diagnostic accuracy, each ND was inserted in the first column of the NDAS-2, being evaluated in terms of: existence (item 1: scores 1 or 0); relevance (item 2: scores 1 or 0); specificity (item 3: scores 3.5 or 0); and coherence of the tracks evaluated (item 4: scores 8 or 0).⁹

After these four steps, the evaluators judged whether or not the ND analyzed should be included in the records made by the nurses, however, this item was reflective in nature, not scoring and not interfering in the calculation of the ND's degree of accuracy. Subsequently, the sum of the values obtained in each evaluation was performed, corresponding to the degree of accuracy (0; 1; 2; 4.5; 5.5; 9; 10; 12.5 and 13.5) and in the respective categorization of accuracy (null, low, moderate, or high).⁹

The obtained data were entered into electronic spreadsheets in the Microsoft Office Excel® program, version 2016, and transferred to the Statistical Package for the Social Sciences® (SPSS) program, version 22.0, to carry out the descriptive analyses. Data were presented in the form of absolute and relative frequency distribution.

The research respected the ethical principles adopted in research involving human beings, according to Resolution 466/2012. This was approved by the Research Ethics Committee (CEP) of the *Universidade Federal de Santa Catarina* (UFSC), Opinion Report No. 2,537,092, of March 11, 2018, CAAE: 79455017.4.0000.0121.

RESULTS

Of the 122 medical records evaluated, most belonged to male patients (n=68; 55.7%) with a mean age of 64 years and a range from 18 to 98 years.

The medical diagnoses (ICD-10) that triggered ICU admission were: external causes of morbidity and mortality (n=31; 25.4%); respiratory system diseases (n=21; 17.2%); nervous system diseases (n=20; 16.4%); neoplasms (n=19; 15.6%); circulatory system diseases (n=11; 8.9%); diseases of the blood and hematopoietic organs and some immune disorders (n=6; 4.9%); digestive system diseases (n=5; 4.1%); and others (n=9; 7.5%).

A total of 809 NDs were identified in the assessed medical records, which corresponded to 34 diagnostic titles. They were documented by nine nurses working in the investigated sector. Table 1 presents the ND titles identified in the study, with their respective frequencies, degree of accuracy and category of accuracy.

Table 2 presents the frequency of accuracy of Nursing diagnoses in degrees and categories.

Table 3 presents the frequency of responses to the NDAS-2 items (Hint Presence/Hint Relevance/Hint Specificity/Hint Coherence) between the ND focused on the problem and the ND Risk.

DISCUSSION

According to the 122 medical records analyzed, there was a predominance of male patients (n=68; 55.7%). Advanced age (mean 64 years) was another characteristic that is supported in the literature, with emphasis on people aged 60 years or older, representing more than half of hospitalized patients.¹⁶

The average number of diagnostic titles listed per patient (per medical record) in this study was 6.6 NDs. As for the type of diagnosis, those classified as NDs of risk (obtained by projecting the vulnerability of critically ill patients) prevailed (n=20; 58.8%), followed by NDs focused on the problem (obtained from evidence and facts - n=14; 41.2%). It is worth noting that no health promotion NDs were identified, which may indicate a weakness in the Nursing evaluation or in the diagnostic reasoning of nurses working in the investigated sector.

The characteristics of the NDs identified, related to the particularities of the patients hospitalized in the ICU, evidenced the need for intensive care aimed at the recovery of the state of health, with high dependence on care, vulnerability and health risks.¹⁷⁻¹⁸ Other studies that also evaluated the NDs in the intensive care setting identified a higher frequency of ND focused on the problem.^{1,8,16} The high frequency of risk diagnoses highlights the importance of using the NP in care management, being fundamental for actions

Table 1 - Descriptive statistics of the degree of accuracy and the categories of accuracy of the diagnostic titles documented according to NDAS-2 (n=34) Florianópolis, 2018

Nursing Diagnosis Title	Frequency		Degree of Accuracy					Accuracy Categories			
	n	%	Mean	Median	Standard Deviation	Minimum	Maximum	Null	Low	Moderate	High
Imbalanced nutrition: less than body requirement	120	98.4	8.55	13.5	5.7	0	13.5	7	27	20	66
Self-care deficit	118	96.7	12.66	13.5	3.13	0	13.5	3	4	1	110
Risk for infection	113	92.6	13.5	13.5	0	13.5	13.5	0	0	0	113
Impaired gas exchange	87	71.3	12.02	13.5	3.95	0	13.5	1	7	3	76
Risk of impaired skin integrity	67	54.9	13.5	13.5	0	13.5	13.5	0	0	0	67
Risk for unstable blood glucose level	57	46.7	9.44	13.5	5.18	0	13.5	3	5	15	34
Risk for dry eye	41	33.6	13.17	13.5	2.1	0	13.5	1	0	0	40
Impaired physical mobility	40	32.8	10.85	13.5	4.51	0	13.5	1	2	8	29
Risk for pressure ulcer	33	27.0	13.5	13.5	0	13.5	13.5	0	0	0	33
Impaired skin integrity	31	25.4	10.37	13.5	5.53	0	13.5	6	0	2	23
Risk for aspiration	14	11.5	7.64	5.5	5.55	1	13.5	0	4	4	6
Risk for shock	13	10.7	11.57	13.5	4.71	0	13.5	1	0	1	11
Risk for constipation	10	8.2	10.75	13.5	4.52	2	13.5	0	0	3	7
Impaired verbal communication	9	7.4	12.61	13.5	2.66	5.5	13.5	0	0	1	8
Disturbed sleep pattern	8	6.6	6.87	7.25	7.09	0	13.5	3	1	0	4
Impaired bed mobility	8	6.6	11.93	13.5	4.41	1	13.5	0	1	0	7
Risk for electrolyte imbalance	5	4.1	8.7	13.5	6.58	1	13.5	0	1	1	3
Risk for corneal injury	5	4.1	13.5	13.5	0	13.5	13.5	0	0	0	5
Decreased cardiac output	4	3.3	13.5	13.5	0	13.5	13.5	0	0	0	4
Ineffective breathing pattern	4	3.3	10.37	13.5	6.25	1	13.5	0	1	0	3
Risk for disuse syndrome	4	3.3	13.5	13.5	0	13.5	13.5	0	0	0	4
Risk for spiritual distress	3	2.5	13.5	13.5	0	13.5	13.5	0	0	0	3
Risk for situational low self-esteem	2	1.6	13.5	13.5	0	13.5	13.5	0	0	0	2
Impaired comfort	2	1.6	13.5	13.5	0	13.5	13.5	0	0	0	2
Risk for impaired liver function	2	1.6	2	2	0	2	2	0	0	2	0
Nausea	1	0.8	12.5	13.5	0	13.5	13.5	0	0	0	1
Risk for ineffective cerebral tissue perfusion	1	0.8	2	2	0	2	2	0	0	1	0
Risk for acute confusion	1	0.8	5.5	5.5	0	5.5	5.5	0	0	1	0
Risk for compromised human dignity	1	0.8	5.5	5.5	0	5.5	5.5	0	0	1	0
Risk for decreased cardiac output	1	0.8	13.5	13.5	0	13.5	13.5	0	0	0	1
Risk for ineffective renal perfusion	1	0.8	13.5	13.5	0	13.5	13.5	0	0	0	1
Impaired spontaneous ventilation	1	0.8	1	1	0	1	1	0	1	0	0
Impaired swallowing	1	0.8	13.5	13.5	0	13.5	13.5	0	0	0	1
Risk for bleeding	1	0.8	13.5	13.5	0	13.5	13.5	0	0	0	1

Source: author, 2020.

Table 2 - Frequency of Nursing diagnoses according to degrees and categories of accuracy (n =809). Florianópolis, 2018

Degrees of Accuracy	Frequency		Accuracy categories	Frequency	
	n	%		n	%
00	26	3.2	Null	26	3.2
01	54	6.5	Low	54	6.5
02	10	1.2	Moderate	64	7.8
4.5	03	0.3			
5.5	51	6.3			
09	0	0	High	665	82.2
10	0	0			
12.5	0	0			
13.5	665	82.2			
Total	809	100	Total	809	100

Source: author, 2020.

Table 3 - Frequency of responses to NDAS-2 items (n =809). Florianópolis, 2018

NDAS Items	Problem-focused Nursing Diagnoses	Risk Nursing Diagnoses
Hint Presence		
No	21 (4.8%)	5 (1.3%)
Yes	413 (95.2%)	370(98.7%)
Hint Relevance		
Low	67 (15.4%)	16 (4.3%)
High/moderate	367 (84.6%)	359(95.7%)
Hint Specificity		
Low	67 (15.4%)	23 (6.1%)
High/moderate	367 (84.6%)	352(93.9%)
Hint Coherence		
Low	100 (23.0%)	44(11.7%)
High/moderate	334 (77.0%)	331(88.3%)

Source: author, 2020.

aimed at risk prevention, to the promotion and maintenance of the individual's health.¹⁹⁻²⁰

The study results portrayed accurate NDs (n=665; 82.2%) (Table 2), adequate clinical reasoning by nurses, correct patient assessment and appropriate documentation in the medical record. It is noteworthy that accurate NDs enable the planning and implementation of interventions that are more appropriate to the pathophysiological needs and biopsychosocial reality of patients, positively impacting effective recovery.¹

A recent study found that nurses have made assertive diagnoses for patients who require quick and effective interventions for their prompt recovery.¹³ Regarding risk diagnoses, two NDs showed high frequency (> 50%) and high accuracy (average value calculated at 13.5), namely: 'risk of infection' (n=113; 92.6%) and 'risk of impaired skin integrity' (n=67; 54.9%).

The literature mentions that the diagnosis of 'risk of infection' is one of the most frequent in ICU.^{1,8,16} The high prevalence and high degree of accuracy of the risk diagnoses identified in the study reaffirm the characteristics of ICU patients, submitted to several invasive procedures and with compromised primary defenses due to the severity of the disease and the fragility of the physiological conditions. The diagnosis of 'risk of infection' is associated with a higher probability (between five and 10 times) that the individual will develop an infection in this environment. Furthermore, its magnitude can increase the mortality rate, extend the length of stay in the ICU and increase health costs.^{8,16}

The diagnosis of 'risk of impaired skin integrity' (n=67;54.9%) is related to immobility in bed, more contact with damp surfaces, wrinkled sheets, friction, and abrasion, in addition to the patients' inadequate cardiovascular situation, the which, not infrequently,

exhibit tissue dysoxia and compromise or risk of interference with skin integrity.^{6,21}

As for diagnoses focused on the problem, two NDs showed high frequency (> 50%) and high accuracy (average value calculated at 13.5), namely: 'self-care deficit' (n=118; 96.7%) and 'impaired gas exchange' (n=87; 71.3%).

The diagnosis 'self-care deficit' is common in critically ill patients with a reduced level of consciousness, invasive devices (peripheral and/or central venous access, orotracheal intubation, gastrointestinal intubation, urinary catheterization, among others), as they impair self-care or even prevent it from being performed independently.^{1,22} The diagnosis 'impaired gas exchange' is related to the respiratory system and the inability to maintain a balanced ventilation-perfusion ratio, often associated with secretions in the airways, use of ventilatory support and complications, and may be confirmed by agitation, abnormal skin color, tachycardia and abnormal breathing.^{1,8}

It should be noted that the ND 'imbalanced nutrition, less than body needs', despite being the most frequent ND (n=120; 98.4%), being identified in almost all of the evaluated medical records (n=122, 100%), presented a mean accuracy value of 8.55, corresponding to moderate accuracy. Such a finding may be indicative of generalization, lack of knowledge or insufficient clinical assessment by nurses.

The results of the present research indicate that the high degree of relevance, specificity and coherence of the clues identified and documented by the nurses resulted in highly accurate ND.

As a limitation of the study, the fact that the population studied was composed of patients hospitalized in a single hospital complex was identified, which

does not allow the generalization of the results found to other services.

CONCLUSIONS

The results of this study revealed that nurses showed a high degree of accuracy in identifying NDs, which allows us to infer that there is adequate clinical reasoning in patient assessment and appropriate documentation/records in medical records.

It was also found that the Nursing care of the investigated institution is centered on 'risk' diagnoses, followed by diagnoses with a 'problem focus'. Another noteworthy finding is the absence of ND focused on health promotion. The identification of NDs should be a constant exercise in the clinical practice of nurses, in order to equip them for decision-making, especially in the intensive care environment, where the severity, complexity and instability of patients demand agility and assertiveness. in Nursing actions.

Further research is needed to assess the accuracy of NDs in the various contexts of clinical practice, in order to solidify this knowledge and sensitize nurses to the importance of the accuracy of Nursing diagnoses for a qualified and safe practice.

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