

Hemodialysis nurses rate nursing diagnoses relevant to clinical practice

Enfermeiros atuantes em hemodiálise indicam diagnósticos de enfermagem relevantes na prática clínica

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Keywords

Nursing diagnosis; Nursing, practical; Nursing process; Hemodialysis; Nephrology nursing

Descritores

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Abstract

Objectives: To assess the profile of nursing diagnoses rated by hemodialysis nurses as most relevant to clinical practice in the field.

Methods: This was a descriptive cross-sectional study conducted from August to September 2014 in the city of Goiânia, Goiás, Brazil. A questionnaire and a Likert scale (score 0-7) were given to participants to assess the relevance of diagnoses. Scores were obtained by calculating the ratio of the total score obtained to the highest score possible. Diagnoses that scored ≥ 0.75 were considered relevant.

Results: Forty nurses participated in the study, 80% had been working in the field for over 24 months, 42.5% were nephrology experts. The participants indicated 44 relevant nursing diagnoses, discussed in the context of hemodialysis nursing.

Conclusion: The diagnoses identified show the human responses valued by hemodialysis nurses.

Resumo

Objetivos: Avaliar o perfil de diagnósticos de enfermagem apontados por enfermeiros que atuam em hemodiálise como mais relevantes para a prática clínica na área.

Métodos: Estudo descritivo, transversal, realizado de agosto a setembro de 2014, em Goiânia, GO, Brasil, por meio de um questionário e escala tipo *Likert* (escala de 0-7) para julgamento de relevância do diagnóstico. Foi calculada a razão entre a somatória da pontuação obtida e a pontuação máxima possível. Considerou-se relevantes os diagnósticos com escore $\geq 0,75$.

Resultados: Participaram 40 enfermeiros, 80% atuavam na área há mais de 24 meses, 42,5% eram especialistas em nefrologia. Eles indicaram 44 diagnósticos de enfermagem relevantes, os quais foram discutidos no contexto da enfermagem em hemodiálise.

Conclusão: Os diagnósticos identificados evidenciam as respostas humanas valorizadas pelos enfermeiros que atuam em hemodiálise.

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Introduction

Hemodialysis nurses identify and treat phenomena at the center of clinical nursing practice; however, they do not always express these conditions using nursing terminology and in terms of the nursing process. This represents a global challenge in the different fields that comprise nursing practice. Thus, research that helps incorporate nursing language into the routine of clinical practice are relevant to the field.

Academics have attempted to identify nursing diagnoses among individuals with chronic kidney disease receiving hemodialysis to demonstrate the nature of the conditions that require nursing interventions. In Brazil, most studies on the topic are based on the clinical assessment of researchers.^(1,2) An experience report produced in Portugal identified nursing diagnoses, interventions and outcomes based on the assessment of nurses who worked in a hemodialysis service.⁽³⁾ There is yet no broader study involving nurses from different institutions.

In practice, the use of nursing diagnoses helps promote reflective thinking and can contribute to the ongoing development of professional knowledge.⁽⁴⁾

The objective of this study was to assess the profile of nursing diagnoses indicated by hemodialysis nurses as most relevant to clinical practice in the field.

Methods

A descriptive cross-sectional study conducted in 12 hemodialysis units in the city of Goiânia, Goiás, Brazil.

The population consisted of 55 nurses working in these institutions. Participants were recruited in July 2014. All 55 nurses were assessed in terms of eligibility to participate in the study, and were included if they had worked with hemodialysis for three months or more. Data were collected in August and September 2014.

Participant characteristics were gathered via a questionnaire about training and refresher training in hemodialysis, and training and experience with the nursing process.

A seven-point Likert scale was used to identify the nursing diagnoses most relevant to hemodialysis clinical practice. This scale consisted of 216 NANDA-I 2012/2014 nursing diagnoses⁽⁵⁾ and their respective definitions. Each diagnosis could be scored as follows: completely irrelevant (1 point); very little relevant (2 points); a little relevant (3 points); moderately relevant (4 points); relevant (5 points); very relevant (6 points), and completely relevant (7 points).

Statistical analysis was conducted by calculating the relevance index (RI) of the diagnoses using the formula $RI = \Sigma \text{ scores obtained} / \Sigma \text{ highest possible score}$. Diagnoses with $RI \geq 0.75$ and < 0.80 were considered relevant, and those with $RI \geq 0.80$ were considered very relevant or extremely relevant.

Sample profile data were analyzed using descriptive statistics (simple frequency and percentages).

The study was registered in Brazil under the Platform Presentation of Certificate number to Ethics Assessment - *Certificado de Apresentação para Apreciação Ética (CAAE)* 30840014.5.0000.5078.

Results

Of the 48 nurses who met the inclusion criteria, two were on vacation and six refused to participate. Thus, 40 participants were included.

Sample profile was characterized by a predominance of women, aged 30 to 40 years old, with an undergraduate degree obtained less than 10 years before the study, and 80% had already obtained or were investing in specialized training in the field (Table 1).

Most of the sample (92.5%) had studied the nursing process as part of their undergraduate program and 35.0% still studied the topic. Re-

Table 1. Demographic and professional characteristics of nurses, by time working with hemodialysis (n=40)

Variables	Time working with hemodialysis (in months)			Total n(%)
	≥3 to <6 n(%)	≥6 to 24 n(%)	≥24 n(%)	
Gender				
Male	-	1(2.5)	3(7.5)	4(10.0)
Female	1(2.5)	6(15)	29(72.5)	36(90.0)
Age group (in years)				
<30	1(2.5)	4(10)	5(12.5)	10(25.0)
30 to 40	-	3(7.5)	14(35)	17(42.5)
>40	-	-	13(32.5)	13(32.5)
Time since obtained undergraduate degree (in years)				
<10	1(2.5)	7(17.5)	21(52.5)	29(72.5)
10 to 20	-	-	6(15.0)	6(15.0)
>20	-	-	5(12.5)	5(12.5)
Qualification				
Undergraduate	1(2.5)	7(17.5)	14(35)	22(55.0)
Specialization	-	-	17(42.5)	17(42.5)
Specialization underway	1(2.5)	3(7.5)	11(27.5)	15(37.5)
Master's	-	-	1(2.5)	1(2.5)
Doctorate underway	-	-	1(2.5)	1(2.5)
Undergraduate training in nursing process	1(2.5)	7(17.5)	29(72.5)	37(92.5)
Currently studies nursing process	2(5.0)	3(7.5)	9(22.5)	14(35.0)
Promotes ongoing education in nursing process	1(2.5)	4(10.0)	17(42.5)	22(55.0)
Refresher training in nephrology*				
Books	1(2.5)	7(17.5)	32(80)	40(100)
Articles	1(2.5)	5(12.5)	22(55.0)	28(70.0)
Events	-	-	14(35.0)	14(35.0)
Knowledge about NANDA-I**	-	1(2.5)	8(20.0)	9(22.5)

*Participants could provide more than one answer; **NANDA International Nursing Diagnoses

Table 2. Nursing diagnoses with relevance index ≥ 0.80 for hemodialysis clinical practice according to nurses in the field (n=40)

Nursing diagnoses	RI †
Safety/protection	
Risk for infection	0.91
Risk for bleeding	0.89
Risk for falls	0.81
Risk for shock	0.81
Risk for allergy response	0.80
Nutrition	
Excess fluid volume	0.90
Risk for imbalanced fluid volume	0.88
Risk for unstable blood glucose level	0.88
Risk for electrolyte imbalance	0.85
Imbalanced nutrition: less than body requirements	0.81
Activity/rest	
Risk for ineffective renal perfusion	0.85
Risk for decreased cardiac tissue perfusion	0.82
Comfort	
Chronic pain	0.83
Nausea	0.82
Acute pain	0.80
Health promotion	
Risk-prone health behavior	0.81
Ineffective family therapeutic regimen management	0.80

†RI= relevance index

refresher training in the field of hemodialysis took place by reading specialized books (100.0%) and articles (70.0%) and by participating in scientific events (35.0%).

Of the 216 NANDA-I nursing diagnoses, 17 obtained $RI \geq 0.80$ (Table 2) and 27 $RI \geq 0.75$ and < 0.80 (Table 3), for a total of 44 diagnoses considered relevant to hemodialysis clinical practice.

Discussion

The use of standardized terminology in the area contributes to making nursing knowledge and practice more visible.⁽⁵⁾ Nursing diagnoses considered relevant to the hemodialysis clinical practice bring to light the phenomena valued by professionals and serve as a frame of reference for nursing knowledge in this field. They can also help guide the creation of data collection instruments in hemodialysis services, ongoing education activities to increase the competencies of these professionals in identifying and treating such condi-

Table 3. Nursing diagnoses with relevance index ≥ 0.75 and < 0.80 to hemodialysis clinical practice according to nurses in the field (n=40)

Nursing diagnoses	RI ^a
Safety/protection	
Risk for vascular trauma	0.79
Risk for impaired skin integrity	0.79
Impaired skin integrity	0.79
Impaired tissue integrity	0.76
Risk for contamination	0.75
Health promotion	
Readiness for enhanced immunization status	0.79
Ineffective self-health management	0.79
Coping/Stress tolerance	
Fear	0.78
Death anxiety	0.78
Anxiety	0.76
Chronic sadness	0.75
Powerlessness	0.75
Life principles	
Noncompliance	0.77
Activity/rest	
Decreased cardiac output	0.77
Risk for ineffective cerebral tissue perfusion	0.76
Activity intolerance	0.76
Risk for ineffective peripheral tissue perfusion	0.75
Ineffective peripheral tissue perfusion	0.75
Disturbed sleep pattern	0.75
Insomnia	0.75
Elimination and exchange	
Impaired urinary elimination	0.77
Constipation	0.76
Self-perception	
Hopelessness	0.77
Risk for loneliness	0.76
Sexuality	
Sexual dysfunction	0.76
Ineffective sexuality pattern	0.75
Nutrition	
Risk for imbalanced nutrition: more than body requirements	0.75

^aRI= relevance index

tions, guide the action of nursing managers in these services to plan appropriate staff size, and to elaborate strategies to assess the quality of the care provided.

Even though the nurses were not familiar with NANDA-I terminology,⁽⁵⁾ they recognized the titles of the nursing diagnoses followed by their respective definitions as phenomena present and relevant to clinical practice. This shows that the language used by the classification system is simple, recognized by professionals and that experience in the field allows for the comprehension and identification of nursing diagnoses, as it was developed based on reality, informed by clinical knowledge in the area, disease manifestation, response to treatment, and recovery trajectory.^(6,7)

The use of nursing classifications for diagnoses denotes the investigation of health problems^(6,7) and these in turn are the basis to select the intended outcomes and required interventions.

Among the nursing diagnoses indicated as relevant by the nurses in this study, most are corroborated by other research in the field.^(1-3,8-12) However, some diagnoses went beyond those identified in the literature.

Risk for infection was highly prevalent, with 100%.^(1-3,8,12) This risk is associated with immunosuppression, venous access for prolonged periods, a high amount of invasive procedures, transmission of infectious agents through different routes, and multiple hospital stays.⁽¹³⁾ Arteriovenous fistula puncture infection is common, with *Staphylococcus aureus* representing the most frequent etiological agent.⁽¹⁴⁾ Catheter-related infections^(13,15) and bacteremia can also occur in patients undergoing chronic hemodialysis.⁽¹⁵⁾ Among these patients, the mortality rate caused by infection after five years is 57%.⁽¹⁶⁾

Risk for bleeding was described with a prevalence of 100%,⁽⁹⁾ indicating that it should receive greater attention from professionals and researchers.^(9,10) Risk for bleeding is directly related to platelet disorders, which prolong bleeding time.⁽¹³⁾ In turn, bleeding can lead to bruising⁽¹³⁾ and anemia.⁽¹⁷⁾

Risk for shock was also considered relevant, in agreement with the findings of studies that identified this diagnosis with a prevalence of 100%.⁽⁹⁾

Risk for falls has also been reported,^(1,2) which can be caused by the hemodynamic oscillations that occur during hemodialysis.^(13,14)

Risk for allergy response was a highly valued diagnosis (RI=0.80). Although it is well known and well described, risk for anaphylactic response⁽¹⁴⁾ does not seem to be recognized as an allergy response and therefore, it has not been considered in studies that identify diagnostic profiles.^(8,12)

In the Nutrition domain, the five diagnoses considered most relevant (RI ≥ 0.80) to clinical practice have been identified in the context of hemodialysis, with an occurrence of $>80\%$.^(1,10)

Fluid volume alterations in hemodialysis patients develop due to fluid overload and edema and electrolytic alterations such as hyperkalemia.⁽¹³⁾ Excess fluid is associated with cardiovascular mor-

idity and increased mortality in stages 4 and 5 of chronic kidney disease.⁽¹⁶⁾

Considering that malnutrition and cachexia increase morbidity and mortality of individuals submitted to hemodialysis,^(18,19) nutritional education programs are recommended for these patients.⁽¹⁸⁾

In the Activity and Rest domain, risk for ineffective renal perfusion and decreased cardiac tissue perfusion were considered relevant. In the literature, the prevalence of risk for ineffective renal perfusion is 100%;^(1,12) however, there is no mention of decreased cardiac tissue perfusion. Hypotension is common during hemodialysis, caused by the removal of fluid from the intravascular space via the ultrafiltration mechanism.⁽¹³⁾ The rapid removal of fluid can lead to intradialytic hypotension, which occurs in 25% to 50% of patients.⁽²⁰⁾

Chronic and acute pain are common among hemodialysis patients,^(2,12,13) with emphasis to bone pain,⁽¹³⁾ abdominal pain,⁽²¹⁾ pain during the hemodialysis access puncture,⁽²²⁾ osteoarthritis, uremic arteriopathy and peripheral neuropathy.⁽²³⁾ The intensity of pain and discomfort among patients are important, interfering with quality of sleep and daily living.⁽²⁴⁾

Nausea, rated as a relevant diagnosis by the nurses, has been documented in hemodialysis patients.⁽¹²⁾ Although it is multifactorial, this symptom is generally related to arterial hypotension and balance syndrome.⁽¹³⁾

Diagnoses related to risk-prone health behavior and ineffective family therapeutic regimen management were considered relevant; however, no studies were found about their occurrence among hemodialysis patients. Only ineffective therapeutic regimen was studied, indicated by nursing professionals in another context as one of the most relevant diagnoses.⁽³⁾

Among the nursing diagnoses indicated as relevant to hemodialysis clinical practice with RI ≥ 0.75 and ≤ 0.79 , approximately half have been studied in terms of their occurrence: impaired tissue integrity,⁽³⁾ ineffective self-health management,⁽⁹⁾ impaired urinary elimination,⁽⁹⁾ risk for loneliness,⁽⁸⁾ activity intolerance,⁽⁸⁾ anxiety,⁽⁹⁾ sexual dysfunction,^(1,12) constipation,⁽¹²⁾ ineffective sexuality pattern,^(8,12) impaired sleep pattern,^(8,11) and risk for imbalanced nutrition: more than body requirements.^(8,12) The

occurrence of the other diagnoses has not yet been addressed in nursing studies.

The discrepancy between the diagnoses valued by the hemodialysis nurses and those studied by researchers in the field (and vice-versa) demonstrates that professionals have different priorities in their approach of individuals with kidney disease in hemodialysis. Also, context-related conditions can contribute to the occurrence of different diagnoses.

This investigation was conducted in a capital city in the Center-West region of Brazil, which is a possible limitation. Thus, further research including other contexts is recommended.

Considering that the use of nursing language contributes to nursing care, education, research and administration,⁽²⁵⁾ efforts must be made so that the diagnoses indicated as relevant and that coincided with those that have already been well documented by the literature become a frame of reference for the area.

Conclusion

Hemodialysis nurses rated 44 of the 216 NANDA-I nursing diagnoses as relevant to hemodialysis clinical practice.

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Collaborations

Lemes MMDD and Bachion MM contributed to the project conception, data analysis and interpretation, drafting of the article, review of its important intellectual content and approval of the final version for publication.

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