

NURSING DIAGNOSES IN THE PERIOPERATIVE PERIOD: INTEGRATIVE REVIEW

Diagnósticos de enfermagem no período perioperatório: revisão integrativa

Diagnósticos de enfermería en el período perioperatorio: revisión integrativa

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ABSTRACT: Objective: To assess scientific publications related to nursing diagnoses (NDs) for surgical patients in the perioperative period. **Method:** This is an integrative review conducted in the Web of Science, Scopus, and Wiley Online Library databases and in the platform of the National SOBECC Journal. The keywords used in the search were: “nursing diagnosis” and “surgery”. The inclusion criteria were: studies published between 2014 and 2019, available in Portuguese, English, or Spanish, and that answered the guiding question. **Results:** We selected 15 articles, of which 8 were published in international journals, even though all studies were produced by Brazilian researchers. Six publications identified the main NDs in the perioperative period, while the others investigated a specific ND. The postoperative period was the most studied. Studies were classified according to their level of evidence (LE): six with LE 4, six with LE 5, and three with LE 6. **Conclusion:** The postoperative period was the one most associated with NDs. Only one study addressed NDs specifically in the intraoperative period. The most studied population was that of patients submitted to cardiac surgery.

Keywords: Nursing diagnosis. Perioperative care. Nursing process.

RESUMO: Objetivo: Conhecer as publicações científicas relacionadas aos diagnósticos de enfermagem (DEs) no período perioperatório do paciente cirúrgico. **Método:** Revisão integrativa nas bases de dados Web of Science, Scopus, Wiley Online Library e na plataforma da Revista SOBECC Nacional. Descritores utilizados na busca: “nursing diagnosis” e “surgery”. Critérios de inclusão: estudos publicados entre 2014 e 2019, disponíveis em português, inglês ou espanhol, e responder à questão norteadora. **Resultados:** Seleccionados 15 artigos, sendo oito publicados em periódicos internacionais, entretanto todos produzidos por pesquisadores brasileiros. Seis publicações identificaram os principais DEs no perioperatório, os demais pesquisaram um DE específico. Evidenciou-se o pós-operatório como o período mais pesquisado. Os estudos foram classificados conforme níveis de evidência (NE): seis com NE 4, seis com NE 5 e três com NE 6. **Conclusão:** O pós-operatório foi o período mais relacionado aos DEs. Apenas um estudo abordou o DE especificamente no intraoperatório. Constatou-se que a população mais estudada foi a de pacientes submetidos à cirurgia cardíaca.

Palavras-chave: Diagnóstico de enfermagem. Assistência perioperatória. Processo de enfermagem.

RESUMEN: Objetivo: Conocer las publicaciones científicas relacionadas con los Diagnósticos de Enfermería (DEs) en el período perioperatorio del paciente quirúrgico. **Método:** Revisión integrativa en las bases de datos de Web of Science, SCOPUS, Wiley Online Library y la plataforma de Revista SOBECC Nacional. Descriptores utilizados en la búsqueda: “diagnóstico de enfermería” y “cirugía”. Criterios de inclusión: estudios publicados entre 2014 y 2019, disponibles en portugués, inglés o español y que respondan a la pregunta orientadora. **Resultados:** Se seleccionaron 15 artículos, ocho de los cuales fueron publicados en revistas internacionales, sin embargo, todos producidos por investigadores brasileños. Seis publicaciones identificaron los principales DEs en el período perioperatorio, las otras investigaron un DE específico. El postoperatorio se convirtió en el período más investigado. Los estudios se clasificaron según niveles de evidencia (NE): seis con NE 4, seis con NE 5 y tres con NE 6. **Conclusión:** El postoperatorio fue el período más relacionado con la DE. Solo un estudio abordó la DE específicamente durante la operación. Se encontró que la población más estudiada fueron los pacientes sometidos a cirugía cardíaca.

Palabras clave: Diagnóstico de enfermería. Atención perioperativa. Proceso de enfermería.

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INTRODUCTION

In Brazil, the nurse adopts the nursing care systematization (NCS) as a scientific methodology to help in care organization, aiming to increasingly improve how to meet patients' individual needs in a complementary and multidisciplinary way¹. According to the Brazilian Association of Surgical Center, Anesthesia Recovery, and Sterile Processing Department Nurses (*Associação Brasileira de Enfermeiros de Centro Cirúrgico, Recuperação Anestésica e Centro de Material e Esterilização* — SOBECC), perioperative nursing care systematization (PNCS) was proposed before the Brazilian resolution by the Federal Nursing Council (*Conselho Federal de Enfermagem* — Cofen), in 1990, when Castellanos and Jouclas extended the nursing process (NP) to surgical patient care, covering the concepts of holistic, continued, participatory, individualized, documented, and evaluated care².

In perioperative patient care, the Association of periOperative Registered Nurses (AORN) uses a model called Perioperative Nursing Data Set (PNDS), which documents the nursing care in a standardized manner. This model involves domains related to safety and physiological and behavioral responses, allowing recording the patient's problems, interventions, and actual or potential nursing outcomes, in order to evidence the concern with care³.

The Cofen Resolution no. 358/2009 recommends that all health facilities providing nursing care should adopt the NCS, implementing its technical-scientific knowledge in care practice, and organizing the professional work as to method, human resources, and instruments, which would enable the operationalization and documentation of the NP. NP is organized into five steps: nursing history, nursing diagnosis (ND), nursing planning, care implementation, and evaluation of the care provided. Although didactically divided, these steps do not happen separately; on the contrary, they are interconnected and concurrent⁴.

PNCS allows the surgical center (SC) nurse to qualify patient care in the perioperative period, planning actions and promoting better communication between teams, as well as monitoring and analyzing indicators to enable NP effectiveness. Studies emphasize the importance of communication between teams to improve perioperative care, developing actions that aim to guide and assess each patient's needs, resulting in quality care planning throughout the anesthesia and surgical process⁵. The perioperative period consists of three phases: preoperative, intraoperative, and

postoperative. Each one starts and ends sequentially, based on events that define the patient experience in the anesthesia and surgical process⁶.

The nurse has the legal responsibility of diagnosing human responses related to health or activities of daily living. When they detect a problem, these professionals can provide solutions and act on preventing complications and adverse events. Thus, researchers stress the importance of NCS, aiming at the early identification of NDs and the resolution of possible complications⁷.

Studies^{8,9} agree on the relevance of identifying NDs in surgical practice to guide nursing care, allowing the prior recognition of patients' needs and providing elements to implement validated nursing interventions tailored to individual needs. Investigating NDs in a surgical context is also important because they represent the nurse's specific knowledge, with the potential to qualify nursing records, improving communication and the quality of care.

OBJECTIVE

To assess scientific publications related to NDs for surgical patients in the perioperative period.

METHOD

This is an integrative literature review aimed at identifying primary findings of the investigated topic, as well as its knowledge status, allowing us to conduct a critical analysis to recognize reinforcement points and, at the same time, gaps that could be filled with new studies^{10,11}.

We adopted six stages recommended for the elaboration of an integrative review¹⁰:

- identification of the theme and definition of the guiding question;
- establishment of inclusion and exclusion criteria;
- definition of the information to be extracted from the articles;
- assessment and categorization of the included studies;
- result interpretation;
- presentation of the synthesis of the review.

The guiding question was defined as: what has been scientifically produced about NDs in the perioperative period? Based on this question, we chose the keywords "nursing

diagnosis” and “surgery”, according to the Medical Subject Headings (MeSH). The operator used between the descriptors was AND, since its application prevented the recovery of studies whose subject addressed areas of knowledge different from those intended for the current analysis. The inclusion criteria were studies published from 2014 to September 2019; available in Portuguese, English, or Spanish; answering the guiding question; and having in its title one of the keywords searched or related terms: “surgical”, “nursing outcomes”, “nursing interventions and outcomes”, “operative”, and “postoperative”. As one of the inclusion criteria was the year of publication, we only selected articles from 2014 onward, since the study aimed to list recent publications.

The search for studies was conducted in the Web of Science, Scopus, and Wiley Online Library databases. We complemented the search on the platform of the National SOBECC Journal, given its great relevance as a technical journal of

the studied area. In the databases, the following associative strategy was employed: “nursing diagnosis” AND “surgery”, always selecting the most generic search field in all of them. On the platform of the National SOBECC Journal, which has the technical-scientific papers from SOBECC, we used only the descriptor “nursing diagnosis” because the publications from this base are already targeted at the surgical area.

The database searches yielded 98 articles. We read the titles of the publications retrieved and removed those that did not meet the inclusion criteria, leaving 30 articles. Next, these articles were screened based on their abstracts, reducing the sample to 24 articles. The remaining publications were read in full, reaching the final selection of 15 articles, excluding a duplicate found in 2 databases. Figure 1 presents the flowchart for the selection of articles included in this study.

Data were collected in September 2019, and the publications retrieved were organized for analysis in a database with

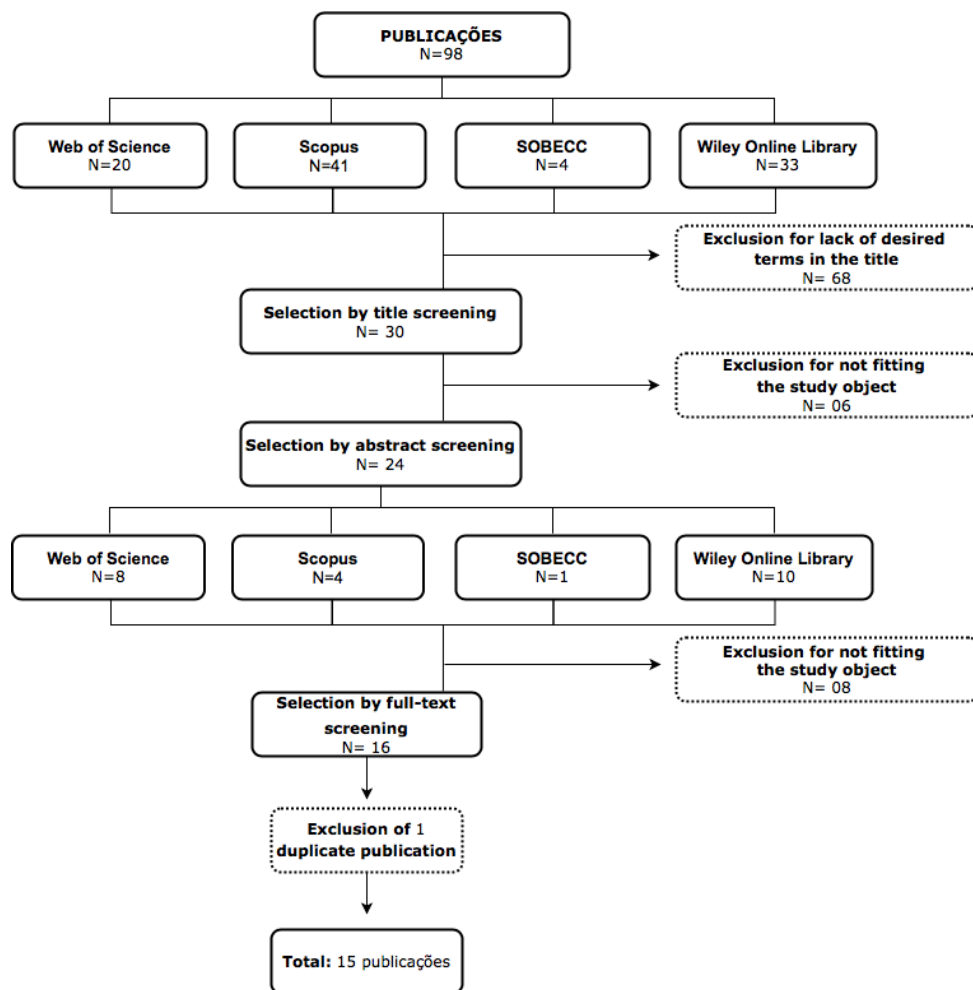


Figure 1. Flowchart of the article selection process.

the following items: title, database, journal, year, language, country of origin, objective, method, level of evidence (LE), and perioperative period covered in the article.

Subsequently, the articles were evaluated regarding their LE, which characterizes how the evidence was classified according to hierarchy and the methodological approach adopted¹⁰.

RESULTS

The selected sample included eight articles published in international journals, but they were all produced by Brazilian researchers. Regarding the year of publication, productivity reached its peak in 2015, with five articles. We identified a gap in publications on the theme between 2016 and 2017.

In the remaining years, the production was: three publications in 2014, four in 2018, and three in 2019.

The articles are presented in two tables, according to their objectives. Table 1 describes six articles investigating the main NDs affecting a specific population. Table 2 grouped articles with different objectives, addressing specific NDs previously listed.

A total of 105 NDs were cited, but 39 were repeated; therefore, 66 distinct NDs were found, of which 42 were actual diagnoses, and 24 were risk diagnoses. Based on this result, we elaborated two charts (Charts 1 and 2) for the ten most prevalent actual and risk NDs found in the studies. We reported the percentage of mentions of each ND in the 15 publications studied. For instance, the anxiety ND was cited in 4 of the 15 publications, representing 26.67% of recurrence.

Table 1. Selected articles addressing a specific population according to year of publication, objective, investigated nursing diagnoses, and level of evidence.

Year	Objective	Investigated NDs	LE
2015 ⁷	To identify human responses presented by postoperative patients of bariatric surgery, classified into the cardiovascular/pulmonary response class of NDs	<ul style="list-style-type: none"> • Risk for ineffective gastrointestinal perfusion; • Risk for activity intolerance; • Ineffective peripheral tissue perfusion; • Risk for shock; • Decreased cardiac output; • Risk for decreased cardiac tissue perfusion; • Activity intolerance; • Risk for ineffective cerebral tissue perfusion; • Impaired spontaneous ventilation; • Risk for ineffective renal perfusion; • Ineffective breathing pattern; • Dysfunctional ventilatory weaning response; • Risk for bleeding. 	4
2015 ⁸	To identify NDs in postoperative patients of cardiac surgery	<ul style="list-style-type: none"> • Risk for ineffective renal perfusion; • Risk for decreased cardiac tissue perfusion; • Risk for bleeding; • Risk for perioperative positioning injury; • Impaired skin integrity; • Risk for falls; • Risk for vascular trauma; • Risk for constipation; • Risk for electrolyte imbalance; • Risk for unstable blood glucose; • Risk for acute confusion; • Risk for shock; • Risk for infections; • Risk for spiritual distress; • Risk for impaired religiosity; • Impaired physical mobility; • Impaired bed mobility; • Readiness for enhanced family processes; • Readiness for enhanced self-concept; 	5

Continue...

Table 1. Continuation.

Year	Objective	Investigated NDs	LE
2015 ⁸	To identify NDs in postoperative patients of cardiac surgery	<ul style="list-style-type: none"> • Impaired comfort; • Dysfunctional gastrointestinal motility; • Impaired walking; • Acute pain; • Delayed surgical recovery; • Disturbed sleep pattern; • Fear; • Fatigue; • Ineffective breathing pattern; • Insomnia; • Impaired spontaneous ventilation; • Deficient diversional activity; • Impaired verbal communication; • Anxiety • Ineffective self-health management; • Ineffective family therapeutic regimen management; • Risk for ineffective peripheral tissue perfusion; • Relocation stress syndrome; • Hyperthermia; • Ineffective thermoregulation; • Deficient fluid volume; • Constipation; • Impaired gas exchange; • Decreased cardiac output; • Self-neglect; • Nausea; • Impaired swallowing; • Imbalanced nutrition: less than body requirements; • Impaired social interaction; • Impaired oral mucous membrane. 	5
2018 ¹²	To propose nursing diagnoses, outcomes, and interventions for postoperative patients of orthognathic surgery	<ul style="list-style-type: none"> • Ineffective self-health management; • Knowledge deficient; • Impaired verbal communication; • Risk for compromised human dignity; • Risk for situational low self-esteem; • Anxiety • Risk for infection; • Impaired oral mucous membrane; • Acute pain. 	6
2015 ¹³	To identify the main NDs for older adults in the postoperative period of urological surgeries	<ul style="list-style-type: none"> • Impaired skin integrity; • Activity intolerance; • Acute pain; • Knowledge deficient; • Imbalanced nutrition: less than body requirements; • Risk for constipation; • Fatigue; • Impaired physical mobility; • Disturbed sleep pattern; • Risk for infection; • Risk for deficient fluid volume; • Risk for impaired religiosity. 	5

Continue...

Table 1. Continuation.

Year	Objective	Investigated NDs	LE
2015 ¹⁴	To identify the frequency of NDs for patients treated in a surgical clinic	<ul style="list-style-type: none"> • Risk for infection; • Impaired skin integrity; • Risk for constipation; • Anxiety • Acute pain; • Risk for bleeding; • Delayed surgical recovery; • Dysfunctional gastrointestinal motility; • Risk for relocation stress syndrome; • Risk for unstable blood glucose; • Impaired comfort; • Risk for impaired skin integrity; • Fear; • Imbalanced nutrition: less than body requirements; • Risk for situational low self-esteem; • Risk for deficient fluid volume; • Disturbed body image. 	5
2015 ¹⁵	To identify the profile of NDs for heart transplant patients in the early postoperative period, based on NANDA's Taxonomy II, and discuss it from the perspective of Horta's assumptions and the scientific literature	<ul style="list-style-type: none"> • Impaired bed mobility; • Ineffective protection; • Impaired walking; • Impaired tissue integrity; • Imbalanced nutrition: less than body requirements; • Decreased cardiac output; • Acute pain; • Impaired gas exchange; • Ineffective breathing pattern; • Impaired urinary elimination; • Risk for infection; • Risk for constipation. 	4

ND: nursing diagnosis; LE: level of evidence; NANDA: North American Nursing Diagnosis Association.

Table 2. Selected articles discussing a nursing diagnosis in the perioperative period according to year of publication, objective, investigated nursing diagnosis, and level of evidence.

Year	Objectives	Investigated ND	LE
2019 ¹⁶	To select NOC outcomes to assess the impaired tissue integrity in patients submitted to orthopedic surgeries and develop conceptual and operational definitions for their indicators	• Impaired tissue integrity	6
2019 ¹⁷	To evaluate the benefits of NIC interventions in postoperative patients with ineffective airway clearance.	• Ineffective airway clearance	4
2019 ¹⁸	To select and refine NOC outcomes and indicators for the diagnosis of risk for perioperative positioning injury	• Risk for perioperative positioning injury	4
2019 ¹⁹	To evaluate the healing of surgical wounds in orthopedic patients with impaired tissue integrity according to NOC	• Impaired tissue integrity	4
2018 ²⁰	To identify the risk factors associated with cases of excessive bleeding in patients submitted to cardiac surgery with cardiopulmonary bypass	• Risk for bleeding	4
2018 ²¹	To elucidate the concept of risk for delayed surgical recovery and define the empirical referents to identify predictive factors for delayed recovery	• Risk for delayed surgical recovery	6
2015 ²²	To verify the accuracy of the defining characteristics of the diagnosis of delayed surgical recovery in patients after the fifth postoperative day	• Delayed surgical recovery	5
2015 ²³	To analyze the accuracy of the defining characteristics of impaired gas exchange	• Impaired gas exchange	5
2014 ²⁴	To compare the incidence of the ND delayed surgical recovery among adults and older adults	• Delayed surgical recovery	5

ND: nursing diagnosis; LE: level of evidence; NOC: Nursing Outcomes Classification; NIC: Nursing Interventions Classification.

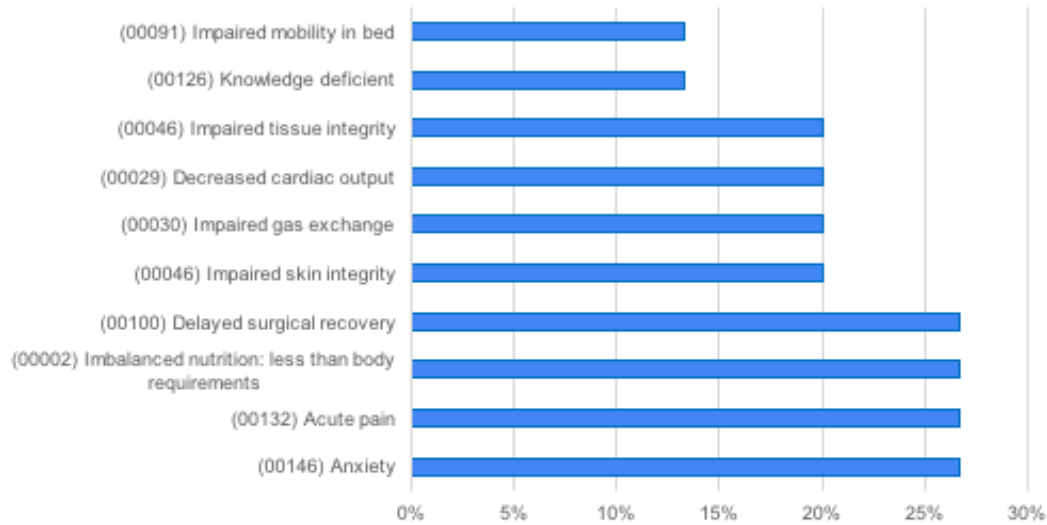


Chart 1. Actual nursing diagnoses listed in the articles.

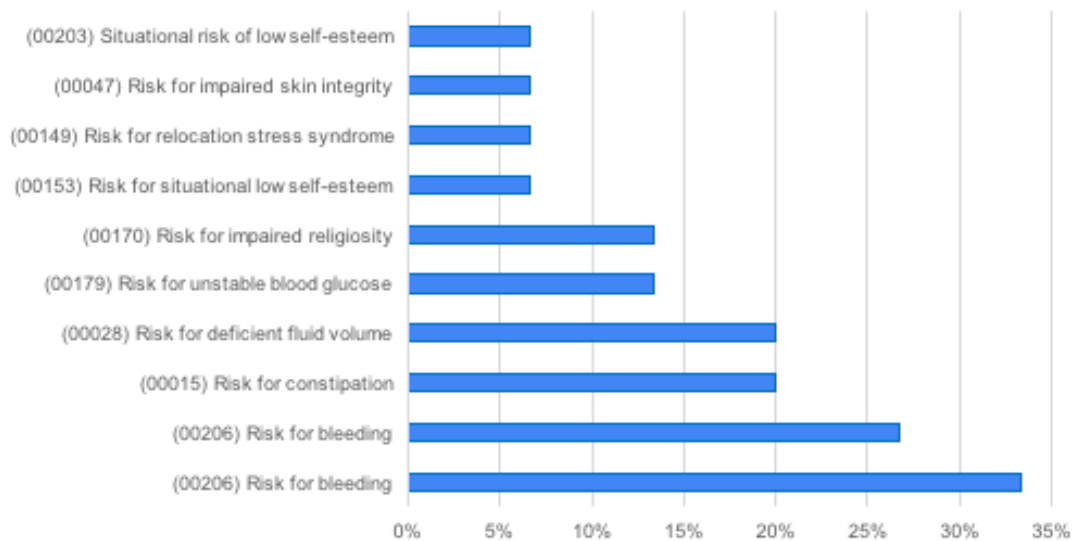


Chart 2. Risk nursing diagnoses listed in the articles.

DISCUSSION

The analysis of the selected publications allowed us to demonstrate that most studies (ten articles) on the investigated theme discussed the postoperative period of surgical patients in different scenarios. At the same time, studies addressed various NP stages, such as NDs, interventions, and outcomes.

The theoretical framework of basic human needs by Wanda de Aguiar Horta was applied to two studies¹²⁻¹⁵ to list NDs in postoperative patients. One of them¹² identified nine NDs

in postoperative patients of orthognathic surgery related to psychobiological and psychosocial needs. The other study¹⁵, performed with heart transplant patients, detected 12 NDs, with 10 actual NDs and 2 potential NDs, all associated with basic human psychobiological needs. No NDs were found for psychosocial or psychospiritual needs.

Two studies^{13,14} carried out with different populations but with the same objective detected the main postoperative NDs applicable to each patient population. The first¹³ reviewed the medical records of 100 older adults in the postoperative

period of urological surgeries and found 13 NDs, of which 10 were actual NDs and 3 were risk NDs. The other¹⁴, with a sample of 99 postoperative patients of general surgery, reported 17 NDs — 9 actual NDs and 8 risk NDs. In both studies^{13,14}, the findings allowed guiding the nursing care, prioritizing the patient's condition, with effective and prompt actions to solve the problems.

The importance of PNCS and the need to implement institutional protocols to facilitate the nursing care provided to each patient profile were also highlighted in a study⁷ performed with a population of postoperative patients of bariatric surgery. The study aimed to identify human responses presented by patients classified into the cardiovascular/pulmonary response class of NDs. It listed 13 NDs, which allowed guiding the nursing care and reducing postoperative complications.

The most studied population was that of patients submitted to cardiac surgery. A study²⁰ sought to identify risk factors for bleeding after cardiac surgery with cardiopulmonary bypass (CPB) and concluded that the variables associated with excessive bleeding were: body mass index (BMI) lower than 26.35 kg/m², CPB time exceeding 90 minutes, esophageal temperature lower than 32°C, metabolic acidosis, and thromboplastin time greater than 40 seconds. These variables can be operational, clinical indicators to better characterize the risk factor “treatment regimen” and improve the knowledge related to CPB-induced coagulopathy.

Two other studies^{8,23} assessed the postoperative period of cardiac surgery in intensive care units. One of them evaluated the medical records of 26 patients, from which specialists collected NDs, defining characteristics, and associated factors, resulting in 34 actual NDs and 15 risk NDs, established according to the North American Nursing Diagnosis Association (NANDA)⁸. The other study²³ involved a sample of 93 patients. Data were collected by three nurses to analyze the accuracy of defining characteristics of the ND “impaired gas exchange”. Both studies^{8,23} evidenced the relevance of nursing knowledge about the early identification of signs and symptoms (defining characteristics) when choosing a specific ND for each patient profile, guiding the nursing care (interventions), and supporting the development of appropriate interventions for the individual needs of patients.

With respect to nursing interventions, a study¹⁷ evaluated the benefits of the Nursing Interventions Classification (NIC) in postoperative patients with the ND “ineffective airway clearance”. A sample of 101 patients was assessed based on the nursing outcome “breathing pattern: airway permeability”.

On the one hand, the authors concluded that interventions such as breathing techniques, cough improvement, ventilatory assistance, and airway management contributed to discharging the secretion, with expressive improvement in airway permeability, strength, and recovery of patients. Six airway patency indicators improved significantly throughout the study. On the other hand, some patients did not improve after the interventions, which may be associated with factors intrinsic to the patient, clinical characteristics, and surgical variables.

Two studies^{22,24} specifically addressed the ND “delayed surgical recovery”. Interestingly, both studies had the same first author and evaluated 72 surgical patients after the fifth postoperative day. In one study²⁴, the population was divided into adults and older adults to compare the incidence of this ND between groups. The findings indicated that the prevalence was slightly higher among older adults due to their movement difficulty, self-care dependence, and perceived need for longer recovery time, requiring nursing care specific to the human aging process. Differentiating the assistance for adult and older adult patients can favor perioperative care in the desired time.

The other study²² verified the accuracy of the defining characteristics of the same ND “delayed surgical recovery”. The identification of NDs was based on the clinical assessment of two Ph.D. nurses. Seven characteristics showed high positive predictive values: delayed return to work activities, fatigue, perceived need for longer recovery time, need for help in performing self-care, report of discomfort, evidence of healing disruption in the surgical site, and movement difficulty. The only factor in the study associated with the diagnosis was postoperative infection in the surgical site.

A study²¹ related to the ND “risk for delayed surgical recovery” conducted an analysis to clarify the concept of this diagnosis and define the empirical referents to identify predictive factors of delayed recovery. The study selected nurses specialized in surgical nursing and ND, according to NANDA's Taxonomy I. Based on an integrative literature review, the authors found no studies directly addressing the investigated diagnosis, showing gaps in its exploration. This diagnosis groups a number of risk factors in the best evidence and establishes empirical referents for instrumentation and evaluation, which can help guide nurses in obtaining the expected results in practice.

In the assessed sample, two studies^{16,18} involved validation by a consensus of specialists, seeking to select and refine results and indicators of the Nursing Outcomes Classification (NOC)

for the NDs “risk for perioperative positioning injury” and “impaired tissue integrity”. Both works allowed us to select the most relevant results and indicators for these diagnoses in clinical practice.

Still on the NOC, researchers¹⁹ evaluated the healing of surgical wounds in 24 orthopedic patients of hip replacement with the ND “impaired tissue integrity”, established by two nurses and documented in electronic health records by the application of data collection instruments, which includes interviewing patients and assessing the surgical wound. When comparing the first and last days, the patients showed progressive improvement in three indicators: skin approximation, drainage and inflammatory signs, and unpleasant smell.

CONCLUSION

By investigating the scientific production related to NDs in the patient’s perioperative period, we identified the postoperative

period as the most researched. However, most studies addressed the theme from the perspective of the entire anesthesia and surgical process. Studies show a higher prevalence of NDs in surgical patients, encompassing the three stages of the perioperative process; however, only one study analyzed the ND “risk for perioperative positioning injury” specifically in the intraoperative period. The most studied population was that of patients submitted to cardiac surgery.

Of note, all selected articles were produced by Brazilian nurses, even those published in international journals, evidencing the national interest in this topic.

We suggest further research on NDs in the perioperative process, exploring current NDs, such as “risk for surgical site infection”, approved in 2016, but not mentioned in the studies reviewed. Nurses should continuously seek knowledge and improvement in order to contribute to advancing the care process. For the nurse to feel safe in their clinical assessment and reasoning, the NP should be steadily worked on in training and educational activities.

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