Original Article

Nursing diagnosis risk for delayed surgical recovery: content validation

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ABSTRACT

The objective of this study was to validate the proposal of the nursing diagnosis Risk for delayed surgical recovery. Methodological research for content validation by specialists, with a sample of 34 specialists. A data collection instrument was used containing a Likert-type scale of 1 to 5. The data analysis was the estimate proportion by the binomial test. Ten items were obtained from the assessed diagnosis proposal with a proportion superior or equal to 75%. Other seven items: Definition; Expressed feelings; History of healing delay; Prolonged surgical procedure; Advanced Age; Edema and trauma in the surgical site; High ASA Classification (American Society of Anesthesiologists), were assessed with a proportion lower than 75%, revised until reaching consensus among specialists. In conclusion, the nursing diagnosis was content validated. Its identification may allow predicting the vulnerability of patients with Risk for delayed surgical recovery (00246), and the planning of individualized perioperative interventions.

Descriptors: Perioperative Nursing; Nursing Diagnosis; Nursing Process; Validation Studies; Postoperative Care.

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INTRODUCTION

Perioperative nursing assistance constitutes a challenge due to complex physiological changes that occur for complete recovery. The identification of the nursing diagnosis Risk for delayed surgical recovery can help to detect complications, the postoperative recovery, to decrease hospital costs, re-admissions and, morbidity and mortality[1].

Thus, the early detection of risk factors collaborating for the delay in surgical recovery is crucial, that is, a risk diagnosis that assess the vulnerability of individuals even before the occurrence of the event, stratifying the patients in more or less vulnerable, to guide those who need more nursing attention, with preventive interventions, as the promotion of safety and the protection of the surgical patient.

The NANDA International taxonomy (NANDA-I) establishes the diagnosis with a focus on the problem of Delayed Surgical Recovery (00100). However, this diagnosis does not contemplate risk factors associated with the possible postoperative complications which, if early detected by the nurse, would serve as the basis for a plan of interventions aiming its prevention.

Therefore, there was a gap identified in the proposition of a diagnosis that pooled the risk factors, that is, that would determine potential patients for a Delayed surgical recovery. Accordingly, research data pointed out that it would be more interesting to prevent the delayed surgical recovery than to detect it[2-5].

A cross-sectional observational study[3] conducted with 72 patients followed after the fifth postoperative day showed a relative prevalence of the nursing diagnosis Delayed Surgical Recovery in elderly (77.1%), and adults (75.7%). The study also showed the defining characteristic “difficulty to move” for 20 elderly and 15 adults, that is, the chance of an individual older than 60 years to have difficulty to move was 2.1 times higher when compared to the adult[3].

In another study[5] with a random sample composed of 69 subjects followed since the first postoperative day until hospital discharge, it was verified 33.4% of subjects presenting the nursing diagnosis Delayed Surgical Recovery. There was a variation of the mean age of 52 years and a median of 55 years. However, when relating the diagnosis by age group, 14 (60.9%) of individuals had age equal to or higher than 50 years[5].

A cross-sectional observational study[1] conducted with 70 surgical patients verified sensitivity and specificity measures, positive and negative predictive values, positive and negative likelihood ratios, Diagnostic Odds Ratio and area under the ROC curve (Receiver Operating Characteristic Curve). Seven defining characteristics were identified, which presented high positive predictive values: evidence of healing interruption of the surgical site (VPP = 99.44), delay in returning to work/job activities (VPP = 97.30), difficulty to move (VPP = 97.14), fatigue (VPP = 96.55), perception that more time is needed for recovery (VPP = 96.30), need of help to complete self-care (VPP = 96.00) and, report of discomfort (VPP = 96.00). The only related factor that showed association with the diagnosis under investigation was the postoperative infection at the incision area (p = 0.028). The variable postoperative time, the central element in the diagnostic definition presented a significant statistical relationship with the diagnosis of Delayed Surgical Recovery (p = 0.012) [1].

In these studies about the diagnosis focused on the DSR factors, they had been pointed as able to interfere in the prolonged surgical recovery. For example, the difficulty to move, advanced age, self-care dependence, and the self-perception that more time is needed to recover[1,3,5-7].

Therefore, the research group created a diagnostic proposal for Risk for delayed surgical recovery (00246), that was submitted to the Diagnosis Development Committee of NANDA-I and obtained approval in October 2014. Its publication was contemplated in the 2015-2017 edition of the NANDA-I nursing diagnoses[8]. The proposal intended to design a risk diagnosis that would help in the planning of nursing care, to determine the factors that could prevent extended admission time and, consequently, future re-admissions and, the increase of hospital costs.

The operational definitions were built in a concept analysis study[9] and were submitted to content validation in the present study. The nursing diagnosis Risk for delayed surgical recovery is defined as "vulnerable to an extension of the number of postoperative days required to initiate and perform activities that maintain life, health, and well-being, which may compromise health"[8].

The proposed risk factors composing the diagnosis were: pharmaceutical agent, surgical site contamination, diabetes mellitus, pain, edema at the surgical site, American Society of Anesthesiologists (ASA) Physical Status classification ≥ 3, extremes of age, history of delayed wound healing, perioperative surgical site infection, impaired mobility, persistent nausea, obesity, extensive surgical procedure, prolonged surgical procedure, postoperative emotional response, malnutrition, psychological disorder in postoperative period, trauma at surgical site and, persistent vomiting.

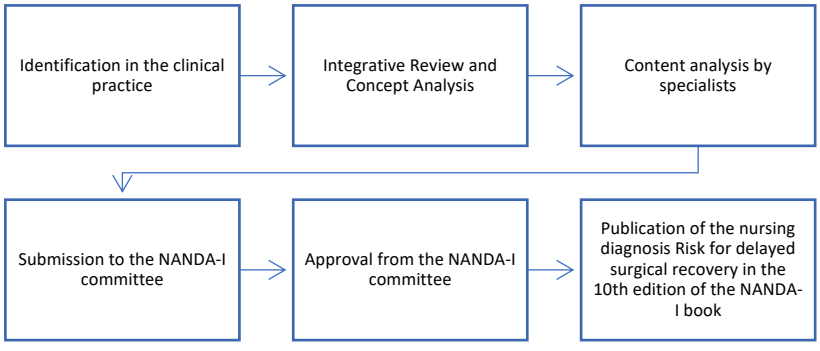
According to the NANDA-I indication, validation studies for nursing diagnoses are necessary for the suitability of its content in the clinical practice[8-9]. It is expected that the validation of risk factors and of the content of the diagnosis Risk for delayed surgical recovery will help in the early identification of individuals vulnerable to postoperative complications; to allow the nurse judgement about the level of vulnerability of each individual and, the improvement in the quality of care provided in risk situations. Thus, the objective of the study was to validate the content of the proposal of the nursing diagnosis Risk for delayed surgical recovery.

METHODS

Methodological research, of content validation by specialists[10]. The opinion of specialists is a relevant step to validate a nursing diagnosis and inclusion in the NANDA-I[11] taxonomy for broadly considering the specialists' panel.

Figure 1 presents the process to validate the proposal of the diagnosis Risk for delayed surgical recovery since identification in the clinical practice, content analysis and the subsequent approval by the NANDA-I committee[8].

Figure 1: Validation process of the proposal of the nursing diagnosis Risk for delayed surgical recovery.



In this study, the content analysis objective was to estimate the proportion of specialists who would agree with the inclusion of risk factors, operational definitions built for each factor and, the definition built for the diagnosis Risk of delayed surgical recovery (00246), class and domain[11].

A strategy of two groups was used to select the specialists, with the following characteristics: one composed by nurses specialized in surgical nursing, and the other, constituted by specialists in nursing diagnosis according to the international taxonomy NANDA-I; both with at least five years of experience. However, two points were considered relevant: clinical experience and theoretical knowledge.

The sample calculation was obtained through the formula: $n = Z\alpha^2 * P * (1 - P)/e^2$, where Zα is the 95% confidence interval that assumes the tabulated value of 1.96; "P" represents the expected proportion of specialists who indicate the adequacy of each item, stipulated in 75%[9]. Therefore, according to the statistical calculation, the sample was estimated in 32 specialists, allocating half in each group, being 16 specialists in surgical nursing and, 16 specialists in nursing diagnosis.

The selection of specialists occurred through the Lattes Curriculum, available at the Lattes Platform by the portal of the Brazilian National Council of Scientific and Technological Development (CNPq), using for the search the terms: "nursing diagnosis", "surgical nursing", "perioperative nursing".

Each selected specialist received an electronic invite letter with the sender presentation and guidance about the study. Interested parties should also manifest themselves electronically, and then the Free and Informed Consent Term and, the data collection instrument was sent.

One-hundred and six specialists were selected and recruited through the Lattes Curriculum. Sixty immediately answered the e-mails. From these, 55 accepted to participate in the study, and only 21 sent the instrument filled out. Thus, to reach the planned sample calculation, 29 nurses indicated by other specialists were invited. They also met the inclusion criteria and, 13 specialists answered with filled out instruments. Thirty-four participants composed the final sample. This process occurred in an eight-month period, during February and October of 2014.

The instrument used in the study is divided in two parts containing: one semi-structured questionnaire with the specialist's characterization data, and the validation instrument with structured components proposed for the nursing diagnosis Risk for delayed surgical recovery: domains, class, diagnostic statement, definition and, risk factors with the conceptual and operational definitions, assessed by a Likert-type scale composed of five adequacy levels of this inclusion, being: 1- Nothing, 2- Little, 3- Somehow, 4- Very, 5- Excellent[11].

This coded assessment allowed specialists to identify the level of adequacy of each criterion with a broader judgment. The assessment criteria for nursing diagnoses are defined as: Adequacy: when the content is appropriate, convenient and adjusted to the nursing diagnosis; Pertinence: designates the content as opportune; relative and pertaining to that diagnosis; Clarity: easily express the comprehension of the diagnosis criteria, recognized by the assessor as explicit, intelligible, transparent and evident; Precision: indicates the content accuracy in a categorical manner, distinguishing it from other diagnoses; and, Objectivity: when the content application is practical, direct, objectively expressing the content of the assessed diagnosis [10].

The items scored through the Likert-type scale as 1, 2 or 3 were considered inadequate, that is, with a low level of evidence, and reformulated in accordance with specialists' suggestions. The items that obtained a score of 4 or 5 were considered adequate[11].

The database was built with the support of the program Microsoft Excel 2010. For the statistical analysis, the program Statistical Package for the Social Sciences, version 21 and the software R version 3.2 was used. Initially, the binomial statistical test was applied to determine if the proportion of the specialists' opinion was higher or equal to 75%. After, the existence of adjustment suggestions in the definition of the components was verified[11]. Presentation in proportions was opted to facilitate the reader's comprehension. It was also important to apply the unilateral binomial test for the null hypothesis that the proportion was statistically equal or superior to 75%.

This study does not have conflicts of interest as required by the Resolution 466/2012 of the Brazilian National Health Council, Health Ministry. The study was approved by the Ethics Committee of the institution responsible for the study, under the protocol CAAE nº 36683714.9.0000.5243 by the Ethics in Research Committee of the Center of Medical Sciences of the Fluminense Federal University.

RESULTS

The sample composed of 34 specialists was predominately female 32 (94.1%), the mean age of 39 years and time since graduation superior to 10 years in 19 (55.9%) specialists of the sample. Regarding the level of education, the majority, 15 (44.1%) had a master's degree, and 15 (44.1%) had a doctorate degree, and the other groups had specialization in surgical nursing as the highest title.

The specialists' work areas were: 15 (44.1%) working in Medical-Surgical Nursing, three (8.8%) in Surgical Center, one (2.9%) in a Material and Sterilization Center, one (2.9%) in a Service for Control of Hospital Infection, one (2.9%) in Teaching and related areas and, other eight (23.5%) in practice scenarios. Five (14.7%) participants worked in more than one area, that is, 30 specialists had experience in two areas.

The specialists assessed the diagnosis components, that is, domain and the localization class of the diagnostic in the classification, its definition, and diagnosis statement according to Table 1.

Table 1: Content validation of the components of the nursing diagnosis Risk for delayed surgical recovery (n =34). Rio de Janeiro, RJ, Brazil, 2014.

Diagnostic components	Adequacy		Pertinence		Clarity		Precision		Objectivity	
	f (%)	p-value	f (%)	p-value	f (%)	p-value	f (%)	p-value	f (%)	p-value
Domain	32(94.1)	0.999	33 (97.1)	0.999	27 (79.4)	0.782	29 (85.3)	0.950	30 (88.2)	0.983
Class	30 (88.2)	0.983	30 (88.2)	0.983	30 (88.2)	0.983	29 (88.2)	0.98	30 (88.2)	0.983
Diagnostic statement	30 (88.2)	0.983	31 (91.2)	0.995	31 (91.2)	0.995	31 (91.2)	0.995	32 (94.1)	0.999
Definition	27 (79.4)	0.782	28 (82.4)	0.886	21 (61.8)	0.061	21 (61.8)	0.061	24 (70.6)	0.336

Notes: f – frequency; % - the proportion of specialists; p-value – if there is a difference in the agreement judgment of specialists.

The frequencies refer to the proportion of agreement of specialists. According to Table 1, the components of the diagnosis creation that reached a proportion higher than 75% of specialists that classified them as adequate in all assessed items were: Domain, Class, Diagnosis Statement.

The specialists also assessed the risk factors for the diagnosis according to Table 2.

Table 2: Content validation of the risk factors of the nursing diagnosis Risk for delayed surgical recovery (n =34). Rio de Janeiro, RJ, Brazil, 2014.

Risk Factors	Adequacy		Pertinence		Clarity		Precision		Objectivity	
	f (%)	p-value	f (%)	p-value	f (%)	p-value	f (%)	p-value	f (%)	p-value
Impaired mobility	27 (79.4)	0.782	27 (79.4)	0.782	27 (79.4)	0.782	30 (88.2)	0.983	28 (82.4)	0.886
Expressed concern feelings	26 (76.5)	0.643	26 (76.5)	0.643	24 (70.6)	0.336	22 (64.7)	0.119	21 (61.8)	0.061
Hystory of delayed wound healing	29 (85.3)	0.950	29 (85.3)	0.950	25 (73.5)	0.486	26 (76.5)	0.643	25 (73.5)	0.486
Obesity	31 (91.2)	0.995	31 (91.2)	0.995	29 (85.3)	0.950	29 (85.3)	0.950	30 (88.2)	0.983
Extensive surgical procedure	30 (88.2)	0.983	30 (88.2)	0.983	26 (76.5)	0.643	28 (82.4)	0.886	30 (88.2)	0.983
Prolonged surgical procedure	29 (85.3)	0.950	27 (79.4)	0.782	24 (70.6)	0.336	28 (82.4)	0.886	26 (76.5)	0.643
Malnutrition	34 (100)	1	33 (97.1)	0.999	28 (82.4)	0.886	30 (88.2)	0.983	31 (91.2)	0.995
Advanced Age	30 (88.2)	0.983	31 (91.2)	0.995	27 (79.4)	0.782	24 (70.6)	0.336	28 (82.4)	0.886
Edema or trauma at surgical site	27 (79.4)	0.782	27 (79.4)	0.782	24 (70.6)	0.336	24 (70.6)	0.336	24 (70.6)	0.336
Diabetes Mellitus	28 (82.4)	0.886	30 (88.2)	0.983	31 (91.2)	0.995	29 (85.3)	0.950	31 (91.2)	0.995
Use of immunosupressants	29 (85.3)	0.950	29 (85.3)	0.950	31 (91.2)	0.995	30 (88.2)	0.983	32 (94.1)	0.999
Dirtness or contamination at surgical site	30 (88.2)	0.983	29 (85.3)	0.950	28 (82.4)	0.886	28 (82.4)	0.886	26 (76.5)	0.643
High ASA* Classification (II to VI)	28 (82.4)	0.886	29 (85.3)	0.950	22 (64.7)	0.119	24 (70.6)	0.336	23 (67.6)	0.210

Notes: f – frequency; % - the proportion of specialists; p-value -if there is a difference in the agreement judgment of specialists. * American Society of Anesthesiologists

According to Table 2, the components of the diagnosis that reached a proportion superior to 75% of the specialists who classified as adequate in all assessed items were: impaired mobility, obesity, extensive surgical procedure, malnutrition, diabetes mellitus, use of corticoids and/or chemotherapy, dirtiness or contamination at the surgical site.

All the components of the nursing diagnosis Risk for delayed surgical recovery presented Adequacy and Pertinence, according to the alternative hypothesis of agreement proportion among specialists being superior to 75%. And, despite few diagnostic components had items that are characteristic in the null hypothesis, all presented statistical significance. Thus, all components were validated.

The assessment instrument had space for specialists to give suggestions regarding the evaluated components. According to what is presented in Table 1, the Diagnosis Definition had an agreement proportion

between specialists lower than 75% regarding Clarity, Precision and Objectivity, therefore, 11 specialists suggested new definitions, and these were categorized as demonstrated in Chart 1.

Chart 1: Definitions suggested by specialists for Risk for delayed surgical recovery (n= 11). Rio de Janeiro, RJ, Brazil, 2014.

Suggested definitions	Structure	n
Risk for the extension of the number of postoperative days required to initiate and perform activities that maintain life, health, and well-being.	Definition of the diagnosis focused on the problem of Delayed surgical recovery from NANDA-I (2012) with the addition of the term “Risk for”.	1
Vulnerable to the extension of the number of postoperative days required to initiate and perform activities that maintain life, health, and well-being.	Definition of the diagnosis focused on the problem Devalyed surgical recovery from NANDA-I (2012) with the addition of the term vulnerability.	2
Risk of increase in the number of postoperative days required to reinitiate regular activities of life maintenance.	Inadequate use of the word “delay”, being suggested: prolongation, increase.	6
Risk for the delay in the healing of the surgical wound. x	To change the term surgical recovery to healing the surgical wound.	2

DISCUSSION

From the total of 17 structural components, 10 were approved, and seven were modified. The definition was assessed as adequate and pertinent. The criteria Clarity, Precision and Objectivity, reached less than 75% of agreement among specialists. This data point the need to reformulate the proposed definition for refinement of its comprehension, conducted in accordance with the specialists’ suggestions. The specialists’ opinions converged with the changes by the Committee of Diagnostic Development in the edition 2015-2017 of the NANDA-I nursing diagnoses, where the expression “risk” was substituted by “vulnerability” in the definitions of the risk diagnoses[8].

Studies stress out that patients with impaired mobility during postoperative, as well as those who cannot move in the first 24 to 48 hours post-surgery, present longer admission time when compared to those who did not present a restriction[1,3,5]. The main complications resulting from the mobility impairment are deep venous thrombosis, atelectasis and other pulmonary complications[12-13], that can delay the surgical recovery. Thus, there was a unanimous consensus between the assessors to include the risk factor “Difficulty to move”

In the perioperative period, the commonly presented feelings are anxiety, stress, fear of death, social rejection, rejection of the body, insecurity, guilt, mourning, depression,and, a decrease of self-esteem[14]. The experience, the clinical assessment ability, and the nurse’s knowledge are indispensable components for the correct verification of this factor in the clinical practice[2,14]. As well as, to use validated scales for measurement, for example, anxiety and depression, which can help in the diagnostic decision[15].

The specialists analyzed concerning feelings expressed by the patient during the perioperative period as a potential factor for delay in the surgical recovery. However, specialists suggested its reformulation to become clear, adding feelings commonly presented between parentheses.

Patients submitted to extensive surgical procedures can be classified as level 3 and 4 according to the classification from the Centers for Disease Control and Prevention (CDC), these are considered prone to Risk of delay surgical recovery[16]. Major surgeries take time, the patient is under anesthesia for a longer time, and larger tissue or vascular planes are injured[17-18].

Although “prolonged surgical procedure” was considered adequate by the specialists, there was no agreement for the Clarity item. The specialists suggested the establishment of the average time of each surgical

modality. According to the CDC vigilance system, it is considered as a risk factor the duration of the procedure higher than the percentile 75 for each type of surgery[16]. Therefore, they pointed to the need to establish an operational time definition for each surgery.

In the risk factor ASA Classification ≥ 3, there was no agreement regarding its clarity, precision, and objectivity, despite the literature point that patients with ASA classification ≥ 3 have an increased risk for complications[19]. Maybe because the index Class 5 refers to dying patient without life expectancy independently of surgery, and the "Class 6" refers to people with brain death when the organs will be removed for donation, the description of the risk factor as ASA Classification 2 to 4 would make more sense.

"History of delay in the wound healing" was considered a broad and nonspecific risk factor by nine specialists. Despite the divergence found by the specialists' opinion for this component, there was no statistical significance after the analysis. And they suggested that in case of referring specifically to genetic cases, for example, keloid, to specify it in the title of the risk factor[4,17].

The risk factor "use of corticoids and chemotherapeutic" which delay the wound healing was considered consensual between the specialists. These medications inhibit the inflammatory healing phase, delaying the tissue synthesis and pre-disposing to suture dehiscence, as well as, to surgical site infection[4,17].

Similarly, "obesity" was considered adequate in all aspects, because its interpretation is objective (Body Mass Index > 30 Kg/m^2). This factor is broadly associated with intraoperative complications and to postoperative recovery delay[12,20]. Obese individuals are more prone to suture dehiscence and infection at the surgical site, deep venous thrombosis, sleep apnea after sedation and ineffective breathing pattern[12].

The "malnutrition" was consensual because there is clarity that protein deficiency is associated with healing delay of the surgical wound, considering that proteins are needed for tissue regeneration. Still, they have an important role in re-establishing the plasmatic volume and the intraoperative bleeding, as well as, in the composition of immunoglobulins or antibodies, responsible for the defense against infection[2-4,13].

The "Advanced age" constitute another important vulnerability factor for postoperative complications, associated with physiological changes resulting from the aging process[19,21]. Such complications can be associated to risk factors, as the difficulty to move, nutritional deficiency, emotional response, and diabetes mellitus, that can interfere with the recovery time when a surgical procedure is needed[12-13,20]. The specialists assessed as inadequate the precision of this factor, as the age group considered an advanced age was not determined. Studies point out a higher vulnerability in elderly aged 75 years or more, but this age group could be specified in accordance with the life expectancy rate of each country[19,21].

The risk factor "edema or trauma at surgical site", was another item with an agreement proportion lower than 75.0% in precision, clarity, and objectivity, indicating the need of an operational definition to propitiate its detection in uniformity in the clinical practice. Edema and trauma are associated to an increased risk for the infection of the surgical site, once the excess of fluids in the tissues acts as an obstacle to angiogenesis, and it increases the risk of ischemia[16-17].

"Diabetes mellitus" also obtained agreement among specialists, as it constitutes an important risk factor for infection, due to changes in the physiopathology of healing, the vascular and neuropathic complications, and to the inhibiting effects in defense mechanisms, due to a decrease in the leukocyte function[12,21].

As limitations, there was the difficulty in selecting specialists and the delay in response, which considerably increased the time of data collection. Although the discussed risk factors were validated, the suggested changes by specialists were pertinent and helped to refine the diagnostic proposal. Thus, it was expected to have contributed to the development of a useful language to the clinical practice of perioperative nurses, that can contribute to communication that will guarantee a safe and quality assistance[16].

CONCLUSION

The content of the nursing diagnosis Risk for delayed surgical recovery (00246)of the NANDA-I Taxonomy was content validated by specialists that considered it adequate, as well as its insertion in the domain and in the taxonomy class. Suggestions from assessors were included and refined for submission to the Taxonomy. With the conclusion of this study by specialists and the validation of its conceptual definitions, prognostic cohort studies are recommended for clinical validation in surgical patients.

The identification of this diagnosis by the nurse in the perioperative assessment allows prediction of the patient's vulnerability in a individualized manner, allowing the differentiation of patients with Risk of delayed surgical recovery (00246), allowing the planning of perioperative interventions intended to obtain recovery in the expected time, quality in the attention, and patient's satisfaction.

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