



Content validation of the “deficient knowledge” nursing diagnosis*

Validação de conteúdo do diagnóstico de enfermagem conhecimento deficiente

Validación de contenido del diagnóstico de enfermería conocimiento deficiente

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ABSTRACT

Objective: Perform content validation of the defining characteristics of the “deficient knowledge” diagnosis regarding coronary disease and myocardial revascularization. **Methods:** Fehring’s Content Validation Model was used in this research. Fifty nurses took part in the students, all of them experts in Nursing Diagnosis, Cardiology and/or Educational Sciences. **Results:** The defining characteristics considered most important were: verbalization of the problem (0.96), inaccurate performance of test (0.83) and expressing an incorrect perception about one’s health state (0.83). **Conclusion:** The defining characteristic “inappropriate or exaggerated behaviors” (0.34) was considered insufficient to characterize the diagnosis under study. The results of this study can contribute to the adequate application of the studied diagnosis and support clinical validation studies.

Keywords: Validation studies; Nursing diagnosis; Patient education; Nursing diagnosis

RESUMO

Objetivo: Realizar a validação de conteúdo das características definidoras da categoria diagnóstica Conhecimento deficiente em relação à doença coronariana e à revascularização do miocárdio. **Métodos:** Foi utilizado o Modelo de Validação de Conteúdo proposto por Fehring. Participaram do estudo, 50 enfermeiros expertos em diagnóstico de enfermagem e cardiologia e/ou na ciência da educação. **Resultados:** As características definidoras classificadas como principais foram: verbalização do problema (0,96), desempenho inadequado em teste (0,83) e expressar percepção incorreta acerca do seu estado de saúde (0,83). **Conclusão:** A característica definidora comportamentos impróprios ou exagerados (0,34) foi considerada como insuficiente para caracterizar a categoria diagnóstica em estudo. Os resultados deste estudo podem contribuir para a aplicação adequada do diagnóstico estudado e subsidiar estudos para sua validação clínica.

Descritores: Estudos de validação; Diagnóstico de enfermagem; Educação do paciente; Diagnóstico de enfermagem

RESUMEN

Objetivo: Realizar la validación de contenido de las características definitorias de la categoría diagnóstica Conocimiento deficiente en relación a la enfermedad coronaria y a la revascularización del miocardio. **Métodos:** Fue utilizado el Modelo de Validación de Contenido propuesto por Fehring. Participaron del estudio, 50 enfermeros expertos en diagnóstico de enfermería y cardiología y/o en la ciencia de la educación. **Resultados:** Las características definitorias clasificadas como principales fueron: verbalización del problema (0,96), desempeño inadecuado en test (0,83) y expresar percepción incorrecta a cerca de su estado de salud (0,83). **Conclusión:** La característica definitoria comportamientos improprios o exagerados (0,34) fue considerada como insuficiente para caracterizar la categoría diagnóstica en estudio. Los resultados de este estudio pueden contribuir para la aplicación adecuada del diagnóstico estudiado y subsidiar estudios para su validación clínica.

Descriptores: Estudios de validación; Diagnóstico de enfermería; Educación del patient; Diagnóstico de enfermería

* Part of the doctoral dissertation named “Validação do diagnóstico de enfermagem conhecimento deficiente em relação à doença coronariana e à revascularização do miocárdio” (Validation of the ‘deficient knowledge’ nursing diagnosis regarding coronary disease and myocardial revascularization), presented to the Inter-unit doctoral program of Escola de Enfermagem, USP and Escola de Enfermagem de Ribeirão Preto, USP

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INTRODUCTION

Nowadays, the application of the “deficient knowledge” nursing diagnosis has revealed limitations. Clinical research indicates that this diagnosis is being used inadequately, without the adequate identification of defining characteristics⁽¹⁻²⁾.

These defining characteristics are observable signs or symptoms that represent manifestations of a nursing diagnosis⁽³⁾. To identify whether the defining characteristics of a given nursing diagnosis indeed represent the patient’s problem, it is necessary to identify whether these characteristics define the manifestations found in clinical practice through a validation process⁽⁴⁾.

Validating means the act or effect of making something become valid or legitimate, i.e. making something become true, something with proven authenticity⁽⁵⁾. Therefore, validating a nursing diagnosis means making it true, by proving it through the identification of signs and symptoms for a given clinical situation.

Deficient knowledge constitutes a broad and identifiable category in different situations and groups of patients. For some authors⁽⁶⁻⁷⁾, this category does not constitute a nursing diagnosis, i.e. does not constitute a human response, an alteration or a dysfunctional standard, but a related factor that can trigger other problems, such as self-care deficit, anxiety, fear, ineffective health maintenance and ineffective therapeutic regimen management. All these situations make it important to submit this diagnosis to a validation process.

Several studies⁽⁸⁻¹⁷⁾ were found in literature about content validation of different nursing diagnoses. However, it was observed that there are few studies about the “deficient knowledge” diagnosis, most of which were developed in the 1980s^(2,6,18-19).

Considering the importance of identifying the patients’ knowledge deficits in order to prepare hospital discharge and the establishment of an educational plan focused on individual needs, this study was started with the objective of validating the content of the defining characteristics of the “deficient knowledge” diagnosis regarding coronary disease and myocardial revascularization.

METHODS

Fehring’s Diagnostic Content Validation Model⁽²⁰⁾ was used in this study.

A two-part instrument was elaborated for data collection. The first is made up of a form to register the experts’ characterization data, and the second part has a check-list with the defining characteristics of the deficient knowledge diagnosis present in literature^(3,7,18): verbalization of the problem, inaccurate performance of

test, expressing incorrect perceptions about one’s health state, inaccurate follow through of instruction, lack of recall, non-verbal indicators showing low comprehension, repeated questions, expressing psychological alterations and exaggerated or inappropriate behaviors.

In addition to the defining characteristics, operational definitions were built and added to the instrument.

When the operational definitions were built, i.e. when a measurable meaning was attributed to some defining characteristics, the authors observed the need to use specific scales, tests or questionnaires in three out of 11 defining characteristics being studied.

A specific questionnaire was built to define “inaccurate performance of test” defining characteristic, in order to assess the patient’s knowledge about the coronary disease and surgical-anesthetic procedures, named “questionnaire to assess knowledge related to the disease process and indicators contained in the knowledge measurement scale and procedures involved in the treatment”. To build this instrument, the indicators contained in the knowledge measurement scale were used, related to the disease process and the treatment procedures of the Classification of Nursing Results (NOC)⁽²¹⁾. A question was formulated for each indicator in this scale, so that the patients’ knowledge about their disease and the surgery they would undergo could be measured.

For the characteristics expressed psychological alterations and lack of recall, the Hospital Anxiety and Depression Scale – HAD⁽²²⁻²³⁾ and the Mini Mental State Examination (MMSE)⁽²⁴⁾ were used. Both were translated into Portuguese and validated for our culture.

The instrument and operational definitions were submitted to a refining process by six expert nurses, being evaluated for clarity, representativeness and comprehensiveness. Their suggestions were accepted and the adjustments were made.

As suggested during the refining process, the defining characteristics “non-verbal indicators of lack of attention” and “information misinterpretation” were added. Two experts suggested that the patients might show lack of attention because they do not understand or know certain concepts.

As for information misinterpretation, the inclusion of this item as a defining characteristic of the “deficient knowledge” diagnosis, as well as its inclusion in the validation process of diagnosis content can be justified by the importance of information valuation and the motivation to learn or understand information related to the disease and treatment. To define this characteristic operationally, a form had to be built to evaluate the extent to which the patient values information related to the disease and treatment.

No suggestions or restrictions were made about the usage of specific tests, such as MMSE or HAD, to

measure some of the defining characteristics.

Chart 1 presents the defining characteristics, as well as the respective operational definitions submitted to the content validation process.

The content validation instrument contemplates five answer possibilities for each defining characteristic described in Chart 1: This item is extremely characteristic; this item is very characteristic; this item is somewhat characteristic; this item is not very characteristic; this item is not characteristic. The answer possibilities correspond

to the extent to which each clinical evidence (or defining characteristic) characterizes the “deficient knowledge” diagnosis.

When the instrument construction and refining phase were finished, the selection and recruitment of experts to proceed with the content validation of the diagnosis under study was started.

According to Fehring’s recommendation⁽²⁵⁾, 66 nursing diagnosis and/or education science experts were recruited, with a minimum score of five points in the specialist

Chart 1 – Defining characteristics (DC) for the “deficient knowledge” diagnosis about coronary disease and myocardial revascularization and its operational definitions (OD)

DC: verbalization of the problem. OD: patients verbalize lack of knowledge about their health problem (coronary disease), the factors that trigger the disease, the surgical-anesthetic procedures and/or the immediate postoperative period.
DC: inaccurate follow through of instruction. OD: patient verbalizes or demonstrates inaccurate/careless follow through of the information provided by the healthcare team (related to adopted therapy, physical activity, diet restrictions and symptom management); the care provider or family report that the patient does not follow the healthcare team’s orientations accurately (related to adopted therapy, physical activity, diet restrictions and symptom management).
DC: inaccurate performance of test. OD: patient scored 3 points or less on questions about knowledge of coronary disease and/or surgical-anesthetic procedures of the questionnaire for knowledge assessment.
DC: inappropriate or exaggerated behaviors. OD: patient behaves inappropriately for the situation, such as laughing or crying incessantly, screaming, speaking too much.
DC: expressing incorrect perceptions about one’s health state. OD: patients perceive and express faulty, imperfect, inexact knowledge about their health problem, the cause of the disease or the treatment.
DC: non-compliance with the prescribed therapy. OD: patients verbalize or demonstrate not complying with the actions prescribed by the healthcare team to relieve or reduce the symptoms or to heal the disease, regardless of having favorable economic (money to purchase medication and healthy food) and social (help from family and friends) conditions.
DC: lack of integration between the treatment plan and daily activities. OD: patients verbalize or express lack of treatment association and adequacy for their daily activities, regardless of adverse conditions (such as unfavorable socioeconomic conditions).
DC: expressing psychological alterations (anxiety, depression). OD: patient scores 8 or more points on the Hospital Anxiety and Depression Scale.
DC: non-verbal indicators of low comprehension. OD: patients frown, bringing their eyebrows together. Nod affirmatively or negatively, but have a glazed look in their eyes.
DC: lack of recall. OD: patients express or show difficulty to retain information.
DC: repeated questioning. OD: patients repeat the same questions frequently.
DC: non-verbal indicators of lack of attention. OD: patients show lack of attention. Nod affirmatively or negatively, but have a glazed look in their eyes.
DC: information misinterpretation. OD: patients verbalize disregarding or considering information about their disease (coronary disease) and the procedures related to surgery to be irrelevant, based on answers to the Questionnaire for information valuation assessment.

Chart 2 – Experts’ scoring system

Items	Score
- Master in nursing sciences or education sciences	4
- Thesis with relevant content related to cardiology or the teaching-learning process	1
- Articles published about nursing diagnosis or about the teaching-learning process	2
- Articles published in the nursing diagnosis or teaching-learning process area in a reference journal	2
- Doctoral dissertation related to cardiology or the teaching-learning process	2
- Clinical experience in the cardiology area for at least one year	1
- Specialization in cardiology or educational sciences.	2

Adapted from Jesus CAC. Clinical reasoning from nursing and nursing students in the construction of nursing diagnosis. [Dissertation]. Ribeirão Preto, Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2000.

scoring system, adapted from Fehring^(20,26) and used by Jesus⁽²⁷⁾ (Chart 2).

Information about the professionals recruited for the study was obtained from the Lattes Curriculum, available on the Lattes platform in the portal of the National Council for Scientific and Technological Development – *Conselho Nacional de Desenvolvimento Científico e Tecnológico*⁽²⁸⁾.

After the experts were recruited, they were invited to participate in the study through the Internet. After an affirmative answer, the experts were mailed the following materials: two copies of the term of consent, an identification form to be filled out with the nurse's personal and professional data and bibliographic production, a self-addressed stamped return envelope for the experts to mail the material back to the authors and the instrument for content validation.

The expert nurses who accepted to take part in the study were instructed to indicate the extent to which each defining characteristic would represent the diagnosis in question.

In line with the methodological reference framework⁽²⁰⁾, a specific weight was attributed to each answer option, these being: extremely characteristic = 1; very characteristic = 0.75; somewhat characteristic = 0.5; not very characteristic = 0.25; not characteristic = 0.

With the scores obtained for each defining characteristic, the weighted average was calculated for each piece of evidence. Next, clinical evidence with weights over 0.80 was classified as main defining characteristic; those with weights between 0.50 and 0.79 were classified as secondary defining characteristics and those with average weight equal to or lower than 0.50 were deemed irrelevant⁽²⁰⁾.

The total diagnostic content validation (DCV) score was calculated from the sum of the weighted average values and divided by the total number of defining characteristics⁽²⁶⁾.

Statistical analysis (frequency distributions, central tendency and variability measurements, as well as association measurements) was performed with Statistical Package for Social Sciences (SPSS) software, v. 15.

RESULTS

Out of 66 professionals, 50 agreed to participate in

the study, with 48 (96.0%) being female and two (4.0%) male.

The data regarding the experts' age, **clinical practice experience**, **experiences of implementation or use of nursing diagnoses** and the total score obtained in the specialist scoring system (27) are shown in Table 1.

About the experts' education and titles, it should be noted that 11 (22.0%) had a specialization degree, 47 (94.0%) a master's and 30 (60.0%) a doctoral degree, five (10.0%) were free lecturers, two (4.0%) were full professors, one (2.0%) was studying for a master's and six (12.0%) for a doctoral degree.

The distribution of the professionals according to the score obtained in the specialist scoring system⁽²⁷⁾ is presented next. (Table 2)

Table 2 – scores of the experts who took part in the diagnostic content validation process. São Paulo, 2006

Score	n	%
5 to 7 points	8	16
8 to 10 points	6	12
11 to 13 points	20	40
14 points	16	32
Total	50	100

According to Table 2, most professionals scored over 10 points in the proposed system to be included in the expert roster. It can also be noted that 16 experts (32.0%) had the maximum score and 20 (40.0%) had scores between 11 and 13 points.

The experts' titles and information about their bibliographic production is presented in Table 3.

It can be observed in Table 3 that most experts had articles published about nursing diagnosis or about the teaching-learning process.

The weighted average obtained from the experts' evaluations is presented next, according to the methodological reference framework adopted for the study.

In table 4, it can be observed that, out of the four defining characteristics presented by NANDA-I⁽³⁾, two had weighted averages over 0.80 (0.96 and 0.83); one between 0.50 and 0.79, and the other lower than 0.50 (0.34).

Table 1 – Experts' characterization data. São Paulo, 2006

Experts' data	Average	Median	Standard deviation	Maximum value	Minimum value
Age	42	42	9.71	62	24
Clinical practice experience (in years)	18	20	9.77	40	2
Experiences of implementation or use of nursing diagnoses (in years)	10	9.5	5.64	24	2
Total	11	12	2.64	14	5

Table 3 – Titles and information about the experts’ bibliographic production. São Paulo, 2006

Items	n	%
- Clinical experience in the cardiology area for at least one year	49	98
- Master in nursing sciences or education sciences	47	94
- Articles published about nursing diagnosis or about the teaching-learning process	44	88
- Articles published in the nursing diagnosis or teaching-learning process area in a reference journal	44	88
- Specialization in cardiology or education sciences	40	80
- Thesis related to cardiology or the teaching-learning process	29	58
- Doctoral dissertation related to cardiology or the teaching-learning process	23	46

Table 4 – Defining characteristics of the “deficient knowledge” diagnosis related to coronary disease and myocardial revascularization. São Paulo, 2006

Defining characteristics	Values		Weighted average	Standard deviation
	Min.	Max.		
Verbalization of the problem*	0.50	1	0.96	0.12
Inaccurate performance of test*	0.50	1	0.83	0.17
Expressing incorrect perceptions about one’s health state.	-	1	0.83	0.22
Inadequate compliance with instructions*	-	1	0.71	0.27
Lack of recall.	-	1	0.71	0.27
Non-verbal indicators of low comprehension	-	1	0.69	0.27
Repeated questioning	-	1	0.68	0.27
Information misinterpretation	-	1	0.64	0.29
Non-compliance with the prescribed therapy	-	1	0.56	0.27
Non-verbal indicators of lack of attention	-	1	0.56	0.27
Lack of integration between the treatment plan and daily activities	-	1	0.53	0.31
Expressing psychological alterations (anxiety, depression)	-	1	0.51	0.31
Inappropriate or exaggerated behaviors *	-	0.75	0.34	0.24

* Defining characteristics presented by NANDA – I 2006 ⁽³⁾

DISCUSSION

Although Fehring⁽²⁶⁾ used the terminology “major and minor defining characteristics” in his model, these terms were not used because they do not belong to NANDA-I’s Taxonomy II⁽³⁾. Therefore, the defining characteristics known as major were named as main characteristics in this study, and the minor defining characteristics were named secondary characteristics. By main (or major) defining characteristics, it is understood that these characteristics must be present for the diagnostic validation, i.e., to affirm that the diagnosis really exists. Secondary (or minor) defining characteristics are defined as those that provide secondary evidence supporting the diagnosis. This means that the identification of minor defining characteristics alone does not guarantee the existence of the diagnosis⁽⁷⁾.

In table 4, it can be seen that, out of 13 characteristics of the deficient knowledge diagnosis, three have average values over 0.80 and are therefore considered main defining characteristics. These are: verbalization of the problem (0.96), inaccurate performance of test (0.83) and expressing incorrect perceptions about one’s health state (0.83). It is important to highlight that, during the validation process for these characteristics, two experts argued about

the need to consider these three characteristics, since verbalization of the problem and inaccurate performance of test already indicate or demonstrate an incorrect perception about the health status.

The experts questioned the need to maintain the characteristic “expressing incorrect perceptions about one’s health state”, since it overlaps verbalization of the problem and inaccurate performance of test. It is observed that the average value identified for the characteristic “inaccurate performance of test” was the same for the characteristic “expressing incorrect perceptions about one’s health state”, which may suggest that other experts also share the idea that the patient may express deficient or faulty knowledge in two ways: by verbalizing or by performing inaccurately on specific knowledge measurement tests. Therefore, it can be inferred that the defining characteristic “expressing incorrect perceptions about one’s health state” is actually unnecessary.

No studies, either national or international, were identified in literature to validate the “deficient knowledge” nursing diagnosis content. Two studies⁽¹⁸⁻¹⁹⁾ could be identified which performed the clinical validation of the aforementioned diagnosis, i.e., which identified the defining characteristics of the studied diagnosis in a real clinical environment. In one of these studies, the most

frequently identified diagnostic characteristic was verbally demonstrating inadequate knowledge⁽¹⁹⁾.

In Table 4, it is observed that the defining characteristics “inaccurate follow through of instruction”, “lack of recall”, “non-verbal indicators of low comprehension”, “repeated questioning”, “information misinterpretation”, “non-verbal indicators of lack of attention”, “lack of integration between the treatment plan and daily activities”, “non-compliance with the prescribed therapy” and “expressing psychological alterations (anxiety, depression)” were classified as secondary, since they have weighted averages between 0.50 and 0.79

Lack of recall, which scored a weighted average of 0.71 and was therefore considered a secondary characteristic, should always be investigated, since the detection of occasional cognitive losses can interfere directly in the patients’ ability to know their disease and the therapy they must undergo.

Table 4 shows that the defining characteristics “non-verbal indicators of lack of attention” and “information misinterpretation”, added to the data collection instrument submitted to the content validation process as suggested by two experts, had significant average values (0.69 and 0.64, respectively).

It is known that the patients’ motivation to learn is an important characteristic for successful learning. This motivation can be measured by investigating information valued by the patient, i.e., investigating the quantity and type of information related to the disease and treatment which the patient considers important. This demonstrates the relevance of information misinterpretation as a defining characteristic of insufficient knowledge.

Although the defining characteristic “expressing psychological alterations (anxiety, depression)” scored the lowest weighted average (second to “improper or exaggerated behaviors”), as shown in Table 4, it will be discussed because it is usually related to the process of disease and hospitalization, and because it interferes negatively in the patient’s motivation to learn.

According to literature, some cardiovascular diseases are directly associated to anxiety and mood disorders⁽²⁹⁾. Thus, nurses should assess the occurrence of these psychological alterations and measure them whenever possible.

Anxiety, in addition to being a defining characteristic of deficient knowledge, also constitutes a nursing diagnosis, defined by NANDA-I⁽³⁾ as a feeling of discomfort and apprehension, often mistaken with fear,

followed by autonomic responses caused by situations perceived as threats. The patients with doubts about the surgery and the type of anesthesia they will have to undergo can have high levels of anxiety. The nursing process for surgical patients is essential to reduce this anxiety.

Anxiety and depression can influence the process of acceptance and knowledge about the disease, as well as compliance with the therapy prescribed by the healthcare team. Besides, these disorders can interfere in the individual’s ability to receive and store information about the disease and its treatment.

Table 4 shows that, according to the expert evaluation, the characteristic “inappropriate or exaggerated behaviors”, presented by NANDA-I⁽³⁾, was considered insufficient to indicate or characterize deficient knowledge regarding the disease and its treatment^(20,26).

According to the methodological framework used^(20,26), a total content validation score (DCV) was calculated, resulting in 0.66. As stated before, this score was obtained by adding up the weighted averages together and dividing the result by the total amount of defining characteristics. Fehring⁽²⁶⁾ considers that an adequate DCV value should be over 0.60.

The results of this study can contribute to the adequate application of the “deficient knowledge” diagnosis and support studies about patient education.

CONCLUSION

With the results, it could be concluded that:

- the defining characteristics of the “deficient knowledge” diagnosis classified as main characteristics were: “verbalization of the problem”, “inaccurate performance of test” and “expressing incorrect perceptions about one’s health state”;
- the defining characteristics of the “deficient knowledge” diagnosis classified as secondary characteristics were: “inaccurate follow through of instruction”, “lack of recall”, “non-verbal indicators of low comprehension”, “repeated questioning”, “information misinterpretation”, “non-verbal indicators of lack of attention”, “lack of integration between the treatment plan and daily activities”, “non-compliance with the prescribed therapy” and “expressing psychological alterations (anxiety, depression)”.
- the defining characteristic “inappropriate or exaggerated behaviors” was considered insufficient to characterize the investigated diagnosis.

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