Content validation of the nursing diagnosis
Risk for disturbed maternal-fetal dyad*

Validação de conteúdo do diagnóstico de enfermagem Risco de binômio mãe-feto perturbado
Validación del contenido del diagnóstico de enfermería Riesgo del binomio madre-feto perturbado

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ABSTRACT
Objective: To validate the content of the diagnosis Risk for disturbed maternal-fetal dyad in high-risk pregnant women. Method: Nursing diagnosis content analysis study in which 48 nurses evaluated agreement regarding title, definition, class, and domain of the studied nursing diagnosis, as well as the relevance of its antecedents. The items were considered relevant when the Confidence Interval of the Content Validity Index was 0.8 or higher. When lower, the item was modified or excluded according to the experts' suggestions. Results: Out of 21 antecedents, 14 were considered relevant. The labels of five elements considered irrelevant were changed, and one item was excluded. The experts did not choose the title and definition proposed by NANDA-I, preferring instead the ones suggested in this study. The experts agreed with the class and domain proposed by the taxonomy. Conclusion: Ten risk factors, four populations at risk, and six associated conditions for this nursing diagnosis were maintained; these may provide a basis for nursing practice. The phase of clinical validation is suggested to be conducted to corroborate this study’s results.

DESCRIPTORS
Nursing Diagnosis; Pregnancy, High-Risk; Maternal-Child Nursing; Validation Study.

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INTRODUCTION

The maternal-fetal dyad is characterized by symbiosis and the maternal-fetal bond. To promote its safety, early detection of high-risk pregnancies is required. Such pregnancies are characterized by maternal-fetal complications due to the pregnant woman’s pathologies or aggravated pre-existing clinical conditions. Early identification aims at preventing possible pregnancy complications, which are responsible for maternal and perinatal morbimortality.

When the possible interruption or rupture of this relationship and/or bond occurs, the dyad may be compromised both physiologically and in their affective-emotional interactions. These may include, for example, compromised placenta and mothers’ emotions, respectively. Thus, the multiprofessional team, and especially the nurse, plays the role of promoting health assistance in favorable conditions both to mothers and fetuses, from conception to birth, to promote the dyad’s well-being and integrity. Also, the team must perform interventions to reduce risk of maternal and fetal intercurrences.

When pregnant women have higher chances of presenting intercurrences which impact the maternal-fetal dyad, health professionals must be alert to its repercussions to mother and conceptus. The most common intercurrences in high-risk pregnancies are spontaneous abortion – of which there are 1.4 million cases per year in Brazil (10 abortions in every 23 pregnancies) – and prematurity, which applies to 11.8% of pregnancies in Brazil.

By considering these intercurrences, in clinical practice, for example, nurses may identify the Nursing Diagnoses (ND) that best represent human response or vulnerability to such response. However, professionals often face challenges regarding clinical judgment and identification of items in ND. Standardized language is thus required to favor nurses’ critical thinking and decision making, contributing to more precise judgments. Standardization is achieved with nursing taxonomies to be possibly improved through ND validation studies.

Validating a nursing diagnosis means making it valid and proving it through clinical indicators of a certain event or clinical condition. The following phases are required to validate a ND: concept analysis, content analysis by experts, and analysis of the accuracy of clinical indicators. In the phase content analysis by experts, this study’s focus, professionals analyzed material from the previous phase to verify the relevance of the clinical indicators for ND Risk for disturbed maternal-fetal dyad, which is registered in NANDA-I’s taxonomy since 2008.

Such ND is defined in NANDA-I Taxonomy as “vulnerable to disruption of the symbiotic maternal-fetal dyad as a result of comorbid or pregnancy-related conditions, which may compromise health.” Nurses providing care in a context of high-risk pregnancy may find difficulties to identify this ND and propose nursing interventions. Also, in the literature, an absence of studies on the diagnosis Risk for disturbed maternal-fetal dyad is observed.

In face of the exposed problem, the importance of validating the content of this ND is considered, since this diagnosis is relevant to nurses specializing in obstetrics and/or women’s health. This ND’s risk factors, which are included in the taxonomy (substance abuse, inappropriate prenatal care, and abuse) are believed not to encompass all the biopsychosocial dimensions in the context of a high-risk pregnancy. Also, the title and definition are not consistent with pregnancy risk. This study will thus contribute with term precision and uniformity. Therefore, the objective of this study was validating the content of the nursing diagnosis Risk for disturbed maternal-fetal dyad in high-risk pregnant women.

METHOD

STUDY DESIGN

Study for validating the nursing diagnosis Risk for disturbed maternal-fetal dyad, conducted from April to May 2019. This is an expert validation phase, in which a model known as The Wisdom of Crowds was employed. In such model, the experts’ collective opinion presents a better estimate than the opinion of a single expert.

POPULATION

The study population was composed of nurses who had academic and/or practical experience in nursing diagnosis and/or obstetrics and/or women’s health.

SELECTION CRITERIA

Expert selection was conducted through Plataforma Lattes on the website of the National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq) with keywords “nursing diagnosis”, “obstetrics” and/or “women’s health”. Snowball Sampling, in which experts refer to one another, was also applied.

The evaluators’ expertise level was defined by their academic and practical experience in nursing diagnosis, obstetrics and/or women’s health. Reference for classification included five expertise levels: novice, advanced beginner, competent, proficient, and expert. For expert selection, practical experience (time of practice and time in a research group) and academic experience (title, theme of title work, and scientific production) were considered. Scores adapted from a nursing diagnosis validation study were attributed to these items, as shown in Chart 1.

The arithmetic mean of practice time, time in a research group, another, was also applied.

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The arithmetic mean of practice time, time in a research group, and scientific knowledge established the expertise level. The following were then obtained: (1=novice), (2=advanced beginner), (3=competent), (4=proficient), and (5=expert). Means with decimals above five were rounded to the subsequent expertise level.
**Chart 1** – Classification of judges – Recife, PE, Brazil, 2019.

| Score | Practical Experience | Academic Experience |
|-------|----------------------|---------------------|
|       | Practice time (years) (X) | Time in Research Group (years) (Y) | Scientific Knowledge (Z) |
|       | | | Title (Z1) | Title work (Z2) | Scientific Production (Z3) |
| 0 | - | - | Graduate | No | No |
| 1 | 0-7 | 0-3 | Specialist | Yes | Yes |
| 2 | 8-14 | 4-6 | Master | - | - |
| 3 | 15-21 | 7-9 | Doctor | - | - |
| 4 | 22-28 | 10-12 | - | - | - |
| 5 | 29-35 | 13-15 | - | - | - |

Source: Diniz CM. Validação de Conteúdo do diagnóstico de enfermagem Padrão ineficaz de alimentação do lactente [dissertation]. Fortaleza: Universidade Federal do Ceará; 2017.

**Variables was conducted, and the Shapiro-Wilk test was applied to verify normality.**

The CVI was calculated through the predictive diversity model, in which the judges’ evaluation was assigned a weight according to their expertise level. The weighted median of the evaluations was calculated due to identification of abnormality. Also, their respective 95% Confidence Intervals (CI), whose reference CI value for CVI was ≥ 0.8, were presented. When the CVI median and the CI were < 0.8, the items were reviewed after the experts’ suggestions or were excluded.

The CVI adopted for this study was ≥ 0.8, which corresponds to the null hypothesis reference value and is the minimum standard to consider the diagnosis components as valid, based on a publication by the Program for Update in Nursing Diagnosis (Programa de Atualização em Diagnósticos de Enfermagem – PRONANDA). Also, the literature shows that CVI with a smaller value may compromise the performance of the study and its later phase (clinical validation).

**Ethical aspects**

This research abided by Resolution nº 466/2012, by the National Health Council and was approved by the Research Ethics Committee of the responsible institution, according to Opinion n. 3.198.725/18. All participants have signed the Informed Consent Form (ICF).

**Results**

Initially, 102 nurses were invited to participate in this study, 56 of which accepted to participate. Eight of these did not answer to the data collection instruments. Therefore, sample comprised 48 nurses.

In Table 1, most experts are observed to be female, working in the northeast region, with a title of master, and classified in the second expertise level: Advanced beginner.
Table 1 – Profile of the experts who participated in the content validation of nursing diagnosis Risk for disturbed maternal-fetal dyad – Recife, PE, Brazil, 2019.

| Variables       | n   | %   |
|-----------------|-----|-----|
| Gender          |     |     |
| Female          | 43  | 89.60|
| Male            | 5   | 10.40|
| Work region     |     |     |
| Northeast       | 19  | 39.60|
| Southeast       | 14  | 29.20|
| South           | 6   | 12.50|
| North           | 5   | 10.40|
| Center-west     | 4   | 8.30 |
| Title           |     |     |
| Master          | 25  | 52.10|
| Doctor          | 12  | 25.00|
| Specialist      | 11  | 22.90|
| Expert          |     |     |
| Advanced beginner | 31 | 64.60|
| Competent       | 12  | 25.00|
| Proficient      | 4   | 8.30 |
| Expert          | 1   | 2.10 |

Table 2 shows the analysis regarding agreement of the elements of the ND Risk for disturbed maternal-fetal dyad, i.e., title, definition, class, and domain.

Most experts are observed to agree with the first title suggested for the studied ND, that is: “Risk for damaged maternal-fetal dyad”. No expert agreed with the title established by the NANDA-I Taxonomy(5) “Risk for disturbed maternal-fetal dyad”; other 19 experts opted for the second suggested title; “Risk for damaged maternal-fetal binomial”.

Table 3 shows the experts’ analysis regarding the relevance of the elements of the ND.

Regarding the ND definition, most experts opted for the one suggested in this study: “Vulnerable to disruption of the symbiotic maternal-fetal dyad affecting physiological exchange and affective-emotional interactions during the pregnancy period”. However, the experts agreed to add the phrase “as a result of comorbid or pregnancy-related conditions”, which is in the taxonomy definition, to emphasize the susceptibility of the maternal-fetal dyad.

## Table 1 – Profile of the experts who participated in the content validation of nursing diagnosis Risk for disturbed maternal-fetal dyad – Recife, PE, Brazil, 2019.

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| Competent       | 12  | 25.00|
| Proficient      | 4   | 8.30 |
| Expert          | 1   | 2.10 |

Table 2 – Analysis of title, definition, class, and domain of the ND Risk for disturbed maternal-fetal dyad – Recife, PE, Brazil, 2019.

| Variables       | N   | %   |
|-----------------|-----|-----|
| Title           |     |     |
| 1. Risk for damaged maternal-fetal dyad | 29 | 60.40|
| 2. Risk for damaged maternal-fetal binomial | 19 | 39.60|
| 3. Risk for disturbed maternal-fetal dyad | 0  | 0.00|
| Definition      |     |     |
| 1. Vulnerable to disruption of the symbiotic maternal-fetal dyad affecting physiological exchange and affective-emotional interactions during the pregnancy period | 41 | 85.40|
| 2. Vulnerable to disruption of the symbiotic maternal-fetal dyad as a result of comorbid or pregnancy-related conditions, which may compromise health | 7  | 14.60|
| Reproduction Class | 37  | 77.10 |
| Sexuality Domain | 30  | 62.50 |

Regarding the ND definition, most experts opted for the one suggested in this study: “Vulnerable to disruption of the symbiotic maternal-fetal dyad affecting physiological exchange and affective-emotional interactions during the pregnancy period”. However, the experts agreed to add the phrase “as a result of comorbid or pregnancy-related conditions”, which is in the taxonomy definition, to emphasize the susceptibility of the maternal-fetal dyad.

Table 3 shows that, out of the 10 established risk factors, seven were considered relevant by the experts: Alcohol abuse; Use of illicit drugs; Absent/inadequate prenatal care; Smoking; Absent/insufficient social support; Absent/insufficient prenatal care; Absent/inadequate partner support; Absent/insufficient social support.
insufficient partner support and Violence. Three items were not considered relevant, since the median and the CI of their CVI were smaller than 0.8, namely: Low weight gain during pregnancy; Obesity, and Overweight.

Regarding populations at risk, only one was considered relevant: Pre-eclampsia in previous pregnancy. Also, because of CVI CI < 0.8, four populations at risk are noticed not to be considered relevant (Maternal age, Economically disadvantaged, Unplanned pregnancy, and Low education level).

All associated conditions were considered relevant, namely: Pregnancy complication, Compromised fetal oxygen transport, Maternal diseases, Alteration in glucose metabolism, Treatment regimen, and Maternal conditions.

DISCUSSION

The second expertise level, Advanced beginner, was particularly present in this study. This level is characterized by specialist use of both objective facts and comparatively improved conceptions in the process of judgment. Also, these experts can recognize the ND elements instinctively and use situational skills, which favor decision-making.

In this study, only one expert was classified as in the last expertise level, i.e., experts, characterized as confident of their own abilities and intuitions. However, this does not interfere in this study’s results since the model adopted for this research – The Wisdom of Crowds – consists of considering as the best estimate the opinions of various experts rather than one. Participant evaluation was also assigned a weight according to their expertise level.

Evaluations of the following elements of the ND Risk for disturbed maternal-fetal dyad were established: title, definition, class, domain, risk factors, populations at risk, and associated conditions. According to NANDA-I Taxonomy, these elements should be reviewed so that the nurse can accurately identify the ND and consequently efficiently interfere in people’s health care.

The ND title must have two axes: focus and judgment. Three options were given for experts to evaluate; one of them was established by NANDA-I taxonomy, “Risk for disturbed maternal-fetal dyad”; and the other two, for clarity: “Risk for damaged maternal-fetal dyad” and “Risk for damaged maternal-fetal binomial”.

One emphasizes that the difference between the terms “disturbed” and “damaged” was not explained to the experts. Even so, no expert agreed with the title established by NANDA-I. This is because the judgment “disturbed” adds inconsistency to the diagnosis label. Most experts (60.40%) hence opted for the title “Risk for damaged maternal-fetal dyad”; since the judgment “damaged” makes the label more understandable.

The diagnosis definition suggested in this study was more well-accepted than the one established by the NANDA-I Taxonomy. The NANDA-I definition was also observed not to deal with the interference of psychosocial aspects in the affective-emotional interaction during the pregnancy period. This is because the taxonomy’s definition focuses only on the physiological aspects and does not consider the pregnant woman’s context. However, these aspects are known to provoke risk pregnancies.

Although the experts agreed with one of the definitions suggested for the ND, there were suggestions to improve it. The definition was thus: “Vulnerable to disruption of the symbiotic maternal-fetal dyad affecting physiological exchange and affective-emotional interactions during the pregnancy period as a result of comorbid or pregnancy-related conditions”.

Most experts agreed with the class and domain of the studied diagnosis established by NANDA-I: Reproduction and Sexuality, respectively. According to the taxonomy, these elements are used to classify ND and group them, in case they have characteristics in common, with the objective of facilitating diagnosis location. The studied ND is thus considered to be well-classified in the taxonomy.

When identifying risk factors, populations at risk, and conditions associated to the ND in the concept analysis, a previous phase in this study, it was necessary to check these items’ relevance with the experts. The NANDA-I Taxonomy is emphasized not to include elements focused on biopsychosocial aspects. Thus, regarding risk factors, it was observed that, out of seven items considered relevant, three are included in the NANDA-I taxonomy, but with different names: Alcohol abuse, Absent/inadequate prenatal care, and Violence. Another item considered relevant, but which is also not in the taxonomy, is Use of illicit drugs, related to the etiology of prematurity and aggravation of women’s physical health and psychosocial well-being, possibly compromising pregnancy outcome and leading to abortion. In Brazil, the prevalence of the use of these drugs during pregnancy in 2016 was 1.45%.

Items which were not considered relevant are also not included in NANDA-I: Low weight gain during pregnancy, Overweight, and Obesity. However, its label was changed according to the experts’ suggestions.

Then, the label of item Low weight gain during pregnancy (CI of CVI < 0.8) became Unsatisfactory weight gain during pregnancy, which contributes with perinatal morbimortality and may be found in 20% of high-risk pregnancies in Brazil. Pregnant women, when presenting low weight gain during pregnancy, are emphasized to have an increased risk for prematurity, spontaneous abortion, and fetal growth restriction.

The item Smoking was considered relevant by the experts. Tobacco use is known to be harmful to the maternal-fetal dyad’s health, since it is associated to prematurity, low weight at birth, abortion, and problems in fetal neurological development. In Brazil, smoking pregnant women were estimated to be 9.14% in 2016.

The items Absent/insufficient partner support and Absent/insufficient social support were also considered relevant. During pregnancy, partner and social support are crucial to manage both biological and psychosocial aspects which make pregnant women more vulnerable to pregnancy risks, specially depression, which has a 20% incidence in pregnancies in developing countries.
Método: para fortalecer os resultados deste estudo. 

Six conditions associated for the DE, which may subsidize the practice of the nurse. It is thus necessary to test these items in a clinical context. Also, 23% of high-risk pregnancies in Brazil occur in obese women. 

None of the populations at risk are included in the NANDA-I Taxonomy. Four of them were not considered relevant (CI of CVI < 0.8). The item Pre-eclampsia in previous pregnancy was the only item considered relevant by the experts (CI of CVI > 0.8).

Regarding other items not considered relevant, the experts suggested that the label “Unplanned pregnancy” should be changed to “Undesired pregnancy”. However, for this study, this suggestion was not accepted, because, according to the literature, these two phenomena are different. Unplanned pregnancies are characterized as not programmed by the woman and her partner, while not necessarily provoking risks for the maternal-fetal dyad; undesired pregnancies happen against the woman’s will and are a consequence or not of lack of planning, while possibly putting mother and fetus at risk due to compromised affective-emotional interactions which may interfere in the maternal-fetal relation and/or bond. This item was thus excluded from this study.

There were also suggestions of modifying the label Advanced maternal age to Extreme maternal age. These suggestions were based on the high rates of pregnancy risk. In Brazil, for example, the prevalence of pregnant women in extreme ages varies from 20% to 36% and the most common clinical implications for pregnant teenagers or pregnant women 35 or older were spontaneous abortion and perinatal mortality.

Regarding the items Low education level and Economically disadvantaged, the suggestions were including in both the term “pregnant”, to specify the population at risk. The adopted labels were thus Pregnant women with low education level and Economically disadvantaged pregnant women. Low education level and low purchase power, present in 22% of pregnancies, were factors which made pregnant women vulnerable to higher risk pregnancy, which harms, for example, the nutritional state of the pregnant woman and fetus and may have repercussions for the pregnancy outcome.

All six associated conditions were considered relevant for the studied ND. Four of these were on NANDA-I: Pregnancy complication, Alteration in glucose metabolism, Treatment regimen, and Compromised fetal oxygen transport. All these conditions are emphasized to possibly pose risk for the maternal-fetal dyad and its morbimortality.

Research limitations include the fact that some nurses who participated in this study did not use or had never used the nursing diagnosis Risk for disturbed maternal-fetal dyad in their professional practice (care or teaching). However, most experts who participated in this study had experience in obstetrics and/or women’s health and contributed to validating the content of the study diagnosis.

This study is expected to contribute with advances to the nursing area, specially to obstetric nursing and women’s health, since it was also possible to identify gaps in this study’s diagnosis. It is also expected to provide a basis for updating the taxonomy to facilitate the identification of the studied nursing diagnosis.

CONCLUSION

This study has provided an analysis of the elements of the nursing diagnosis Risk for disturbed maternal-fetal dyad: title, definition, class, domain, risk factors, populations at risk, and associated conditions. The analysis was conducted by experts with different expertise levels, who corroborated the findings from the concept analysis phase.

It was possible to review the title and definition of the study diagnosis from the experts’ analysis. Also, seven risk factors, one population at risk, and six associated conditions were considered relevant. This aimed at providing consistency to the elements’ labels and filling gaps in the NANDA-I Taxonomy.

Labels of elements presenting median and CI of the CVI < 0.8 were modified: one risk factor (Low weight gain during pregnancy) and three populations at risk (Advanced maternal age, Low education level, Economically disadvantaged). Only the item Unplanned pregnancy (population at risk) was excluded from this study. These totaled thus ten risk factors, four populations at risk, and six conditions associated to the study diagnosis. This study’s findings are thus expected to offer a basis for the care practice of nurses. The conduction of other studies to increment and corroborate these findings is suggested.
DESCRIPTORES
Diagnóstico de Enfermagem; Gravidez de Alto Risco; Enfermagem Materno-Infantil; Estudo de Validação.

RESUMEN
Objetivo: Validar el contenido del diagnóstico de enfermería Riesgo del binomio madre-feto perturbado en mujeres embarazadas de alto riesgo. Método: Estudio de análisis del contenido de los diagnósticos de enfermería en el que 48 enfermeras evaluaron la concordancia del título, la definición, la clase y el dominio del diagnóstico de enfermería estudiado, así como la relevancia de sus antecedentes. El elemento se consideró pertinente cuando el Intervalo de Confianza del Índice de Validez del Contenido era mayor o igual a 0.8. Para valores más pequeños, el elemento fue modificado o excluido según las sugerencias de los especialistas. Resultados: De los 21 antecedentes, 14 se consideraron pertinentes. Se modificaron las etiquetas de cinco elementos considerados no pertinentes y un elemento fue excluido. Además, los expertos no eligieron el título y la definición propuestos por NANDA-I, sino los que se sugirieron en este estudio. Los expertos estuvieron de acuerdo con la clase y el dominio propuestos por la taxonomía. Conclusión: Quedaron 10 factores de riesgo, cuatro poblaciones de riesgo y seis condiciones asociadas al diagnóstico de enfermería, que pueden subvencionar la práctica de los enfermeros. Se sugiere realizar la etapa de validación clínica para reforzar los resultados de este estudio.

DESCRIPTORES
Diagnóstico de Enfermería; Embarazo de Alto Riesgo; Enfermería Maternoinfantil; Estudio de Validación.

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