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ORIGINALES

Content validity of the nursing diagnosis proposal Ocular dryness in adult patients admitted to the intensive care unit

Validade de conteúdo da proposta do diagnóstico de enfermagem Ressecamento ocular em pacientes adultos internados em unidade de terapia intensiva

Validez de contenido de la propuesta del diagnóstico de enfermería Sequedad ocular en pacientes adultos internados en la Unidad de Cuidados Intensivos

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ABSTRACT:

Objective: to verify the content validity of the nursing diagnosis proposal Ocular dryness in adult patients admitted to an intensive care unit.

Materials and methods: this is a methodological study of content validation of the nursing diagnosis proposal Ocular dryness, operationalized through a focus group. The selection of specialists took into account the clinical and/or academic experience in the area of nursing diagnoses and/or ocular dryness and/or dry eye and/or ocular health, as well as the time of performance with the theme. Thirteen nurses who met the criteria described above were invited, of whom 10 agreed to participate. The validation approach was by consensus. Data were analyzed using descriptive statistics, level of expertise and analysis of diagnostic elements.

Results: after the final consensus of the nurse judges in relation to the diagnostic elements, a proposal of the diagnosis Ocular dryness was defined based on the validity of content with a new definition, 14 defining characteristics, 9 related factors, 2 populations at risk and 20 associated conditions. In addition, after judging the coherence of the elements in relation to the diagnostic structure, the judges issued the consensus in relation to the conceptual and operational definitions.

Conclusions: the study allowed verifying the validity of the content by judges of the nursing diagnosis proposal Ocular dryness in patients in intensive care units, which favors the diagnostic reasoning of nurses and the planning of effective interventions related to this diagnosis, allowing the management of the patients in order to provide ocular integrity.

Keywords: Nursing Diagnosis; Validation Studies; Dryness; Eye Health; Intensive Care Units.

RESUMO:

Objetivo: Verificar a validade de conteúdo da proposição diagnóstica de enfermagem Ressecamento ocular em pacientes adultos internados em Unidade de Terapia Intensiva.

Materiais e métodos: Trata-se de um estudo metodológico de validação de conteúdo da proposição diagnóstica de enfermagem Ressecamento ocular, operacionalizado mediante grupo focal. A seleção dos especialistas levou em consideração a experiência clínica e/ou acadêmica na área de diagnósticos de enfermagem e/ou ressecamento ocular e/ou olho seco e/ou saúde ocular, bem como o tempo de atuação na temática. Foram convidados 13 enfermeiros que se enquadravam nos critérios acima descritos, dos quais 10 aceitaram participar. A abordagem de validação foi por consenso. Os dados foram analisados mediante estatística descritiva, nível de expertise e análise dos elementos diagnósticos.

Resultados: Após o consenso final dos enfermeiros juízes em relação aos elementos diagnósticos, foi definida uma proposta do diagnóstico Ressecamento ocular a partir da validade de conteúdo com nova definição, 14 características definidoras, 9 fatores relacionados, 2 populações em risco e 20 condições associadas. Após julgar a coerência dos elementos em relação a estrutura diagnóstica, os juízes emitiram o consenso sobre as definições conceituais e operacionais.

Conclusões: O estudo permitiu verificar a validade do conteúdo por juízes da proposição diagnóstica de enfermagem Ressecamento ocular em pacientes em unidades de terapia intensiva, o que favorece o raciocínio diagnóstico do enfermeiro e o planejamento de intervenções efetivas relacionadas a esse diagnóstico, permitindo o manejo do paciente de maneira a proporcionar a integridade ocular.

Palavras-chave: Diagnóstico de Enfermagem; Estudos de Validação; Ressecamento; Saúde Ocular; Unidades de Terapia Intensiva.

RESUMEN:

Objetivo: Verificar la validez de contenido de la propuesta del diagnóstico de enfermería “Sequedad ocular” en pacientes adultos internados en una Unidad de Cuidados Intensivos.

Materiales y métodos: Se trata de un estudio metodológico de validación de contenido de la propuesta del diagnóstico de enfermería “Sequedad ocular”, operacionalizado a través de un grupo focal. La selección de especialistas tuvo en cuenta la experiencia clínica y/o académica en el área de diagnósticos de enfermería y/o sequedad ocular y/o ojo seco y/o salud ocular, así como el tiempo de actuación con el tema. Fueron invitados 13 enfermeros que cumplieron con los criterios descritos anteriormente, de los cuales 10 aceptaron participar. El enfoque de validación fue por consenso. Los datos fueron analizados mediante estadística descriptiva, nivel de especialización y análisis de elementos diagnósticos.

Resultados: Luego del consenso final de los jueces de enfermería en relación a los elementos diagnósticos, se definió una propuesta del diagnóstico “Sequedad ocular” basada en la validez de contenido con una nueva definición, 14 características definitorias, 9 factores relacionados, 2 poblaciones en riesgo y 20 problemas asociados. Además, luego de juzgar la coherencia de los elementos en relación a la estructura diagnóstica, los jueces emitieron el consenso en relación a las definiciones conceptuales y operativas.

Conclusiones: El estudio permitió verificar la validez de contenido por jueces de la propuesta del diagnóstico de enfermería “Sequedad ocular” en pacientes en Unidades de Cuidados Intensivos, lo que favorece el raciocinio diagnóstico de los enfermeros y la planificación de intervenciones efectivas relacionadas con este diagnóstico, permitiendo el manejo de pacientes con el fin de proporcionar integridad ocular.

Palabras clave: Diagnóstico de Enfermería; Estudios de Validación; Sequedad; Salud Ocular; Unidades de Cuidados Intensivos.

INTRODUCTION

Critical patients are at greater risk for the development of changes in the ocular surface[1]. Ocular dryness, in turn, presents itself as an undesirable human response characterized by inadequate secretion or lacrimal evaporation of the eye[2]. Studies describe that the incidence of dry eye in patients admitted to the Intensive Care Unit (ICU) ranges from 53.0% to 75.3%[3,4]. The risk of progression of this condition is highlighted, since it can progress to vision loss[3-5].

Considering the possible damages, the nursing team should implement strategies for early identification of human responses that indicate the presence of ocular dryness. The timely identification of this condition allows the development of appropriate interventions to promote ocular integrity, in order to designate targeted measures for prevention, obtaining better results in patients' care[6,7].

Related to the diagnostic focus of this proposal, the NANDA-International taxonomy (NANDA-I) establishes the nursing diagnoses (ND) Risk of ocular dryness (00219) and Ineffective self-management of ocular dryness (00277)[8]. However, it is understood the need to use the term Ocular dryness as an undesirable human response, permeated by an early stage of tear film dysfunction, and not only as a state of risk or ineffective self-management.

Notably to this human response, nurses have the ability to assess their presence, severity and implement specific interventions aimed at preventing Ocular dryness through the use of their classification systems[7,8]. Therefore, the importance of conducting this research as a modification of this state of risk/self-management for a diagnosis focused on the problem is justified. Thus, from the identification of Ocular dryness as an undesirable human response, a new diagnostic proposal was suggested in previous research, noting the need to validate Ocular dryness as a diagnosis focused on the problem[9].

Given the above, the present study aimed to verify the content validity of the nursing diagnosis proposal Ocular dryness in adult patients admitted to an intensive care unit.

MATERIALS AND METHODS

This is a methodological study of content validation of the nursing diagnosis proposal Ocular dryness. The adopted reference addresses the validation of nursing diagnoses based on three stages: concept analysis, content analysis by judges and analysis of the accuracy of clinical indicators[10]. In the study in question, the content analysis stage was developed.

This stage was carried out by judges in order to discuss and judge which elements identified represent the diagnosis and which should be eliminated or revised (defining characteristics, related factors, population at risk and associated conditions), as well as the attributes and conceptual and operational definitions built. Thus, it is proposed to improve the diagnostic structure based on the judgment of nurse judges.

The model called "Collective Wisdom" was used, in which the collective knowledge of a group of experts presents a better estimate than the opinion of a single expert[10]. The validation process regarding the content was carried out through a focus group, because Ocular dryness is a recent term with still limited discussion in the nursing area. The selection of specialists took into account the clinical and/or academic experience in the area of nursing diagnoses and/or Ocular dryness and/or dry eye and/or ocular health, as well as the time of performance with the theme.

Thirteen nurses who met the criteria described above were invited, of whom 10 agreed to participate. Each selected specialist received an invitation letter by e-mail with explanations about the purposes of the study and the methods adopted. For those

who expressed interest in participating in the study, the Informed Consent Form and the data collection instrument were sent.

Thus, the diagnostic product built from a concept analysis carried out in a previous study[9], was discussed by a focus group composed of 10 specialist nurses members of the Center for Studies in Nursing Process and Classifications of the Federal University of Rio Grande do Norte (NEPEC/UFRN). The nurse judges discussed and judged the relevance of the diagnostic elements, attributes and conceptual and operational definitions constructed for the clinical indicators of the diagnosis. The analysis took place in November 2018, through three face-to-face meetings lasting 4 hours each. A characterization instrument was applied containing items related to sociodemographic data, academic degree, current occupation, time of professional training, experience with research in the area of nursing diagnoses and/or ocular dryness and/or dry eye and/or ocular health, professional activity, practical experience and teaching among the participants.

In addition, a presentation of the scenario in which Ocular dryness occurs in the present study and each of the diagnostic elements, as well as the attributes that made up the definition of the diagnosis and the conceptual and operational definitions constructed was made. The discourse emerging among the judges was transcribed and analyzed. The opinions of the judges were transcribed in the text immediately by the observer, read after exhaustive discussions and the final version of each element and definition was presented for approval or not.

When there were proposals to add new diagnostic elements or substantially modify the content of the definitions constructed, new searches in the literature were carried out in order to verify the relevance of the new information to be added. Finally, the analysis in relation to the adequacy of the domain and class in which the diagnosis could be added in NANDA-I was made.

The opinions expressed by each judge were considered. Thus, all questions and suggestions of the judges were discussed among the participants until consensus was reached. Consensus was considered when all participants in the group agreed with the synthesis of the discussion about each question or suggestion, carried out by the responsible researcher. Thus, the validation approach was by consensus.

For the descriptive analysis of the participants' characterization, the frequencies, measures of the distribution center and their variability were considered. The Shapiro-Wilk test was applied to verify the normality of the data.

The classification of the experts' expertise was defined as: novice, advanced beginner, competent, proficient and expert. The level of expertise was given by calculating the arithmetic mean of the scores obtained in the following criteria: time of training, practical experience and academic degree, participation in research projects that included the topic addressed and publication of scientific papers in that area[11].

For the analysis of the diagnostic elements, conceptual and operational definitions, domain and class, the opinions expressed by each judge were considered. However, the group consensus was used for the final judgment, which means that during the discussion each participant expressed their opinion on the items and the decision on

inclusion, elimination or reformulation was made based on the group consensus.

This study was approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte under opinion 918.510 and CAAE 36079814.6.0000.5537. The participation of nurse judges was consolidated after signing the Informed Consent Form and the Authorization Term for Voice Use.

RESULTS

The sample of 10 nurse judges was predominantly female (90.0%). The master's degree prevailed (50.0%), most had professional experience in care, teaching and research (60.0%) and had didactic experience in teaching nursing diagnoses (90.0%). All participants had experience in participating in research projects involving nursing diagnoses and ocular dryness/dry eye/ocular health.

Related to the publication of scientific papers, all had publications in the area of nursing diagnosis (100.0%) and in the theme of Ocular dryness/dry eye/ocular health (80.0%). Concerning the level of expertise, 03 specialists (30.0%) were advanced beginners, 03 (30.0%) competent, 02 (20.0%) proficient, 01 (10.0%) novice and 01 (10.0%) expert.

The participants' age averaged 28.8 years (±4.8), the length of training a median of 3.5 years and the length of participation in research groups focusing on the theme of nursing terminologies averaged 4 years (±1.8 years).

Regarding the definition of the diagnosis, there was a change from “Quantitative tear film deficiency, which can alter the maintenance of the integrity of the ocular surface, associated with the presence of clinical signs and/or symptoms with potential harm to ocular health” to “Quantitative tear film insufficiency, which can compromise the maintenance of the integrity of the ocular surface”.

Regarding the defining characteristics, the division between signs and symptoms was accepted by the judges, six were modified in relation to the title in order to make them more intelligible, namely: “Decreased tear volumetry” reformulated to “Decreased tear volume”; “Mucosal secretion/excess of ciliary crusts” to “Excessive mucoid secretion”; “Mucosal plaques” to “Mucoid plaque”; “Foreign body sensation” to “Ocular foreign body sensation”; “Burning” to “Burning eye sensation”; “Pruritus” to “Pruritus sensation in the eye”. Two defining characteristics were included, namely: “sandy sensation in the eye” and “Ocular dryness sensation”. There was no suggestion of exclusion and the others remained as described in the initial proposal after concept analysis.

Regarding the related factors, the division between individual and environmental factors was considered by the judges. Thus, regarding the factors related to the individuals, six had their titles rephrased for a better description and, of these, four were transferred to associated conditions since we understand that they are not independently modifiable by nurses, namely: “Incomplete eyelid closure (lagophthalmia)” was changed to “Lagophthalmia”; “Decreased blinking mechanism” to “Decrease in the blinking mechanism” (transferred to associated conditions); “Exposure to screens” to “Exposure to digital screens”; “Exophthalmia” to “Proptosis” (transferred to associated conditions); “Impaired corneal reflex” to

“Absence of corneal-palpebral reflex” (transferred to associated conditions); and “Absence of reflex response of cranial nerves III, III and VI” to “Absence of response to reflexes of cranial nerve pairs III, IV and VI”(transferred to associated conditions). On environmental factors, “Excessive wind” was reworded to “Excessive air current”. No related factors were excluded and the others remained as they were written in the initial proposal.

Regarding the populations at risk, six had their titles reformulated and, of these, five were transferred to associated conditions, taking into account that they are medical procedures/treatments that are not independently modifiable by the nurses. They are: “Advanced age” to “Age greater than or equal to 60 years”; “Hospitalized in the Intensive Care Unit” to “Hospitalization in the Intensive Care Unit” (transferred to associated conditions); “Contact lens wearers” to “Contact lens” (transferred to associated conditions); “Subjected to procedures in the Surgical Center” to “Procedure in the Surgical Center” (transferred to associated conditions); “Submitted to Hematopoietic Stem Cell Transplantation” to “Hematopoietic Stem Cell Transplantation with development of the chronic phase of Graft versus Host Disease” (transferred to associated conditions); “Submitted to Radiotherapy” to “Radiotherapy” (transferred to associated conditions). There was no population at risk excluded and only one (female) remained described according to the initial proposal.

Regarding the associated conditions, seven had their titles reformulated, becoming: “Medications that alter ocular surface homeostasis” to “Medications that alter ocular surface homeostasis with reduction of tear volume”; “Systemic changes (Diabetes Mellitus, Hypertension, Hyperthyroidism, Chronic Renal Insufficiency, Multiple organ failure)” to “Systemic diseases that change ocular surface homeostasis with reduction of tear volume”; “Autoimmune diseases (Sjogren's syndrome, rheumatoid arthritis, systemic lupus erythematosus)” to “Autoimmune diseases that reach the lacrimal glands and result in reduction of lacrimal film”; “Ocular surgical procedures (Refractive surgery, cataract surgery, blepharteroplasty)” to “Ocular surgical procedure”; ““Decreased Glasgow Coma Scale Score/Reduced Level of Consciousness” to “Decreased level of consciousness”; “Ill-fitting non-invasive mechanical ventilation masks” to “Ill-fitting non-invasive mechanical ventilation or oxygen therapy device” (moved to related factors); “Change in leukocytes” to “Leukocytosis”.

An associated condition was transferred to factors related to the understanding of being able to be independently modified by nurses and one (sedation) was excluded because it was already contemplated in another item (drugs that alter the homeostasis of the ocular surface with reduction of tear volume). The other conditions remained with the presentation according to the initial proposal.

In addition, after discussions in the focus group, the proposed diagnosis remained an integral part of domain 11, Safety/protection, and Class 2, Physical injury, estimated as adequate when taking into account the definitions of the domains and classes described in NANDA-I.

After the final consensus of the nurse judges as to the diagnostic elements, a proposal of the diagnosis Ocular dryness was defined based on the validity of the content with the new definition, 14 defining characteristics, 9 related factors, 2 populations at risk, and 20 associated conditions, as shown in table 1.

Table 1. Proposition of the structure of the nursing diagnosis Ocular dryness based on content validity. Natal, RN, Brazil, 2019

Domain 11. Safety/Protection	**Class 2. Physical injury**
Ocular dryness	
Definition	
Quantitative insufficiency of the tear film, which may compromise the maintenance of the integrity of the ocular surface.	
Defining characteristics	
Signs:	Symptoms:
▪ Conjunctival hyperemia ▪ Decreased tear volume ▪ Excessive mucoid secretion ▪ Chemosis ▪ Dilated blood vessels on the ocular surface ▪ Mucoid filament ▪ Mucoid plaque	▪ Blurred vision ▪ Ocular foreign body sensation ▪ Burning eye sensation ▪ Pruritus sensation in the eye ▪ Eye fatigue ▪ Sandy sensation in the eye ▪ Ocular dryness sensation
Related factors	
Individual factors:	Environmental factors:
▪ Lagophthalmia ▪ Exposure to digital screens ▪ Smoking ▪ Eyelid edema ▪ Extended reading ▪ Ill-fitting non-invasive mechanical ventilation or oxygen therapy device	▪ Low moisture ▪ Excessive air current ▪ Air conditioner
Populations at risk:	
▪ Age greater than or equal to 60 years ▪ Female	
Associated conditions	
▪ Decrease in the blinking mechanism ▪ Medications that alter ocular surface homeostasis with reduction of tear volume ▪ Admission to neonatal intensive care unit ▪ Mechanical ventilation ▪ Contact lenses ▪ Systemic diseases that change ocular surface homeostasis with reduction of tear volume ▪ Autoimmune diseases that reach the lacrimal glands and result in reduction of the lacrimal film ▪ Ocular surgical procedure ▪ Damage to the ocular surface ▪ Decreased level of consciousness	▪ Vitamin A deficiency ▪ Allergy ▪ Proptosis ▪ Procedure in the Surgical Center ▪ Hematopoietic Stem Cell Transplantation with development of the chronic phase of Graft versus Host Disease ▪ Oxygen therapy ▪ Radiotherapy ▪ Absence of the corneal-palpebral reflex ▪ Absence of response to reflexes of cranial nerve pairs III, IV and VI ▪ Leukocytosis

After judging the coherence of the elements in relation to the diagnostic structure, the judges issued the consensus in relation to the conceptual and operational definitions. It is noteworthy that all have undergone reformulations in order to become simpler, clearer, express a single idea and allow differentiation between the other elements of the diagnosis. The new descriptions of the definitions related to the defining characteristics are presented in table 2.

Table 2. Conceptual and operational definitions of the defining characteristics of the nursing diagnosis Ocular dryness based on content validity. Natal, RN, Brazil, 2019

CONCEPTUAL AND OPERATIONAL DEFINITIONS OF DIAGNOSTIC ELEMENTS
Defining characteristics
Signs:
▪ **Conjunctival hyperemia**[2,3,12] **Conceptual definition:** Presence of redness in the conjunctiva. **Operational definition:** Perform eye opening for inspection of the conjunctiva and observe the extent of the affected area. (If the patient has any hyperhemic areas in the conjunctiva, the characteristic is present).
▪ **Decreased tear volume** [2-4,13] **Conceptual definition:** Reduction of production and/or increased evaporation of tears. **Operational definition:** Schirmer test I: Place the sterile filter paper strip under the eyelid, on the lower conjunctival fornix near the lateral corner, away from the cornea. Close the eyelid for five minutes. Remove the strip and measure the wet portion in millimeters. (If the patient has the value <10 mm, the characteristic is present).
▪ **Excessive mucoid secretion**[2,3,12-14] **Conceptual definition:** Presence of excessive conjunctival secretion of whitish color and mucoid appearance due to increased activity of the goblet glands**.** **Operational definition:** Inspect the ocular region to observe excess mucoid secretion. (If the patient has excess conjunctival mucoid secretion, the characteristic is present).
▪ **Chemosis**[2,3,12,15-16] **Conceptual definition:** Presence of edema in the conjunctiva. **Operational definition:** Perform eye opening, pull and mobilize the eyelids to inspect the formation of conjunctival edema. (If the patient presents edema in the conjunctiva, the characteristic is present).
▪ **Dilated blood vessels on the eye surface**[2,3,12,17] **Conceptual definition:** Presence of dilated blood vessels on the eye surface. **Operational definition:** Perform eye opening for inspection of the surface and verify the existence of dilated vessels on the eye surface. Observe the quantity, extent and area affected. (If the patient shows this sign on the eye surface, the characteristic is present).
▪ **Mucoid filament**[2,3,12,18] **Conceptual definition:** Presence of whitish-colored filament and mucoid appearance in the extension of the eye surface. **Operational definition:** Perform eye opening, pull and mobilize the eyelids to inspect for the presence of mucoid filament on the eye surface. (If the patient shows this sign on the eye surface, the characteristic is present).
▪ **Mucoid plaque**[2,3,12] **Conceptual definition:** Presence of elevated mucoid formation of various sizes, grayish-white and/or semi-transparent on the eye surface. **Operational definition:** Perform eye opening, pull and mobilize the eyelids to inspect for the presence of mucoid plaque on the eye surface. (If the patient shows this sign on the eye surface, the characteristic is present).
Symptoms:
▪ **Blurred vision**[10, 19-21] **Conceptual definition:** Report of constant blurred vision. **Operational definition:** Question as follows: Do you see objects properly? If not, is it related to any time of day? (If the patient reports the presence of inappropriate viewing of objects for a constant period during the day, the characteristic is present).
▪ **Burning eye sensation**[12,22] **Conceptual definition:** Report of burning in the eyes. **Operational definition:** Question as follows: Do you feel discomfort in the eyes? If so, what discomfort do you feel? (If the patient reports eye discomfort related to burning the feature is present).
▪ **Eye foreign body sensation**[12,21,23,24] **Conceptual definition:** Report of localized presence of object or substance in the eyes **Operational definition:** Question as follows: Do you feel discomfort in the eyes? If so, what discomfort do you feel? (If the patient reports eye discomfort related to the localized presence of an object or substance, the characteristic is present.)

▪ **Itching**[12,19,23,25] **Conceptual definition:** Report of unpleasant sensation that encourages the individual to rub his eyes for relief. **Operational definition:** Question as follows: Do you feel discomfort in the eyes? If so, what discomfort do you feel? (If the patient reports eye discomfort related to pruritus, the characteristic is present.)
▪ **Eye fatigue**[12,20,26] **Conceptual definition:** Report of inadequate viewing of objects at the end of the day caused by visual system effort. **Operational definition:** Question as follows: Do you see objects properly? If not, is it related to any time of day? (If the patient reports the presence of inappropriate viewing of objects at the end of the day, the characteristic is present).
▪ **Sandy sensation in the eye**[12] **Conceptual definition:** Report of the presence of sand on the entire eye surface. **Operational definition**: Question as follows: Do you feel discomfort in the eyes? If so, what discomfort do you feel? (If the patient reports eye discomfort related to the presence of sand, the characteristic is present).
▪ **Ocular dryness sensation**[23,26] **Conceptual definition:** Report of sensation of having the driest eyes. **Operational definition:** Question as follows: Do you feel discomfort in the eyes? If so, what discomfort do you feel? (If the patient reports eye discomfort related to the presence of dryness, the characteristic is present).

The new conceptual and operational definitions regarding the related factors of the nursing diagnosis proposal Ocular dryness were validated by the judges, as shown in table 3 below.

Table 3. Conceptual and operational definitions of the related factors of the nursing diagnosis Ocular dryness based on content validity. Natal, RN, Brazil, 2019

CONCEPTUAL AND OPERATIONAL DEFINITIONS OF DIAGNOSTIC ELEMENTS
Related Factors
Individual Factors:
▪ **Lagophthalmia**[2,3,12,27] **Conceptual definition:** Incomplete eyelid closure that exposes segment of the eye surface. **Operational definition:** With the aid of a flashlight in the direction of the eyelashes check exposure of the segment of the eye surface. (If the patient has any follow-up of the exposed eye, the factor is present.)
▪ **Exposure to digital screens**[3,7,19] **Conceptual definition:** Use of devices such as computers, tablets and mobile phones for exposure time greater than one hour per day uninterrupted. **Operational definition:** Question as follows: Do you have a habit of using computers, tablets and cell phones? If so, how many hours per day? (If the patient reports device usage time greater than one hour per day uninterrupted, the factor is present).
▪ **Smoking**[2,3,28] **Conceptual definition:** Disorder resulting from nicotine dependence. **Operational definition:** Observe in the record or question the individual about smoking history. (If identified in the registry or the patient reports smoking history, the factor is present).
▪ **Eyelid edema**[2,14,28] **Conceptual definition:** Fluid accumulation in the interstitial compartment of the eyelids. **Operational definition:** Perform eye inspection to verify the presence of edema in the eyelids. (If the patient has eyelid edema, the factor is present).
▪ **Extended reading**[2,14,29] **Conceptual definition:** Reading for more than two hours in a row per day. **Operational Definition:** Question as follows: Do you have a habit of reading? If so, how many hours per day? (If the patient reports reading for more than two consecutive hours during the day, the factor is present.)
▪ **Ill-fitting non-invasive mechanical ventilation or oxygen therapy device**[3,12,28]

Conceptual definition: Excessive adjustment, insufficient or poor positioning of the non-invasive mechanical ventilation or oxygen therapy device. **Operational definition:** Observe if the size of the device is incompatible with the individual's biotype or if the adjustments are tight, loose or poorly adapted. (If the patient has an incompatible device or if the adjustments are tight, loose or poorly adapted, the factor is present).
Environmental factors:
▪ **Low humidity**[2,3,29-30] **Conceptual definition:** Low ratio between the amount of water vapor and the temperature in the environment. **Operational definition:** Use a hygrometer term and check the humidity of the environment. (If the ambient humidity is equal to or less than 30%, the factor is present).
▪ **Excessive air current**[2,3,30] **Conceptual definition:** Increased movement of the air current in the environment directed to the individual's face. **Operational definition:** Observe/question intense air current directed at the individual's face. (If there is presence of intense air current directed at the face of the individual, the factor is present).
▪ **Air conditioning**[2,3,29] **Conceptual definition:** Air cooled or heated by means of air conditioner. **Operational definition:** Observe/question the use of air conditioner. (If there is use of air conditioner, the factor is present).

In addition, the new conceptual and operational definitions regarding the populations at risk and the associated conditions of the nursing diagnosis proposal Ocular dryness were validated by the specialists, as shown in table 4 below.

Table 4. Conceptual and operational definitions of populations at risk and associated conditions of nursing diagnosis Ocular dryness based on content validity. Natal, RN, Brazil, 2019

CONCEPTUAL AND OPERATIONAL DEFINITIONS OF DIAGNOSTIC ELEMENTS
Populations at risk:
▪ **Age greater than or equal to 60 years**[2,3,29] **Conceptual definition:** Individuals aged 60 years or over. **Operational definition:** Observe in the record or question the age of the individual. (If the patient is 60 years of age or older, the at-risk population is present.)
▪ **Female**[2,3,30] **Conceptual definition:** Female individuals. **Operational definition:** Observe in the record or observe the sex of the individual. (If the patient is female, the population at risk is present.)
CONCEPTUAL AND OPERATIONAL DEFINITIONS OF DIAGNOSTIC ELEMENTS
Associated conditions
▪ **Decreased blinking mechanism**[2,3,12-14,17] **Conceptual definition:** Quantitative decrease in bilateral synchronous spontaneous opening and closing eyelid movement. **Operational definition:** Observe the frequency of synchronous spontaneous eyelid of opening and closing movement for one minute. (If the patient experiences spontaneous reflex frequency of blinking less than or equal to five times per minute, the condition is present).
▪ **Medications that alter ocular surface homeostasis with reduced tear volume**[3,14,17,25] **Conceptual definition:** Use of medications that alter the homeostasis of the ocular surface. **Operational definition:** Observe in the medical prescription or question the individual about the administration of: diuretics, antihistamines, beta-blockers, antispasmodics, neuromuscular blockers, atropine, antidepressants, sedatives, opioid analgesics, anesthetics, antibiotics, vasodilators, anti-glaucoma eye drops and with preservatives. (If the patient takes any of these medications, the condition is present.)
▪ **Hospitalization in Intensive Care Unit**[2,3,12,17,29] **Conceptual definition:** Individuals admitted to an intensive care unit. **Operational definition:** Observe in the record if the individual has been hospitalized in an intensive care unit for at least 24 hours. (If the patient is hospitalized for at least 24 hours, the condition is present).

- **Mechanical Ventilation**[2,3,14,27]

Conceptual definition: Invasive or non-invasive mechanical ventilatory support.
Operational definition: Observe the use of invasive or non-invasive mechanical ventilation. (If the patient makes use of any of these types of ventilatory support, the condition is present.)

- **Contact lenses**[2,3,30]

Conceptual definition: Individuals who wear contact lenses.
Operational definition: Observe/question the use of contact lens. (If the patient uses it, the condition is present).

- **Systemic diseases that alter ocular surface homeostasis with reduced tear volume**[3,25,30]

Conceptual definition: Disorder that determines pathological changes in several organs at the same time.
Operational definition: Observe in the record or question the individual about the history of diabetes mellitus, hyperthyroidism, chronic kidney disease or multiple organ dysfunctions. (If the patient has any of these systemic diseases, the condition is present.)

- **Autoimmune diseases that reach the lacrimal glands and result in reduction of the lacrimal film**[2,3,25,30]

Conceptual definition: Autoimmune disorder with production of autoantibodies.
Operational definition: Observe in the record or question the individual about the history of Sjogren's Syndrome, Rheumatoid Arthritis or Systemic Lupus Erythematosus. (If the patient has any of these autoimmune diseases, the condition is present.)

- **Ocular surgical procedure**[3,19,30]

Conceptual definition: Performing an ocular surgical procedure.
Operational definition: Observe in the record or question the individual about performing an ocular surgical procedure. (If the patient has undergone any eye surgical procedure, the condition is present).

- **Damage to the ocular surface**[12,19]

Conceptual definition: Presence of ocular surface disorders.
Operational definition: Observe in the record or question the individual about the history of ocular surface disorders. (If the patient has any eye surface disorder, the condition is present.)

- **Decreased level of consciousness**[28,30]

Conceptual definition: Reduction of values corresponding to the Glasgow coma scale with pupillary reaction.
Operational definition: Evaluate and record the values of the Glasgow coma scale with pupillary reaction. (If the patient has values less than or equal to 13, the condition is present).

- **Vitamin A deficiency**[2,3,11,13,29]

Conceptual definition: Reduction of serum levels of vitamin A.
Operational definition: Observe in laboratory tests the reduction of serum levels of vitamin A. (If the patient has reduced serum levels, the condition is present).

- **Allergy**[2,25]

Conceptual definition: Inflammatory hypersensitivity reaction of abnormal immunological origin.
Operational definition: Observe in the record, question the individual or observe signs/symptoms of allergic reaction. (If the patient has an allergic reaction, the condition is present.)

- **Proptosis**[2,25]

Conceptual definition: Abnormal protrusion of the eyeball.
Operational definition: Perform eye inspection to observe protrusion of the eyes. (If the patient has abnormal protrusion of the eyes, the condition is present.)

- **Procedure in the Operating Room**[2,3,12,15]

Conceptual definition: Performing a procedure in the operating room.
Operational Definition: Observe the individual in the transoperative period, investigate in the registry or question about the performance of a procedure in the operating room in the last 24 hours. (If the patient has had surgery in the operating room for 24 hours, the condition is present.)

- **Hematopoietic Stem Cell Transplantation with Development of the Chronic Phase of Graft versus Host Disease**[30]

Conceptual definition: Performing Hematopoietic Stem Cell Transplantation (HSCT) with development of the chronic phase of Graft versus Host Disease (GVHD).
Operational definition: Observe in the record or question the individual about the GVHD as a result of the HSCT for at least 100 days. (If the patient has had GVHD for at least 100 days, the condition is present).

▪ **Oxygen therapy**[3,12] **Conceptual definition:** Use of low or high flow oxygen therapy device. **Operational definition:** Observe/question the individual about the use of an oxygen therapy device. (If the patient uses any device, the condition is present.)
▪ **Radiotherapy**[17,18] **Conceptual definition:** Carrying out radiotherapy. Ionizing radiation can cause changes in the tear film and in the ocular surface, in order to cause ocular dryness. **Operational definition:** Observe in the record or question the individual about treatment by radiotherapy..
▪ **Absence of the corneal-palpebral reflex**[3,12,18] **Conceptual definition:** Lack of response to sensory reflex and corneal-palpebral motor. **Operational definition:** Raise the upper eyelid with the index finger. Gently touch the gauze to the surface of the cornea. Observe the absence of the blinking reflex and possible tearing reflex to the stimulus. (If the patient has no reflex, the condition is present.)
▪ **Absence of reflex response of cranial nerves III, IV and VI**[3] **Conceptual definition:** Lack of response to eye movement reflexes. **Operational definition:** Place your finger vertically in front of the midline of the individual's face and ask him to follow you with his eyes. Ask the patient not to move his head. Move your finger left and right horizontally and vertically along the midline and never allow the viewing angle to be greater than 45 degrees. While the patient follows the finger, observe for the eyes and evaluate absence of conjugated eye movement. (If the patient has no response to eye movement reflexes, the condition is present).
▪ **Leukocytosis**[3] **Conceptual definition:** Increase in the total number of leukocytes in the blood. **Operational definition:** Observe in laboratory tests the increase in serum levels of total leukocytes. (If the patient experiences increased serum levels of total leukocytes, the condition is present).

DISCUSSION

In the process of validation of the diagnostic content, it is essential to have the opinion of specialists in the thematic area of research. However, there is some difficulty in obtaining specialists to validate nursing diagnoses in practice. In this sense, the stage of content analysis by specialists was operationalized through the focus group.

Regarding the characterization of the participants, it was observed that most were female, with a master's degree, had professional experience in care, teaching and research and had didactic experience in teaching nursing diagnoses. In addition, most of the judges had experience in participating in projects/publishing research involving nursing diagnoses and ocular dryness/dry eye/ocular health. These characteristics allow the understanding that the participants had an appropriate knowledge to ensure an in-depth discussion about the concept studied.

The classification of the level of expertise that stood out were the advanced beginner levels and the competent ones. In this study, only one specialist was classified in the last level of expertise, being the expert. However, this does not interfere with the results of this study, since the model adopted was that of “collective wisdom”, which ensures that the opinions of many people with different levels of expertise tend to present better accuracy in inferences when compared to all separate individual assumptions or even the isolated assumptions of experts[10].

In addition, the evaluation of the elements of the nursing diagnosis proposal Ocular dryness becomes relevant, since it is essential to review the elements of the diagnoses that allow the nurses to accurately identify the ND, so that it can intervene effectively in the health care of individuals[8]. The definition of the diagnosis suggested

in this study was validated by the judges as “Quantitative tear film insufficiency, which can compromise the maintenance of the integrity of the ocular surface”. The proposed change was based on the discussion that patients diagnosed with ocular dryness may be in an initial state of tear film insufficiency such that they may or may not present clinical signs and/or symptoms.
The judges agreed with the domain and class of insertion of the nursing diagnosis in NANDA-I, which remained as a member of domain 11, Safety/protection, defined as being free from danger; physical injury or damage to the immune system; conservation against losses; and protection of safety and the absence of danger; and in Class 2, Physical injury, characterized as damage or injury to the body[8].

The analysis performed by the judges showed that 14 defining characteristics were expressive for the conceptual core, therefore, belonging to the diagnosis of the study. The judges judged it relevant to include the defining characteristics “Sandy sensation in the eye” and “Ocular dryness sensation” for the inference of Ocular dryness. Corroborating this fact, the literature points out the two defining characteristics included as recurrent symptoms in ocular dryness[30].

Among the related factors, the judges consider nine relevant factors, which were allocated between individual factors and environmental factors. Noting the opinion of the judges, studies point to lagophthalmia as the main ocular alteration identified and an important determining factor for the development of ophthalmic damage[5]. Other factors such as exposure to digital screens, smoking and eyelid edema are cited in the literature as factors that strongly influence the appearance of ocular dryness[19,28].

With regard to populations at risk, studies point to aging as a state that comprises the loss of androgens and results in alteration in the main lacrimal gland. In relation to the female sex, women have lower production of androgens in relation to men, allowing the impairment of the function of the lacrimal glands[29-30]. In this understanding, the judges considered age greater than or equal to 60 years and female sex as populations with higher risk of presenting ocular dryness.

According to the judges' analysis, 20 associated conditions proposed, which are not independently modifiable by the nurses, were considered relevant to substantiate the diagnostic inference. Admission to the Intensive Care Unit, systemic diseases that alter the homeostasis of the ocular surface with reduction of tear volume and medications that alter the homeostasis of the ocular surface with reduction of tear volume are associated conditions commonly identified in ocular dryness[9].

All aspects related to medical diagnoses, medications in use, procedures and devices that cause reduction of tear volume, identified in a previous study[9], were analyzed by the judges as valid in relation to the associated conditions of the diagnosis under study.

Thus, the judges consented to the coherence of the elements in relation to the diagnostic structure and made the conceptual and operational definitions simpler and clearer in order to express a single idea and allow differentiation between the other elements of the diagnosis.

Understanding the conceptual and operational aspects of the elements of ocular dryness makes it possible to identify them more explicitly in the face of ocular

manifestations. The operational definitions of each element provide instrumentalized subsidies for nurses, in a way that allows an evaluation directed towards the identification of the diagnosis[10].

This study presents as a limitation the fact that some nurses who participated in the study never used the nursing diagnosis Ocular dryness in their professional practice, either in research or care. However, most of the judges who participated in this study had clinical and/or academic experience in the area of nursing diagnoses and/or ocular dryness and/or dry eye and/or ocular health and contributed to the validation of the content of the diagnosis in question.

The present study contributed to validate with judges a new nursing diagnosis proposal that will be used for improvements in professional nursing practice in relation to an individual or population. This study also provides subsidies for the revision of the NANDA-I taxonomy in order to facilitate the identification of the nursing diagnosis Ocular dryness.

CONCLUSION

The study allowed the validation of the content by judges of the nursing diagnosis proposal Ocular dryness in patients in intensive care units with a new definition, 14 defining characteristics, nine related factors, two populations at risk and 20 associated conditions. The elements of the diagnosis in question were analyzed with a more coherent and clear structure for definition, defining characteristics, related factors, and populations at risk and associated conditions.

The validation of the content of the nursing diagnosis in question favors the nurses' diagnostic reasoning and the planning of effective interventions related to this diagnosis, allowing the management of the patients in order to provide ocular integrity. In addition, this study allows giving consistency to the elements of the diagnosis and fills the gaps in the NANDA-I Taxonomy.

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