Construction and validity of definitions for outcome indicators of the INICIARE-26 instrument

Construção e validação das definições para indicadores de resultados do instrumento Iniciare-26 Elaboración y validación de las definiciones para indicadores de resultados del instrumento Iniciare-26

Murilo dos Santos Graeff¹ https://orcid.org/0000-0002-7161-0864 Miriam de Abreu Almeida¹ https://orcid.org/0000-0002-4942-9882

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Descriptores

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Corresponding author

Murilo dos Santos Graeff Email: mu.gr@hotmail.com

Associate Editor (Peer review process):

Camila Takao Lopes (https://orcid.org/0000-0002-6243-6497) Escola Paulista de Enfermagem, Universidade Federal de São Paulo, São Paulo, SP, Brazil

Abstract

Objective: To construct and validate with experts the conceptual definitions (CD), operational definitions (OD) and magnitude of the operational definition (MOD) of the 26 outcome indicators of the Nursing Outcomes Classification (NOC), INICIARE-26 instrument components, which measures patients' dependency on nursing care.

Methods: A methodological study, in two stages, between January and July 2022. In the first, CD, OD and MOD were developed based on scientific literature. Semantic and conceptual equivalences were observed, in addition to standardization of the indicators' textual formulation. In the second, the Delphi method was used for content validity by eight experts who assessed the relevance of the definitions under the following aspects: "not relevant"; "little relevant"; "quite relevant"; "highly relevant". The Content Validity Index (CVI) was used, with a value greater than 0.78 for agreement analysis.

Results: The CD CVI was unanimous for 15 indicators; CD were fully consensual for 17 indicators; MOD was obtained a CVI of 1.00 for 13 indicators. The other items had a CVI of 0.88. The items that did not reach 1.00 of agreement were revised, according to experts' suggestions, with the aim of improving and providing greater clarity for instrument application.

Conclusion: The definitions were constructed and, at the time of validity, reached a satisfactory degree of agreement among experts, and some were unanimous.

Resumo

Objetivo: Construir e validar com especialistas as definições conceituais (DC), as definições operacionais (DO) e a magnitude das definições operacionais (MDO) dos 26 indicadores de resultados da Nursing Outcomes Classification (NOC), componentes do instrumento INICIARE-26, que mede a dependência do paciente dos cuidados de enfermagem.

Métodos: Estudo metodológico, em duas etapas, entre janeiro e julho de 2022. Na primeira, foram desenvolvidas, com base na literatura científica, as DC, as DO e as MDO. Observaram-se as equivalências semânticas e conceituais, além da uniformização da formulação textual dos indicadores. Na segunda, utilizouse o método Delphi para validação de conteúdo por oito especialistas que avaliaram a relevância das definições sob os seguintes aspectos: "não relevante"; "pouco relevante"; "bastante relevante"; "altamente relevante". Utilizou-se o índice de validação de conteúdo (IVC), com valor superior a 0,78, para análise de concordância.

Resultados: O IVC das DC foi unânime, para 15 indicadores; as DO foram integralmente consensuais, para 17 indicadores; a MDO obteve IVC de 1,00, para 13 indicadores. Os demais itens obtiveram IVC de 0,88. Os itens que não atingiram 1,00 de concordância foram revisados, de acordo com as sugestões dos especialistas, com o objetivo de aprimorar e de proporcionar maior clareza para aplicação do instrumento.

¹Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil. Conflicts of interest: nothing to declare.

Conclusão: As definições foram construídas e por ocasião da validação alcançaram grau satisfatório de concordância dos especialistas; algumas obtiveram unanimidade.

Resumen

Objetivo: Elaborar y validar con especialistas las definiciones conceptuales (DC), las definiciones operativas (DO) y la magnitud de las definiciones operativas (MDO) de los 26 indicadores de resultados de la Nursing Outcomes Classification (NOC), componentes del instrumento INICIARE-26, que mide la dependencia del paciente de los cuidados de enfermería.

Métodos: Estudio metodológico, de dos etapas, realizado entre enero y julio de 2022. En la primera, se elaboraron las DC, DO y MDO basadas en la literatura científica. Se observaron las equivalencias semánticas y conceptuales, además de la uniformidad de la formulación textual de los indicadores. En la segunda, se utilizó el método Delphi para la validación de contenido por ocho especialistas, que evaluaron la relevancia de las definiciones según los siguientes aspectos: "no relevante", "poco relevante", "bastante relevante", "altamente relevante". Se utilizó el Índice de Validez de Contenido (IVC), con valor superior a 0,78, para el análisis de concordancia.

Resultados: El IVC de las DC fue unánime en 15 indicadores, las DO fueron totalmente consensuales en 17 indicadores, la MDO obtuvo IVC de 1,00 en 13 indicadores. Los demás ítems obtuvieron IVC de 0,88. Se revisaron los ítems que no tuvieron 1,00 de concordancia, de acuerdo con las sugerencias de los especialistas, con el objetivo de mejorarlos y proporcionar mayor claridad para la aplicación del instrumento.

Conclusión: Se elaboraron las definiciones y, luego de la validación, alcanzaron un nivel satisfactorio de concordancia de los especialistas. Algunas obtuvieron unanimidad.

Introduction

Knowing patients' dependency on nursing care is an important ally to measure team workload, which allows qualitative and quantitative adjustments in nursing work. Historically, there is difficulty in discerning the concepts of care complexity and care dependency, which are often treated indistinctly. It is known that patients' dependency on nursing care is an impacting factor in defining care complexity, but it is not the only one. There are others that also make up the idea of care complexity in the field of nursing, such as aspects related to the disease itself (type, progress, therapies used, etc.), patients' physical, cognitive, functional, social and communicative capacities, and levels of care and nurses' professional experience. Description of the capacities and levels of care and nurses' professional experience.

In this regard, measuring patients' care needs and, above all, understanding the impact of nursing actions on quality of care becomes essential, since the demand for high-quality care has been increasing internationally. Thus, the use of accurate instruments, such as the INICIARE-26 (*Inventario del Nivel de Cuidados mediante Indicadores de Clasificación de Resultados de Enfermería*), can benefit nursing practice.

INICIARE-26, developed by researchers from *Universidade de Sevilha*, Spain, ⁽⁵⁾ and cross-culturally adapted to Brazilian Portuguese ⁽⁶⁾, was built with outcome indicators from the Nursing Outcomes Classification (NOC) and aims to identify nursing

care patients' needs. The choice of indicators took place in two steps: literature review on classification instruments, to identify the dimensions based on Virgínea Henderson's Need Theory, and empirical validity in patients. The indicators belong to the following NOC outcomes: 0200 Locomotion: walking; 0208 Mobility; 0300 Self-care: instrumental activities; 0402 Respiratory status: gas exchange; 0403 Respiratory status: ventilation; 0500 Intestinal continence; 0501 Intestinal elimination; 0503 Urinary elimination; 0601 Water balance; 0900 Cognition; 1008 Nutritional status: food and fluid intake; 1010 Swallowing status; 1014 Appetite; 1101 Tissue integrity: skin and mucous membranes; 1305 Psychosocial adjustment: life change; 1704 Health beliefs: perceived threat; 1823 Knowledge: health promotion; 2106 Nausea and vomiting: disruptive effects.

INICIARE-26 is structured in five dimensions: breath normally (five items); feeding (six items); elimination (four items); instrumental activities (six items); and health behavior (five items). At the end of the assessment, patients' dependency is classified as: "Independency on care"; "Risk for dependency on care"; "Moderate dependency on care"; "High dependency on care".

Outcome measurement in relation to nursing care validates whether patients respond positively to interventions and helps to determine the need for changes in care planning. (4) Conceptually, an outcome is defined as a state, behavior or perception of

individual, family or community that can be measured. Each outcome is composed of a definition and indicators, capable of assessing patients' status in relation to the outcome. The scales of each indicator have scores from 1 to 5 so that score 1 represents patients' worst condition, and score 5, the best condition. (4)

INICIARE-26 went through the process of cross-cultural adaptation to Brazilian Portuguese. The work⁽⁶⁾ points to its adequate adaptation for use in the country. However, to qualify its use in the Brazilian context, the author identifies the need to build conceptual definitions and operational definitions, including the formulation of magnitude of the operational definitions.

For the NOC indicators to be used in clinical nursing, several studies recommend the construction of conceptual definitions and operational definitions, which, in turn, favor the use of such indicators by nurses, maximize their conceptual precision and minimize professionals' subjectivity during outcome assessment.^(7,8) The definitions allow for better follow-up of patients and immediate identification of changes in patterns, favoring the effectiveness of interventions and greater precision in reassessing outcomes.⁽⁷⁾

Considering the above, this study aimed to construct and validate with experts the conceptual definitions (CD), operational definitions (DO) and magnitude of the operational definitions (MOD) of NOC's 26 indicators, components of INICIARE-26, which measures patients' dependency on nursing care.

Methods

This is a methodological study carried out in two phases. This study design seeks to develop or refine methods of obtaining, organizing and analyzing data, and can be designed to assess and validate research tools and methods. (9)

In the first one, based on scientific literature, CD, OD and MOD were developed. The guiding question was: What are the concepts and how are the outcomes assessed for each INICIARE-26

indicator? The following databases were consulted: Cochrane Database of Systematic Reviews; Cumulative Index to Nursing and Allied Health Literature (CINAHL); Latin American Caribbean Literature in Health Sciences (LILACS); Medical Literature Analysis and Retrieval System Online (MEDLINE). Additionally, in order to obtain greater coverage, research in books and in CAPES (Coordination for the Improvement of Higher Education Personnel - Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) thesis database was included. Publications in English, Portuguese and Spanish, occurring between 2012 and 2022, available in full, in online or printed formats, were included. For consulting the databases, equivalent Descriptors in Health Sciences (DeCS) were used for each of the 26 indicators. For the search in books and in the theses database, the association between the DeCS and the indicator term, complete or in part, was performed. A total of 262 articles, 13 books and 5 theses were identified, and 225 articles, 3 books and 4 theses (32 repeated and 200 that did not answer the research question) were eliminated for not meeting the inclusion criteria. In total, 37 articles, 10 books and 1 thesis were used.

Researchers' clinical experience helped to complement the terms found. This stage of research was carried out between January and June 2022.

Based on the literature survey, the definitions were constructed. Semantic equivalences (similarity of the meanings of words or expressions) and conceptual equivalences (validity of the concept of words, with technical and cultural adequacy) were verified. Additionally, duplicates and grammar adjustments were revised.

Finally, the indicators' textual formulation was standardized and uniform. However, it should be noted that, in the MOD description, it was decided to maintain the link with the Likert scale of each indicator, recommended by the NOC. In this regard, variation can be seen in the initial description of the magnitude of each indicator. For example, for the "Cyanosis" indicator, the magnitude is classified as "Severe", "Substantial", "Moderate", "Mild" and "None". For the indicator "Perceived threat to health", the magnitude is classified as "Very weak"; "Weak"; "Moderate"; "Strong" and "Very Strong".

In the second phase, after completing standardization, an electronic instrument was built on Microsoft Forms', consisting of the Informed Consent Form (ICF), experts' sociodemographic data and definitions. The instrument (sent by email) allowed experts to assess the constructed definitions, selecting, for each concept and magnitude, four options: "Not relevant"; "Little relevant"; "Quite relevant"; "Highly relevant". Moreover, space was made available for comments and suggestions.

Expert selection was based on an invitation to researchers from the research group to which the authors belong. To obtain the required number, the "snowball" method was used. The definition of the number of experts obeyed the following parameters: confidence level of 95%, sampling error of 15% and proportion of judges of 95%, thus indicating the sample number of eight experts. Due to the sampling error, 10 experts were invited, among which eight responses were obtained. Experts answered the instrument in July 2022.

For the inclusion criteria, the proposed model for validating studies in nursing was used. (10) Thus, those who obtained a minimum of five points were included. Inclusion criteria considered: clinical experience of at least four years in the care of adults, clinical and surgical, hospitalized in a hospitalization unit (mandatory) (four points); experience of at least one year teaching clinical or surgical adult care and/or teaching nursing classifications (one point); research experience with articles published in nursing classifications in reference journals (one point); participation for at least two years in a research group on adult, clinical and surgical care (one point); doctoral degree (two points); master's degree (one point); specialization (one point). For each year of clinical or teaching experience, an extra point was added. Exclusion criteria considered experts who did not complete the instrument.

Data analysis was carried out by assessing experts' agreement, applying the Content Validity Index (CVI), with 0.78 as the cut-off point, below which the item was considered inadequate. Enough validity rounds were expected to reach 0.78. For this, the Delphi method ("Delphi rounds") was followed. This method usually anonymous uses

questionnaires to promote interactive discussions among experts. (12)

The study development met the requirements of Brazilian Resolution 466/2012. The project was approved by the research institution and by the Research Ethics Committee of the *Universidade Federal do Rio Grande do Sul* (CAEE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 56001422.6.0000.5347).

Results

The sample consisted of eight experts, most of them female (87.5%), aged between 40 and 49 years (62.5%). All had a stricto sensu graduate degree, four, doctoral degree, and four, masters' degree. Regarding clinical experience with adult hospitalized patients, 87.5% had between 10 and 24 years of experience, and only one expert was older than 25 years. As for teaching, 50% had more than 15 years of teaching experience. Among all experts, 87% had publications and participated in research groups. Regarding the sum of the minimum score, four experts reached a score above 20 points and four were between 15 and 20 points, depending on the reference used. Experts, after receiving the constructed instrument, assessed and scored, with regard to relevance, each CD, OD and MOD. Most were considered relevant or highly relevant. For some items, which did not reach 1.00 of agreement, experts suggested changes in wording, in order to improve and provide greater clarity for the instrument application. There were predictions of validity rounds, however all the results of CVI analysis scored above 0.88, which required a new consultation with experts. The CVI results are shown in table 1.

The indicators that obtained suggestions for changes in CD were: "Dyspnea on mild exertion"; "Dyspnea at rest"; "Chewing capacity"; "24-hour intake and output balance"; "Maintains control of stool passage"; "Urinary incontinence"; "Perceived threat to health"; and "Attentiveness". For the other indicators that also obtained a CVI of 0.88, sugges-

Table 1. Content Validity Index (CVI) among experts regarding the relevance of constructed definitions

INICIARE-26 Items*	CD	OD	MOD
Breath normally			
040206 Cyanosis	1.00	0.88	0.88
040204 Dyspnea on mild exertion	0.88	1.00	0.88
040203 Dyspnea at rest	0.88	1.00	0.88
040302 Respiratory rhythm	1.00	1.00	1.00
040310 Adventitious breath sounds	1.00	0.88	0.88
Feeding			
210607 Altered nutritional status	1.00	1.00	0.88
101012 Choking	1.00	1.00	1.00
101004 Chewing ability	0.88	1.00	0.88
101401 Desire to eat	1.00	1.00	1.00
060107 24-hour intake and output balance	0.88	0.88	0.88
100801 Oral food intake	1.00	1.00	0.88
Elimination			
050002 Maintains control of stool passage	0.88	1.00	1.00
050101 Elimination pattern (bowel)	1.00	0.88	0.88
050301 Elimination pattern (urinary)	0.88	1.00	0.88
050312 Urinary incontinence	0.88	0.88	1.00
Instrumental activities			
020002 Walks with effective gait	0.88	0.88	0.88
030012 Positions self	1.00	0.88	1.00
020802 Body positioning performance	1.00	1.00	1.00
030002 Dressing	1.00	0.88	1.00
030006 Hygiene	1.00	0.88	1.00
1101013 Skin integrity	0.88	1.00	0.88
Health behavior			
170401 Perceived threat to health	0.88	1.00	0.88
090003 Attentiveness	0.88	1.00	1.00
170404 Concern regarding illness or injury	1.00	1.00	1.00
130502 Maintains self-esteem	1.00	1.00	1.00
182308 Behaviors to promote health	1.00	1.00	1.00

*CVI - Content Validity Index

tions for adjustments in CD were not listed. Likewise, with regard to CD, the revised indicators, based on suggestions, were "Cyanosis", "Adventitious breath sounds", "Dressing", and "Hygiene". The indicators "24-hour intake and output balance", "Elimination pattern (bowel)", "Urinary incontinence", "Walks with effective gait" and "Changes position alone" did not obtain 1.00 from experts' agreement and were not contemplated with suggestions for improvements. With regard to MOD, some contributions from experts were taken into account, even though the CVI had a satisfactory result. The indicators "Cyanosis", "Dyspnea on mild exertion", "Dyspnea at rest", "Adventitious breath sounds", "Altered nutritional status", "Oral food intake" and

"Elimination pattern (urinary)" were adjusted for better understanding. However, despite not obtaining unanimity, the MOD of some indicators did not receive suggestions for change. They are: "Chewing ability"; "24-hour intake and output balance"; "Elimination pattern (bowel)"; "Walks with effective gait"; "Skin integrity"; and "Perceived threat to health". Considering that INICIARE is composed of 26 indicators, arranged in five dimensions, and that, for each of them, CD, OD and MOD were constructed (generating five response parameters for each item), the presentation of the complete list becomes unfeasible in the article space. Thus, based on the format used in a recent article with the same theme⁽⁸⁾ and with the aim of demonstrating how experts' suggestions improved the instrument, it was decided to list in Table 1 the final result of an indicator of the "Breath normally" dimension and an indicator of the "Health behavior" dimension. The choice is justified by the intention of presenting how an indicator with a focus on physiological issues and an indicator with a behavioral focus were constructed. Chart 1 also demonstrates the structure of the definitions, in particular, the format of the MOD. For better visualization, the parts of the text that underwent changes are highlighted in "italics". The complete version of the definitions can be consulted in annex 1.

Discussion

This study had an excellent degree of qualification of experts, according to the criteria: 50% were classified as "senior specialist", and 50%, as "master specialist". This was mainly due to the "clinical experience" item. In works used as a reference for establishing the criteria used in this research, (10,13) the importance of clinical experience is highlighted as an indispensable criterion for improving what is being validated.

Although all indicators had a CVI greater than 0.78, it is noteworthy that some had suggestions for improvement. This is the case of those linked to the "Breath normally", "Feeding", "Elimination" and "Instrumental activities" dimensions. A study⁽¹⁴⁾

Chart 1. CD, OD and MOD of the indicators "Cvanosis" and "Perceived threat to health"

040206 Cyanosis				
Preliminary version				
Conceptual definition (CVI 1.00) It is characterized by a bluish discoloration of the skin or mucous membranes. Operational definition (CVI 0.88) The examiner should assess the following questions: 1. Does patient have cold extremities? 2. Does patient have bluish extremities? 3. Does patient present, when the examiner presses the extremities, a capillary refill velocity greater than 3 seconds? 4. Patient has a bluish color in the earlobes, mouth and lips	CVI operational definition magnitudes (0.88) 1. Serious: positive response to all questions. 2. Substantial: positive response only to questions 1, 2 and 3. 3. Moderate: positive response only to questions 1 and 2. 4. Mild: positive response only in 2 5. None: positive answer to all questions.			
4. Patient has a bidish color in the earlobes, mouth and lips Final version				
Conceptual definition It is characterized by a bluish discoloration of the skin or mucous membranes. Operational definition The examiner should assess the following questions:	Operational definition magnitudes 1. Serious: positive response to all questions. 2. Substantial: positive response only to questions 1, 2 and 3. 3. Moderate: positive response only to questions 1 and 2. 4. Mild: positive response only in 2.			
1. Does patient have cold extremities? 2. Does patient have bluish extremities? 3. When the examiner presses the extremities, patient presents a capillary refill time greater than 3 seconds? 4. Patient has a bluish color in the earlobes, mouth and lips	5. None: positive response to only 1 or negative response to all questions.			
170401 Perceived threat t	to health			
Preliminary version	n			
Conceptual definition (CVI 0.88) It is characterized by patient's ability to recognize situations that threaten their health and that have the potential for negative consequences for their lifestyle. Operational definition (CVI 1.00) The examiner should ask patient about the following items: 1. Do you examine your body for potentially negative changes (tumors, lesions, etc.)? 2. Do you assess whether the attitudes taken in order to stay healthy are causing harm to health (diet, administration of herbal remedies, etc.)? 3. Do you try to make adjustments in your daily activities that help you stay healthy (avoiding alcohol intake, smoking, etc.)? 4. Do you try to clarify doubts regarding the guidelines received by health professionals?	Magnitudes of the operational definition (CVI 0.88) 1. Very weak: negative response to all questions, or patient is not lucid. 2. Weak: positive response to only 1 question. 3. Moderate: positive response to only 2 questions. 4. Strong: positive response to only 3 questions. 5. Very strong: positive response to all questions.			
	On austinual definition manufacture			
Conceptual definition It is characterized by patient's ability to recognize situations that threaten or have the potential for negative consequences for their health. Operational definition The examiner should ask patient about the following items:	Operational definition magnitudes 1. Very weak: negative response to all questions, or patient is not lucid. 2. Weak: positive response to only 1 question. 3. Moderate: positive response to only 2 questions. 4. Strong: positive response to only 3 questions. 5. Very strong: positive response to all questions.			
1. Do you examine your body for potentially negative changes (tumors, lesions, etc.)? 2. Do you assess whether the attitudes taken in order to stay healthy are causing harm to health (diet, administration of herbal remedies, etc.)? 3. Do you try to make adjustments in your daily activities that help you stay healthy (avoiding alcohol intake, smoking, etc.)? 4. Do you try to clarify doubts regarding the guidelines received by health professionals?				

The full version of the definitions and alterations can be made available by contacting the authors.

that sought to relate nursing diagnoses to the level of dependency, in 135 older adults, found a strong relationship between patient dependency and items of nursing diagnoses in the "Health Promotion", "Nutrition", "Safety/Protection" domains. The "risk for falling", "unstable gait" and "mobility device needs" items appeared in most of older adults. Such findings corroborate experts' concern in the present study to qualify the definitions constructed.

Another study, which assessed specific NOC indicators for patients with an ineffective breathing pattern, (15) demonstrated the importance of an accurate

assessment of the breathing pattern using the NOC. Research points out that this use favors the implementation of language systems in clinical practice. It also highlights that the NOC enables standardized and individualized assessment, since each indicator separately assesses the degree of commitment, which allows for personalized care planning.

In a study that cross-culturally adapted the INICIARE-26 for Brazil, the degree of dependency of patients was impacted by the items in the "Instrumental activities" dimension, especially by indicators "Dressing" and "Hygiene". The study

highlighted that the presence of low scores on these indicators has an important influence in determining patients' dependency on nursing care. (6)

Another indicator that generated suggestions and doubts from experts was "Skin Integrity", which obtained, both in CD and in MOD, a CVI of 0.88. This experts' attitude finds support in a study that validated indicators of the "Tissue integrity: skin and mucous membrane" outcome. [16] It was found that using indicators that have definitions allows for greater agreement between the tested assessments, compared to indicators that OD not have definitions. The fact that experts pay attention to this indicator is due to the recognition that the risk of impaired skin integrity – mainly related to urinary incontinence and the use of diapers – is commonly associated with patient dependency, since changing diapers needs to happen more regularly. [14]

Studies point out that the construction of CD, OD and MOD of indicators is essential for using the NOC and can minimize nurses' subjectivity during outcome assessment. Moreover, it allows identifying changes in patterns, reducing gaps between what is observed and what is scored. (6,8,17)

The way to operationalize the measurement of outcomes sensitive to nursing interventions can be done through using taxonomies, in particular NOC. However, it should be noted that the effectiveness of this verification is influenced by three variables: related to patients; related to professionals; and related to the outcome itself. In this regard, the clinical judgment of the professional is fundamental for outcome accuracy. (4,18)

Validity studies are commonly used to measure the degree of relevance and representativeness of an instrument. Specifically, to assess nursing outcome content, there is no specific model available. Historically, however, for other nursing taxonomies, the one recommended by Fehring is used for content validity, clinical validity and differential diagnosis validity.⁽¹⁸⁾

In a study that aims to describe a new method of validating results and nursing indicators, incorporating nurses' and patients', researchers' perspectives highlight that the creation of CD for indicators is a fundamental step in content validity. This also supports the conduct of assessment by nurses.⁽¹⁸⁾

In terms of limitations of this study, it can be considered that the number of indicators of different NOC and domains made it unfeasible to carry out a more structured method of literature review. This is because, in the case of this research, there would be practically 26 systematic reviews. Even so, the vast literature review and experts' broad experience contributed to minimize this possible bias.

Using a taxonomy to assess nursing-sensitive results, mainly through well-defined and operational indicators, can contribute to clinical practice, teaching and research. As for clinical practice, using complete tools favors an accurate and standardized assessment. Specifically in the case of INICIARE-26, which seeks to assess the degree of dependency of patients in relation to nursing, the construction of definitions provides excellent support for nurses. As for teaching, nursing students can, during the learning process, better support and understand patients' demands broadly. As for research, the method used in this study can be useful for carrying out work with other results and indicators. An upcoming study, which will use the constructed definitions, is being designed to externally validate the INICIARE-26. Finally, it is expected that the constructed definitions will serve as a "Pocket Guide", favoring the consultation of nurses at the time of application of INICIARE-26, in addition to constituting a source for moments of permanent education.

Conclusion

The CD, CD and MOD of the indicators that compose the INICIARE-26 instrument were constructed and validated by experts. Most reached an excellent degree of agreement and many reached unanimity. Even so, several experts' suggestions were accepted, in order to qualify the instrument and bring it closer to reality.

Collaborations

Graeff MS and Almeida MA contributed to the project design, data analysis and interpretation, ar-

ticle writing, relevant critical review of intellectual content and approval of the final version to be published.

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Annex 1. Full version of definitions

Breathing 040206 Cyanosis Conceptual definition Operational definition magnitudes

It is characterized by a bluish discoloration of the skin or mucous membranes.

Operational definition

The examiner should assess the following questions:

- 1. Does patient have cold extremities?
- 2. Does patient have bluish extremities?
- 3. Does patient have, when the examiner presses the extremities, a capillary refill time greater than 3 seconds?
- 4. Patient has a bluish color in the earlobes, mouth and lips

- Serious: positive response to all guestions.
- 2. Substantial: positive response only to questions 1, 2 and 3.
- 3. Moderate: positive response only to questions 1 and 2.
- 4. Mild: positive response only on 2.
- 5. None: positive response only to 1 or negative response to all questions.

040204 Dyspnea on mild exertion

Conceptual definition

It is characterized by an uncomfortable sensation of respiratory "effort" (breathlessness) or by discomfort related to the performance of the respiratory muscles when performing a task (walking or moving in bed).

Operational definition

The examiner should ask patient to walk, if possible. If you are unable to walk, you should observe whether patient has difficulty breathing when moving in bed.

Operational definition magnitudes

- 1. Severe: signs of being short of breath when walking or moving around in bed. 2. Substantial: need to stop for breath when walking or moving in bed.
- 3. Moderate: need to walk slowly or stop for breath when walking and unable to complete the task.
- 4. Mild: need to walk slowly or to stop for breath when walking and able to complete the task.
- 5. None: absence of respiratory discomfort when performing a task.

040203 Dyspnea at rest

Conceptual definition

It is characterized by an uncomfortable sensation of respiratory "effort" (out of breath) or by discomfort related to the performance of the respiratory muscles, even when not performing tasks.

Operational definition

The examiner should make sure that patient has been without exertion (walking or moving in bed) for at least fifteen minutes, and then observe whether spontaneous breathing is preserved. The examiner should also observe whether patient uses any device for administering oxygen.

Operational definition magnitudes

- 1. Severe: inability to breathe on your own and using non-invasive mechanical
- 2. Substantial: difficulty breathing alone and using a mask with a reservoir.
- 3. Moderate: difficulty breathing alone and using a mask without a reservoir.
- 4. Mild: difficulty breathing alone and when using a nasal catheter or goggles.
- 5. None: no difficulty breathing alone and without oxygen support.

040302 Respiratory rhythm

Conceptual definition

It is characterized by the regularity between each interval of respiratory cycles (composed of one inspiration and one expiration). It can be regular, irregular or mixed.

Operational definition

The examiner should observe and measure the movements and regularity of each thoracoabdominal or upper costal inspiration and expiration for one minute, without patient noticing.

Operational definition magnitudes

1. Severe deviation from normal range: periods of slow, shallow breathing that gradually becomes rapid and deep, alternating periods of apnea (Cheyne-Stokes breathing).

- 2. Substantial deviation from normal range: periods of breathing, sometimes slow or fast, sometimes shallow or deep (biot's breathing).
- 3. Moderate deviation from normal range: difficulty breathing in a regular rhythm in an upright position.
- 4. Slight deviation from normal range: difficulty breathing in a regular rhythm when lyina down
- 5. No deviation from normal range: regular breathing movements.

040310 Adventitious breath sounds

Conceptual definition

They are characterized by abnormal sounds that result from air passing through moisture, mucus, or narrowed airways. Adventitious sounds often overlap normal sounds.

Operational definition

The examiner should place the diaphragm of the stethoscope firmly against the skin on the back wall of the chest, between the ribs. If patient is lucid, the examiner should ask them to cross their arms in front of their chest and keep their head bent forward, breathing deeply and slowly, with their mouth slightly open. The examiner should listen to an entire inspiration and expiration in each position of the stethoscope.

Operational definition magnitudes

- 1. Severe: presence of grotesque rales (bubbly and loud sounds, heard during inspiration, and not eliminated when coughing).
- 2. Substantial: presence of medium crackles (low and humid sounds, heard in the middle of inspiration, and not eliminated when coughing).
- 3 Moderate: presence of fine crackles (high-frequency crackling sounds, short and interrupted during inspiration and, normally, not eliminated when coughing).
- 4. Mild: presence of snoring (loud, thick and resonant sounds of low frequency, heard during inspiration or expiration and, occasionally, eliminated by coughing) or presence of wheezing (sounds similar to wheezing).
- 5. None: no snoring, wheezing or rales.

Food and moisture

210607 Altered nutritional status Conceptual definition

It is characterized by an imbalance between the intake and the need for nutrients, influenced by several factors.

Operational definition

The examiner must calculate the Body Mass Index (BMI), classified according to the parameters established by the World Health Organization (WHO) for adults. It is calculated by dividing weight (in kg) by height squared (in meters).

Operational definition magnitudes

- 1. Severe: very low weight (BMI < 17) or morbidly obese III (BMI > 40).
- 2. Substantial: severe obesity II (BMI 35 < 39).
- 3. Moderate: underweight (BMI 17 < 18.49) or obese i (BMI 30 < 34.9).
- 4. Mild: overweight (BMI 25 < 29.9).
- 5. None: normal weight (BMI 18.5 < 24.9).

101012 Choking

Conceptual definition

It is characterized by partial or complete airflow obstruction resulting from the entry of a foreign body into the lower airways, which can lead to cyanosis and asphyxia.

Operational definition

The examiner should, when possible, interrogate patient regarding the following questions:

- 1. Does patient choke on liquids during meals?
- 2. Does patient choke on pasty foods during meals?
- 3. Does patient choke on solids during meals?
- 4. Does patient feel/verbalize that the food "went down the wrong side"?

If patient is unable to answer, the examiner should address the questions to the guardian(s)/companion(s).

Operational definition magnitudes

- 1. Severe: positive response to all questions or presence of feeding tube.
- 2. Substantial: positive answer to 3 questions.
- 3. Moderate: positive response to 2 questions.
- 4. Mild: positive response to 1 question.
- 5. None: negative answer to all questions.

Continue...

Continuation.

Conceptual definition

It is characterized by individuals' ability to initiate the digestive process (referring to the structures involved in mastication), with crushing and grinding of food, transforming it into smaller particles to be easily swallowed.

Operational definition

The examiner should inspect the structures involved in mastication:

- 1 Jaw
- 2. Lips.
- 3. Language. 4. Palate.
- 5. Teeth.

Operational definition magnitudes

- 1. Severely compromised: presence of changes in all structures involved in mastication
- 2. Very compromised: presence of alterations in four structures involved in mastication.
- 3. Moderately compromised: presence of alterations in two or three structures involved in mastication
- 4. Slightly compromised: presence of alterations in one of the structures involved in mastication.
- 5. Not compromised: absence of alterations in the structures involved in mastication.

101401 Desire to eat

101004 Chewing ability

Conceptual definition

It is characterized by thoughts or feelings related to the act of eating and when patient feels hungry.

Operational definition

The examiner should, when possible, interrogate patient regarding the following questions:

- 1. Is your appetite bad?
- 2. Is patient satisfied with a few mouthfuls?
- 3. Does the food taste bad?
- 4. Does patient often eat less than one meal a day?

If patient is unable to answer, the examiner should address the questions to the guardian(s)/companion(s).

Operational definition magnitudes

- 1. Severely compromised: positive response to all questions.
- 2. Very committed: positive answer to 3 questions.
- 3. Moderately compromised: positive response to 2 questions.
- 4 Slightly compromised positive response to 1 question.
- 5. Not committed: negative answer to all questions.

060107 24-hour intake and output balance

Conceptual definition

It is characterized by fluid intake and output (water balance) over a 24-hour period. Water intake includes all liquids that the person ingests. Infused liquids and blood components are also sources of intake. The output includes urine, diarrhea, vomiting, gastric aspiration and drainage.

Operational definition

The examiner should assess the fluid balance by measuring:

- Skin turgor (to check for dehydration): quickly grasp and release, with the tips of the fingers, a skin fold on the back of the forearm or sternum area. Assess how easily the skin moves and how quickly it returns to its resting
- Edema (to check fluid retention): assess the degree of sinking of the edema, pressing firmly with the thumb for several seconds on the edematous area. The depth of the indentation, recorded in millimeters, determines the degree of edema.

Operational definition magnitudes

- 1. Severely compromised: 8 mm deep edema or turgor test with skin returning to normal after 30 seconds
- 2. Substantially compromised: 6 mm deep edema or turgor test with skin returning to normal after 20 seconds
- 3. Moderately compromised: 4 mm deep swelling or turgor test with skin returning to normal after 15 seconds
- 4. Slightly compromised: 2 mm deep swelling or turgor test with skin returning to normal after 10 seconds.
- 5. Uncompromised: no edema or turgor test with skin returning to normal after 5 seconds

100801 Oral food intake

Conceptual definition

It is characterized by the ability to safely orally ingest adequate amounts of food within 24 hours.

Operational definition

The examiner should question patient, if they are lucid, about the acceptance of the amount and ability to swallow the food provided.

If patient is unable to answer, the examiner should address the questions to the quardian(s)/companion(s).

Operational definition magnitudes

- 1. Not adequate: no oral intake.
- 2. Slightly adequate: tube-dependent intake, but with attempts at oral food intake.
- 3. Moderately adequate: intake of a single-consistency total oral diet.
- 4. Substantially adequate: total oral diet intake, with multiple consistencies, but requiring special preparation or compensation.
- 5. Fully adequate: unrestricted total oral diet intake.

Elimination

050002 Maintains control of stool passage

Conceptual definition

It is characterized by patient's ability to physiologically monitor the elimination of intestinal contents, in a socially appropriate place and time.

Operational definition

The examiner should ask patient about the loss, or not, of stool after some effort (coughing, sneezing, etc.) or retention attempts

Operational definition magnitudes

- 1. Never demonstrated: involuntary loss of stool.
- 2. Rarely demonstrated: loss of stool on attempts to hold and after normal defecation.
- 3. Sometimes demonstrated: loss of stool after normal defecation.
- 4. Frequently demonstrated: loss of stool when trying to hold it back.
- 5. Consistently demonstrated: total control of stool passage.

If patient is not lucid or if they are using a fecal catheter, the examiner should consider it as a score of "1".

Conceptual definition

It is characterized by normal bowel habits, with stool elimination in a controlled manner, in solid or semi-solid mass, frequently, without pain, difficulty and/or need for assistance for fecal elimination.

Operational definition

The examiner should question or observe patient regarding the presence of the following conditions:

- Fecal incontinence:
- 2. Pain or bleeding when evacuating;
- 3. Diarrhea;
- 4. Constination.

If patient is not lucid, the examiner should address the questions to the guardian(s)/companion(s).

050101 Elimination pattern (bowel)

- Operational definition magnitudes 1. Severely compromised: presence of fecal incontinence.
- 2. Substantially compromised: presence of diarrhea and pain and/or bleeding on defecation.
- 3. Moderately impaired: presence of diarrhea.
- 4. Slightly compromised: presence of constipation.
- 5. Not compromised: absence of all conditions.

Continue...

Continuation

050301 Elimination pattern (urinary)

Conceptual definition

It is characterized by the ability to store and eliminate urine in 24 hours, without pain, bleeding or the presence of a urinary catheter.

Operational definition

The examiner should question or observe patient regarding the presence of the following conditions:

- 1. Urinary incontinence;
- 2 Anuria or retention:
- 3. Presence of blood in the urine;
- 4. Pain or burning when urinating;

If patient is not lucid, the examiner should address the questions to the quardian(s)/companion(s)

Operational definition magnitudes

- 1. Severely compromised: presence of urinary incontinence.
- 2. Substantially compromised: presence of retention.
- 3. Moderately impaired: presence of anuria or blood in the urine.
- 4. Slightly compromised: presence of pain or burning when urinating.
- 5. Not compromised: absence of all conditions.

050312 Urinary incontinence

Conceptual definition

It is characterized by difficulty controlling the bladder, urinary sphincter and pelvic floor, ranging from a slight loss of urine after sneezing, coughing or laughing, for example, to the complete inability to control urination.

Operational definition

The examiner should ask patient about the loss, or not, of urine after some effort (coughing, sneezing, etc.).

If patient is not lucid or if they are using a urinary catheter, the examiner should consider it as a score of "1".

Operational definition magnitudes

- Severe: constant urinary loss, lack of pelvic muscle strength to retain urine, and constant use of diapers for 24 hours.
- 2. Substantial: mixed urinary loss (during exertion or urgency). Diapers can be used at certain times of the day or night.
- Moderate: urinary leakage on exertion (during physical exercise, coughing, sneezing, etc.). Absorbents can be used.
- 4. Mild: urgent urinary loss (even with a small amount of urine in the bladder, it cannot reach the toilet). An absorbent can be used.
- 5. None: no involuntary urinary leakage.

Instrumental activities

020002 Walks with effective gait

Conceptual definition

It is characterized by the ability to move from one place to another, without trajectory deviation, independently, with or without assistance (support devices or assistance from another person).

Operational definition

The examiner should ask patient to walk, if possible, as a way of observing the need or not to use the device, balance and trajectory.

Operational definition magnitudes

- Severely impaired: unable to walk.
- Very impaired: hesitation to walk, deviation from trajectory, need for assistance.
 Moderately impaired: hesitancy to walk, maintaining trajectory, feet not completely off the ground, needing some assistance.
- 4. Slightly impaired: no hesitation to walk, maintenance of trajectory, one foot does not completely leave the ground, no assistance is needed.
- 5. Not compromised: total absence of hesitation to walk, total maintenance of
- trajectory, takes both feet off the ground, no assistance needed.

030012 Positions self

Conceptual definition

It is characterized by patient's ability to alternate position in bed or in an armchair alone.

Operational definition

The examiner should ask patient about mobility in the bed or chair. The examiner can also just observe patient's mobility, which can be done by asking them to try to change their position in the bed or in the armchair.

Operational definition magnitudes

- 1. Severely compromised: inability to move in bed.
- 2. Very compromised: inability to move in bed, changing body position is only done with assistance.
- 3. Moderately impaired: modification of body position is done with difficulty, and only one part needs no assistance.
- Slightly compromised: changing the position of the body in bed is done without assistance, however there is a need for assistance to position yourself in the armchair.
- 5. Not compromised: the modification of the body position in the bed and armchair is done without assistance.

020802 Body positioning performance

Conceptual definition

It is characterized by patient's ability to maintain body alignment independently, without support device(s).

Operational definition

The examiner should observe the conditions for maintaining patient's body alignment, which can be done by observing whether patient can keep the body in a straight line in the bed or in the armchair.

The examiner should observe patient's ability to put on and take off clothing (upper and lower parts, including

The examiner should carry out direct observation, consult the care records (medical records) or interview patient

Operational definition magnitudes

- 1. Severely impaired: unable to stand up straight in bed or chair, even with use of assistive device(s).
- 2. Very impaired: able to stand straight only in bed, with the aid of a support device(s).
- 3. Moderately impaired: can stand up straight in bed and chair with the aid of a support device(s).
- 4. Slightly impaired: manages to stand up straight in bed, without the aid of a support device(s); in the armchair, with the aid of a support device(s).
- 5. Uncompromised: able to stand up straight in bed and chair without the aid of a support device(s).

030002 Dressing

Conceptual definition

Operational definition

socks and shoes).

and/or caregivers.

It is characterized by patient's ability to independently put on and take off clothes.

Operational definition magnitudes

- 1. Severely impaired: unable to put on and take off clothes.
- 2. Very impaired: unable to put on and take off clothes, although participates to some degree in these activities.
- 3. Moderately impaired: able to put on and take off clothes, although assistance is required.
- 4. Mildly impaired: able to put on and take off clothes with minimal assistance.
- 5. Not impaired: able to put on and take off clothes without assistance.

Continue..

Continuation

Conceptual definition

It is characterized by patient's ability to practice personal actions to maintain cleanliness and a well-groomed appearance independently, without any auxiliary device.

Operational definition

The examiner should observe patient's ability to perform personal hygiene (bathing, washing hands, face, cleaning teeth, shaving and combing).

The examiner should carry out direct observation, consult the care records (medical records) or interview patient and/or caregivers.

Operational definition magnitudes

- 1. Severely impaired: unable to perform personal hygiene alone.
- 2. Very impaired: unable to perform personal hygiene alone, although participating to some degree in this activity.
- 3. Moderately impaired: able to perform personal hygiene alone, although requiring assistance and/or assistive devices at various stages.
- Slightly impaired: able to perform personal hygiene alone, although minimally requiring assistance and/or assistive device.
- 5. Uncompromised: able to perform personal hygiene without assistance.

110113 Skin integrity

030006 Hygiene

Conceptual definition

It is characterized by the absence of any skin surface disruption.

Operational definition

The examiner should observe patient's skin and assess whether there is a break in the skin, with exposure of other lavers such as the dermis, muscles, tendons and bones, or whether there are surgical wounds.

Operational definition magnitudes

- Severely compromised: presence of serious skin surface disruption, with exposure of deep skin layers.
- 2. Very compromised: presence of serious cutaneous surface rupture, with little exposure of deep layers of the skin.
- 3. Moderately compromised: presence of serious skin surface disruption, without exposure of deep skin layers.
- 4. Mildly compromised: presence of skin surface rupture, without exposure of deep layers of the skin or presence of a clean surgical wound.
- 5. Uncompromised: intact skin with no break in the skin surface and no surgical wound.

Health behavior

170401 Perceived threat to health

Conceptual definition

It is characterized by patient's ability to recognize situations that threaten or have the potential for negative consequences for their health.

Operational definition

The examiner should ask patient about the following items:

- 1. Do you examine your body for potentially negative changes (tumors, lesions, etc.)?
- 2. Do you assess whether the attitudes taken in order to stay healthy are causing harm to health (diet, administration of herbal remedies, etc.)?
- 3. Do you try to make adjustments in your daily activities that help you stay healthy (avoiding alcohol intake, smoking, etc.)?
- 4. Do you try to clarify doubts regarding the guidelines received by health professionals?

lth Operational definition magnitudes

- 1. Very weak: negative response to all guestions, or patient is not lucid.
- 2. Weak: positive response to only 1 question.
- 3. Moderate: positive response to only 2 questions.
- 4. Strong: positive response to only 3 questions.
- 5. Very strong: positive response to all questions.

090003 Attentiveness

Conceptual definition

It is characterized by patient's ability to concentrate on something and maintain that concentration over a significant period of time (at least 10 minutes).

Operational definition

The examiner should ask patient about the following items:

- 1. Is it easy for you to concentrate on a task when there is noise around you?
- 2. Are you able to change tasks and concentrate easily?
- 3. When reading or watching something, can you stay focused?
- 4. When you are focused on something, can you stay focused?

170404 Concern regarding illness or injury

Conceptual definition

It is characterized by patient's verbalization about how much they are worried about the disease or injury.

Operational definition

The examiner should question patient regarding the following topics:

- 1. Are you concerned about the impact of the illness/injury on your life?
- 2. Are you concerned about illness/injury duration?
- 3. Are you concerned about how much control you have over the illness/injury?
- 4. Are you concerned about illness/injury severity?

Operational definition magnitudes

Operational definition magnitudes

1. Very weak: negative response to all questions, or patient is not lucid.

1. Severely impaired: negative response to all questions, or patient is not lucid.

Substantially compromised: positive response to only 1 question.
 Moderately compromised: positive response to only 2 questions.

Slightly compromised: positive response to only 3 questions.

5. Not committed: positive response to all questions.

- 2. Weak: positive response to only 1 question.
- 3. Moderate: positive response to only 2 questions.
- 4. Strong: positive response to only 3 questions.
- 5. Very strong: positive response to all questions.

130502 maintains self-esteem

Conceptual definition

It is characterized by patient's ability to assess how much they can maintain self-esteem (the quality of someone who values oneself is satisfied with their way of being and, consequently, demonstrates confidence in their actions and judgments).

Operational definition

The examiner should question patient regarding the following points:

- 1. Do you consider yourself a person with the same value as other people?
- 2. Do you consider yourself a person with qualities?
- 3. Do you consider yourself a person who can do things as well as other people?
- 4. Do you consider yourself a person who feels useful?

Operational definition magnitudes

- Never demonstrated: negative response to all questions, or patient is not lucid.
- 2. Rarely demonstrated: positive response to only 1 question.
- 3. Sometimes demonstrated: positive answer to only 2 questions.
- 4. Frequently demonstrated: positive response to only 3 questions.
- 5. Consistently demonstrated: positive response to all questions.

Continue...

Continuation.

182308 Behaviors to promote health

Conceptual definition

It is characterized by knowledge of information necessary to obtain and maintain optimal health.

Operational definition

The examiner should ask patient about knowledge about the following topics: healthy eating, body practice and physical activity, prevention and control of smoking, abusive use of alcohol and other drugs.

- Operational definition magnitudes
 1. No knowledge: ignores any information about the topics, or patient is not lucid.
- 2. Limited knowledge: has little information about the topics.
- 3. Moderate Knowledge: has some information about the topics.
- Substantial Knowledge: has a lot of information about the topics.
 Extensive Knowledge: has detailed information about the topics.