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Nursing Diagnoses for Coronavirus Disease, COVID-19: Identification by Taxonomic Triangulation

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PURPOSE: To identify the nursing care problems related to the clinical process of disease by COVID-19.
METHOD: The study applied the taxonomic triangulation technique on a clinical management guide to coronavirus disease, COVID-19, from the World Health Organization. The technique is divided into the phases: extraction of knowledge in natural language about assessment, planning and intervention, translation into standard language NOC and NIC, linking to NANDA-I diagnoses, triangulation looking for diagnostic matches in the three sets, and, finally, validation by a panel of experts from a hospital and a university.
FINDINGS: The extraction identified 159 terms in natural language that were translated into 173 variables: 34 NOC for assessment, 19 NOC for planning, and 120 NIC for intervention. The relationships to NANDA-I diagnoses recorded 2,182 links and the triangulation returned 109 diagnoses, 54 of them for a critical situation. The panel of experts unanimously validated the 29 diagnoses with the highest number of links.
CONCLUSION: Coronavirus disease, COVID-19, involves a complex situation with multiple associated care problems that can be identified using the taxonomic triangulation technique.
IMPLICATIONS FOR NURSING PRACTICE: The links between taxonomies and the taxonomic triangulation technique are an important tool for generating knowledge. The results of this study may guide the diagnosis and treatment of coronavirus disease, COVID-19, as well as similar processes that occur with acute respiratory distress syndrome.

Introduction

The coronavirus disease pandemic (COVID-19) arises in December 2019 in China when approximately 50 people presented respiratory distress, fever, and lung injuries (World Health Organization [WHO], 2020a; Zhu et al., 2020). Initial investigation did not detect the exact origin, but the genetic sequence of the virus named "Severe acute respiratory syndrome coronavirus 2" (SARS-CoV-2) (WHO, 2020b, 2020c). WHO declared the pandemic on March 11, 2020 and noted the importance of preparing health systems (WHO, 2020d).

Nursing has demonstrated its role as the backbone of health systems in this emergency and coinciding with the

International Year of the Nurse and the Midwife (WHO, 2020e). However, the "State of the World's Nursing Report" reveals that nursing maintains differences between countries in aspects such as training programs, professional skills, or access to management positions in health policies (WHO, International Council of Nurses, & Nursing Now, 2020). Nursing still requires strategies to demonstrate that it contributes to society better health results, as well as promotes gender equality and supports economic growth (All-Party Parliamentary Group on Global Health, 2016).

In this sense, research from theories and languages of care is essential to validate the impact on health from an independent perspective and based on care diagnosis (Alligood, 2018). This diagnostic ability is a clinical reasoning competence, internationally recognized as a professional qualification (The European Parliament and the Council of the European Union, 2005).

Professional care is based on theoretical models and applies a defined six-step nursing process: assessment, diagnosis, planning, intervention, and evaluation (Echevarría Pérez, 2016; Herdman & Kamitsuru, 2017). This process is represented by standardized languages, which provide elements and interrelations as an intermediate theory that allows to elaborate a description of care as a reality phenomenon (Butcher, Bulechek, Dochterman, & Wagner, 2018; de Oliveira Lopes, da Silva, & Herdman, 2017; Herdman & Kamitsuru, 2017; Moorhead, Swanson, Johnson, & Maas, 2018; Nunes, Rego, & Nunes, 2014).

The standardized languages NANDA-I, NOC, and NIC represent the diagnoses, outcome criteria, and intervention criteria (Butcher et al., 2018; Herdman & Kamitsuru, 2017; Moorhead et al., 2018). These taxonomies are internationally recognized by the American Nurses Association, the Unified Medical Language System, comply with ISO/TS 18104: 2014 and are included in the international interoperability standards Health Level-7 (Herdman & Kamitsuru, 2017; International Organization for Standardization, 2014; Othman, Shatnawi, Alrajabi, & Alshraideh, 2020). In addition, the three taxonomies are interrelated through links that are collected in the books of outcome criteria, intervention criteria, and in a specific book of linkages from NANDA-I to NOC and NIC (Marion et al., 2011).

A nursing diagnosis is defined as a clinical judgment about care situation that a person, family, or group may present, about responses to actual or potential health problems (Herdman & Kamitsuru, 2017). NANDA-I provides a set of standardized diagnoses that include a numeric code, label for description, definition, and a set of defining characteristics and related factors that guide the identification of the care problem. However, currently NANDA-I does not provide operational definitions for defining characteristics (Vega-Escaño, Barrientos-Trigo, Romero-Sánchez, de Diego-Cordero, & Porcel-Gálvez, 2020). There is no internationally recognized taxonomy for assessment variables, and, consequently, its implementation is not possible for electronic clinical records or for research in areas such as data mining (Berger & Berger, 2004; Chen & Fawcett, 2016). In this situation, the NOC result indicators are used to represent the state, behavior, or perception in care, and, with it, the real situation of the person over a continuum of time (Moorhead et al., 2018).

The three taxonomies and their linkages can help decision-making to plan and carry out interventions for each diagnosis (Monteiro-Mantovani, Moorhead, & Abe, 2020).

Taxonomic triangulation is a technique based on standardized languages that uses extraction and logic to deepen knowledge about professional care. Taxonomic triangulation identifies diagnoses through the combination of data extracted from three different reference points (assessment, planning, and intervention) and with opposite logical relationship senses in the recognized linear process of nursing care. From assessment to diagnosis, we follow the established order, but from the criteria of outcomes and interventions towards the diagnosis the sense is inverse to the order (González-Aguña & Jiménez-Rodríguez, 2018).

Extraction is a knowledge discovery technique that can be applied to any written text, such as government documents, health regulations, or clinical records. The results obtained represent the knowledge implicit in the text, although it is possible to subsequently submit the diagnoses to validation by a group of clinical experts (Nelson & Staggers, 2018).

Purpose

The purpose of the study is to identify NANDA-I care diagnoses that occur in people with COVID-19.

Method

A language-based study was performed to identify NANDA-I diagnoses. The design followed included a first phase (with four stages) that applied the taxonomic triangulation technique to identify NANDA-I diagnoses and a second phase that validated them through a group of experts. The first phase applied a data collection and a cross-mapping process conducted according to the method used by D'Agostino et al. (2020) to determinate all variables. These standardized variables were used to infer NANDA-I diagnoses using logic. The second phase applied the Delphi method by a panel of experts during the second half of April 2020.

The study sample was the knowledge collected in the document "*Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected*" of WHO (2020f). This document was selected because it is the international reference guide that sets the general guidelines for clinical action. The guide is intended for clinicians involved in the care of people diagnosed with or suspected of COVID-19 disease. The sections of the document include an introduction to the problem and attention to different clinical situations: general measures, early recognition, diagnostic tests, symptoms, treatment of oxygen therapy and coinfections, acute respiratory distress syndrome, prevention of

complications, septic shock, adjuvant therapies, and care for pregnant women, infants, and the elderly. In addition, it includes a final section about clinical research. The sample universe under study was delimited by the information contained in this clinical action guide.

The study procedure is detailed in the following five stages.

Knowledge Extraction from the Text

This stage carried out an acquisition of knowledge by extracting all the terms related to the care process. The extraction applied the technique of structural analysis of texts to identify and classify the terms in three sets:

- *Assessment*: terms that describe the health care situation of each person (signs and symptoms) and that are involved in decision-making. The assessment variables were selected from all the text analyzed, but mainly in Sections 1 and 3 on recognition in all phases of severity and laboratory tests.
- *Outcomes*: terms about expected outcomes for resolution of the health problem COVID-19 and outcomes in iatrogenic prevention. The outcomes were selected from the signs and symptoms diagnostic criteria for COVID-19 and where the text explicitly appears "outcome." Health outcomes are those variables that rule out involvement, that is, they show values in the appropriate health range. The outcomes of iatrogenesis address the potential appearance of problems derived from professional health care, such as pressure ulcers.
- *Interventions*: terms that describe assessment, treatment or evaluation activities. The interventions are ordered according to level of severity from mild to severe, critical, complications, and septic shock.

Sections 11, 12, 13, and 14 of the text were also analyzed because they added specific information for pregnant women, breastfeeding, the elderly, and about research and treatment. The extracted terms were classified together with the others to achieve a global representation of all the possibilities.

Translation of Terms to Taxonomies

The aim of this stage was to translate the natural language terms into standardized language variables NOC and NIC (Bulechek, Butcher, Dochterman, & Wagner, 2013; Moorhead, Johnson, Maas, & Swanson, 2013).

The assessment and outcomes sets used the NOC taxonomy because it allows describing the care situation (Moorhead et al., 2013). Outcomes are not focused on the assessment phase, but the indicators may represent states, behaviors, or perceptions of a person at the current moment and as an outcomes to be achieved (Moorhead et al., 2013, 2018). The interventions were translated into NIC taxonomy (Bulechek et al., 2013). Both standardized languages have a structure with a code, a descriptor (also called label), an explanatory definition and subelements, indicators for NOC and activities for NIC (Bulechek et al., 2013; Moorhead et al., 2013).

The translation was made through lexical and conceptual equivalence because it was searched within taxonomies according to the exact term extracted from the text, its synonyms, and the lexical root. For example, "tachypnea" with "high respiratory rate," "increased respiratory rate" "breathe" or "resp-" and "bleeding" with "hemorrhage," "blood," "blood loss," or "hem-." The search sequence prioritized the equivalence found in the description and definition field. When there were no coincidences in these fields, the study analyzed the subelements, that is, if any indicator or activity included the searched term. When a match was found in these fields, their NOC and NIC labels were collected. During the search, it was applied as an inclusion criterion that the variable had a relationship of meaning with the context of the COVID-19 study. For example, the term "contact" in the context of COVID-19 refers to minimizing or isolating and therefore any result that meant therapeutic contact or closeness was removed.

The set of standardized language variables was finally analyzed to select from each extracted term one or maximum two standardized variables. This selection followed heuristic reasoning because it chose the most relevant standardized variables to represent the specific meaning of each term (Gilliam, 2019).

Linkages from Variables to Diagnostics

The third phase related each normalized variable to the NANDA-I diagnoses through the links offered by the NOC and NIC books. This phase applied knowledge extraction to map all the diagnoses related to each variable and for each of the three sets of taxonomic triangulation.

The systematic search tracked each variable within the diagnostic links section of its corresponding taxonomy. Variables and outcomes in NOC linkages to NANDA-I and the interventions in NIC linkages to NANDA-I (Bulechek et al., 2013; Herdman & Kamitsuru, 2014; Moorhead et al., 2013).

The search result was recorded in a double-entry Excel® table: NOC / NIC variables – NANDA-I diagnoses. The cell value could be "0" = No link or "1" = Yes, there is a link. At the end of the analysis by set, each diagnosis could achieve zero, one or more links.

Triangulation Using Logical Inference

This phase compared the diagnoses obtained in the three sets and looked for those that were linked to the three vertices of the triangulation.

The technique generated an Excel® table with the list of NANDA-I diagnoses in the rows and three columns for the number of links from the assessment, outcomes, and interventions. This table was subsequently ordered from

highest to lowest number of links in planning, assessment, and, finally, intervention. This order followed an expert criterion where it prioritizes the importance of the desired outcomes and the assessment. Interventions are the last to determine order because they are less specific; each can be applied to many different problems.

The identification of diagnoses included three specific analyses by health outcomes, by iatrogenic prevention outcomes, and by assessment and intervention in a critical situation. The critical situation included assessment and interventions for acute respiratory distress syndrome (ARDS), sepsis, and shock, along with health outcomes.

Validation by Experts

The diagnoses obtained by triangulation were validated by a panel of experts from two institutions of the Community of Madrid (Spain): COVID-19 IFEMA Hospital (center created specifically to tackle the outbreak during the health emergency) and the research group Management about Information and Standard Knowledge of Care (MISKC) of the University of Alcala (IFEMA Feria de Madrid, 2020; University of Alcala, 2020). The study did not use a patient sample or clinical history data, but the study project was presented to the Epistemology and Bioethics Committee of the Madrid Scientific Care Society" (SoCMaC) and it was approved in April with the code 0401_2020_CEIC (Sociedad Científica Madrileña del Cuidado, 2020).

Experts were recruited through the convenience technique and applying eligibility criteria based on clinical and academic merit according to similar studies (Vega-Escaño et al., 2020). All participants of the expert panel were informed and consented to the study.

The panel was made up of seven nurses. All the members had at least 5 years of experience in clinical care, training in standardized languages, teaching experience, and represented different profiles at the clinical and academic level. As a clinical profile, two supervisors (one in hospital and other in primary care), three primary care nurses, and two others with a critical care nursing profile in hospital participated. From the academic profile, five had a master's level, one a family and community nursing specialist level, and the other participant had both degrees. In addition, two experts had a PhD degree.

For validation, the list of diagnoses obtained was first presented to the Nursing Management team of the COVID-19 IFEMA Hospital and the coordinator of the research group MISKC (IFEMA Feria de Madrid, 2020; University of Alcala, 2020).

Subsequently, the diagnoses were validated by the panel of experts using a three-round Delphi technique. The list of diagnoses obtained by triangulation was presented in a decreasing order from labels with more links to labels with fewer links. The question to validate each label was "Do you consider that this diagnosis occurs in a person with COVID-19 disease?" and the possible answers were limited to "Yes," "No," and "No answer." The first round collected the responses of all the participants. The second returned the joint response and allowed modifying the individual option. The third round also allowed adding comments, as other possible diagnoses. Validation ended upon reaching group consensus for at least the first 20 diagnoses.

Findings

The findings obtained for stages 1, 2, and 3 of the study are shown in Figure 1.

The first stage extracted terms in natural language such as infection, dyspnea, fever, isolation, oxygen therapy, mechanical ventilation, or mental state. These terms were translated in the second phase, and, after the selection, the study obtained standardized variables NOC and NIC such as *Infection Severity* (0703), *Neurological status: consciousness* (0912), *Respiratory status* (0415), *Thermoregulation* (0800), *Isolation* (6630), *Management of mechanical ventilation: invasive* (3300) or *Oxygen therapy* (3320).

The two subsets of outcomes shared the criteria NOC *Infection severity* (0703) and *Infection severity: newborn* (0706), which were only counted once in the overall set. The third phase established links to the diagnoses, for example, *Respiratory status* (0415) linked to 25 diagnoses, *Infection Severity* (0703) linked to 28, and *Oxygen therapy* (3320) to 15 diagnosis.

Taxonomic triangulation in phase 4 identified a total of 109 diagnoses. The validation by group of experts approved the total number of diagnoses identified. The first 29 diagnostic labels were unanimously approved and are shown in Table 1. Diagnosis number 30 was *Risk for perioperative positioning injury* (00087), which was only approved by four of the six in the second round. In addition, the diagnosis *Risk of autonomic dysreflexia* (00100) had to be defined for the second round when finding "No answer" answers.

The specific analysis by health result identified 93 diagnostic labels and by iatrogenic prevention outcomes obtained 73 diagnoses. The analysis for the critical situation obtained 54 diagnoses. The ten diagnoses with the most links in these three categories are shown in Table 2.

Discussion

During the study period, more than five million people were diagnosed, and more than three hundred thousand people died from COVID-19 disease (WHOg, 2020). The publications made to date on this disease are mainly editorial and descriptive studies of local experiences. This is understandable because the situation is still recent and longitudinal studies or studies with larger samples require longer periods of time (U.S. National Library of Medicine, National Institutes of Health, 2020).

The topics of the articles include how nurses face the health emergency and the measures taken in health services for the selection, education, training and

Figure 1. Process flow of the stages 1, 2 and 3: extraction, translation to NOC and NIC, and linkages to NANDA-I diagnostics.

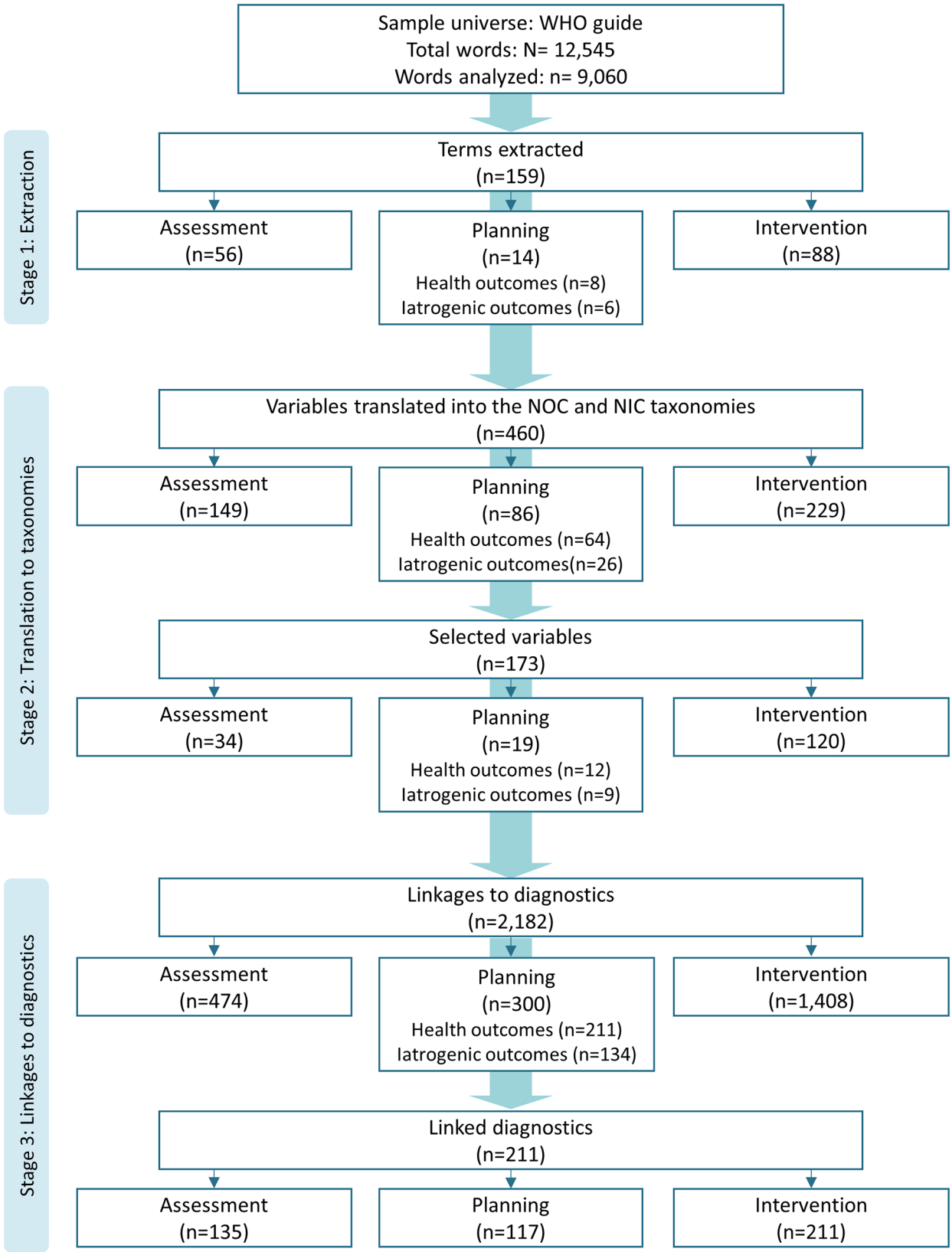

Table 1. NANDA-I Diagnoses Associated with COVID-9 Validated by the Panel of Experts and Number of Linkages Found for Each Vertex of the Triangulation

NANDA Code	NANDA label	Number of linkages (*n*)		
		Assessment	Planning	Intervention
00034	Dysfunctional ventilatory weaning response	9	8	17
00031	Ineffective airway clearance	7	8	23
00004	Risk for infection	5	7	16
00029	Decreased cardiac output	12	6	24
00205	Risk for shock	11	6	15
00010	Risk for autonomic dysreflexia	11	6	12
00046	Impaired skin integrity	8	6	13
00030	Impaired gas exchange	7	6	26
00039	Risk for aspiration	7	6	18
00043	Ineffective protection	5	6	15
00028	Risk for deficient fluid volume	9	5	21
00032	Ineffective breathing pattern	7	5	24
00204	Ineffective peripheral tissue perfusion	7	5	24
00047	Risk for impaired skin integrity	7	5	16
00132	Acute pain	7	5	15
00007	Hyperthermia	7	5	12
00033	Impaired spontaneous ventilation	6	5	32
00092	Activity intolerance	6	5	6
00044	Impaired tissue integrity	3	5	15
00085	Impaired physical mobility	3	5	6
00028	Risk for deficient fluid volume	9	4	21
00025	Risk for imbalanced fluid volume	8	4	22
00026	Excess fluid volume	8	4	16
00203	Risk for ineffective renal perfusion[a]	8	4	13
00009	Autonomic dysreflexia	8	4	11
00100	Delayed surgical recovery	6	4	17
00005	Risk for imbalanced body temperature[b]	6	4	12
00008	Ineffective thermoregulation	6	4	8
00045	Impaired oral mucous membrane	5	4	6

[a]Deleted in *NANDA International nursing diagnoses: definitions and classification, 2018–2020* (Herdman & Kamitsuru, 2017)
[b]Label modified to *Risk for imbalanced body temperature* (00007) in *NANDA International nursing diagnoses: definitions and classification, 2018–2020* (Herdman & Kamitsuru, 2017)

psychological support for nurses (Brucker, 2020; Dehnavieh & Kalavani, 2020; Huang, Lin, Tang, Yu, & Zhou, 2020; Legido-Quigley et al., 2020; Newby, Mabry, Carlisle, Olson, & Lane, 2020; Raurell-Torredà, Martínez-Estalella, Frade-Mera, Carrasco Rodríguez-Rey, & Romero de San Pío, 2020; Zhang, Sun, Latour, Hu, & Qian, 2020). Some studies describe the situation in vulnerable groups of pregnant, lactating, or elderly people (Lloyd-Sherlock et al., 2020; Wang et al., 2020; Yang et al., 2020). These three groups are also highlighted in the WHO guide analyzed (WHO, 2020f). None of the publications found includes a theoretical framework of care or uses standardized nursing languages. In this sense, the results can be analyzed, but not compared with other similar studies.

The translation to standardized variables represents 27.59% of the NOC in the assessment phase, 15.19% in planning, and 40.53% of the NIC in intervention. These percentages were reduced with the selection to 6.29%, 3.52%, and 21.24%, respectively. Thus, the analyzed problem shows how a disease impacts multiple care variables and clinical reasoning allows reducing the most accurate data to the context.

Regarding the identified diagnoses, the study included 212 labels that represent 90.21% of the NANDA-I version used. The number of diagnoses per assessment set reached 57.45%. In this sense, triangulation can identify other diagnoses, which appear because the outcomes or the interventions are related. Overall, the study shows the variability and complexity of describing a care situation, even delimiting a single disease. The framework of variables and diagnoses proposed can serve as a guide to determine the individual care problems of each person.

On the other hand, a limitation to consider are the standardized languages NANDA-I, NOC, and NIC used (Bulechek, 2013; Herdman, 2014; Moorhead, 2013). These languages were chosen because they are internationally recognized, have a wide use in research, and offer links between each one of them, which allows using previously approved relationships.

The editions used are not the last published. The study applied taxonomic triangulation based on logical inferences from three references and, in this sense, the study preferred to use independent link sources to avoid biases

Table 2. NANDA-I Diagnoses by Specific Areas: Assessment and Treatment of Critical Situation, Outcomes of Health and Outcomes Aimed at Iatrogenic Prevention

NANDA Code	NANDA label
Diagnoses in a critical situation (ARDS, sepsis and shock)	
00205	Risk for shock
00002	Autonomic dysreflexia
00029	Decreased cardiac output
00031	Ineffective airway clearance
00205	Dysfunctional ventilatory weaning response
00030	Impaired gas exchange
00007	Hyperthermia
00028	Risk for deficient fluid volume
00203	Risk for ineffective renal perfusion
00178	Risk for impaired liver function
Diagnostics focused on health outcomes	
00029	Decreased cardiac output
00205	Dysfunctional ventilatory weaning response
00031	Ineffective airway clearance
00205	Risk for shock
00010	Risk for autonomic dysreflexia
00030	Impaired gas exchange
00007	Hyperthermia
00004	Risk for infection
00028	Risk for deficient fluid volume
00025	Risk for imbalanced fluid volume
Diagnostics focused on iatrogenic prevention outcomes	
00044	Impaired tissue integrity
00031	Ineffective airway clearance
00047	Risk for impaired skin integrity
00004	Risk for infection
00205	Risk for shock
00046	Impaired skin integrity
00039	Risk for aspiration
00100	Delayed surgical recovery
00043	Ineffective protection
00045	Impaired oral mucous membrane

previously established NOC–NIC interrelationships. These NOC–NANDA-I and NIC–NANDA-I links are found in sections within the fifth and sixth versions, respectively. The latest editions of these books do not contain a similar section and refer to previous publications (Bulechek et al., 2013; Butcher et al., 2018; Moorhead et al., 2013; Moorhead et al., 2018).

Whatever the case, the purpose of the study is to identify the diagnoses, which are treated as data patterns that can be identified with mining techniques such as triangulation. Future studies could use other references, such as the book of interrelations. Consequently, the NANDA-I diagnoses referred to the 2015–2017 edition (Herdman, 2014).

The diagnoses validated by the expert panel contain two diagnoses that have been modified in the last edition. The diagnosis *Risk for ineffective renal perfusion* (00203) has been suppressed because it cannot be independently modified by nursing interventions. The diagnosis *Risk for imbalanced body temperature* (00005) is currently called *Risk for ineffective thermoregulation* (00005). The rest of the diagnoses removed from the last edition are below 50 or are not on the validated list.

A qualitative analysis of the results shows the predominance of physiological diagnoses focused on pulmonary and cardiac responses. These alterations appear together with infection and hyperthermia.

COVID-19 disease ranges from *Ineffective Protection* (00043) to *Risk for shock* (00205). Likewise, when comparing the diagnoses according to outcomes, it is observed that *Decreased cardiac output* (00029), *Excess fluid volume* (00026), and *Ineffective thermoregulation* (00008) disappear when focusing on prevention. Diagnoses focused on iatrogenesis address skin and gastrointestinal function problems (Herdman & Kamitsuru, 2017).

On the other hand, the diagnoses *Contamination* (00181) and *Risk for contamination* (00180) do not appear at the top of the list because they hardly have any links. Both are identified with the triangulation technique, but in the order 61 and 63 of the list. However, both diagnoses, *Contamination* (00181) and *Risk for contamination* (00180), were also validated by the panel of experts. Recent studies analyze these two diagnoses. Both diagnoses refer to "exposure," but do not provide clear and univocal definitions to link it to a problem of viral origin (Moorhead et al., 2020). The inclusion of these diagnoses (in the absence of other more specific labels or definitions) may be related to the defining characteristic "*Biologicals: Pulmonary effects of biological exposure*" (Herdman & Kamitsuru, 2017). Future studies on the definition and etiology of these care problems are necessary to clarify the limits of both diagnostic labels.

In relation to the system of organization of the diagnoses found, a limitation to consider is that the study uses the number of links found as an approximation to prioritize. However, each diagnosis has a different number of links to NOC and NIC, and, in addition, not all diagnoses have the same complexity to state, treat, and solve. This bias must be considered when interpreting the classification because taxonomic triangulation does not intend to offer a list according to greater probability. Triangulation offers diagnoses that underlie knowledge expressed in texts to help nurses in case analysis, attention to new variables and different diagnoses.

The research is currently working on the consideration of relative weights according to the number of variables that make up each diagnosis and the implementation of already existing complexity indicators (Pérez-Rivas et al., 2020). Likewise, the study is still ongoing to validate the proposed diagnoses with real data from clinical practice.

Conclusion

Coronavirus disease, COVID-19, involves facing a complex situation with multiple care problems. The study shows the variability of potential nursing care problems, both by affected areas and by severity. The taxonomic triangulation technique has made it possible to identify a set of diagnoses and variables for assessment, planning, and intervention,

from a written source endorsed by the WHO. This methodology can be applied to other health processes to generate knowledge from nursing models and languages.

Finally, these results are offered as a guide for the elaboration of individual care plans, clinical decision-making, and as a reference for other similar studies.

Implications for Nursing Practice

- The research showed the need to carry out studies with nursing language.
- The links between taxonomies and the taxonomic triangulation technique are an important tool for generating knowledge and identifying diagnoses that require further study.
- The taxonomic triangulation technique promotes the integration of nursing taxonomies in clinical practice and in studies to validate care problems and their representation through languages.
- The results of this study will be able to guide the diagnosis and treatment of COVID-19 disease as well as similar processes that take place with ARDS.

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