Brazilian Nursing Process Research Network contributions for assistance in the COVID-19 pandemic

Contribuições da rede de pesquisa em processo de enfermagem para assistência na pandemia de COVID-19

Contribuciones de la Red de Investigación en Proceso de Enfermería para la asistencia en la pandemia de COVID-19

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ABSTRACT

Objective: to describe the theoretical construction process of nursing process support documents in COVID-19 care scenarios. **Methods:** an experience report of the joint activity of the Brazilian Nursing Process Research Network (*Rede de Pesquisa em Processo de Enfermagem*) composed of Higher Education and Health Institution researchers in Brazil. **Results:** five instruments were organized collectively, involving the elements of nursing practice (nursing diagnoses, outcomes and interventions) in assistance for community; for patients (with suspected or mild, moderate, and critical COVID-19 and residents in Nursing Homes); for nursing workers' health support, also subsidizing registration and documentation during the COVID-19 pandemic. **Final considerations:** valuing the phenomena manifested by families/communities, patients and health professionals is essential for early detection, intervention, and prevention of diseases.
Descriptors: Coronavirus Infections; Delivery of Health Care; Nursing Process; Standardized Nursing Terminology; Nursing Diagnosis.

RESUMO

Objetivo: descrever o processo de construção teórica dos documentos de apoio ao Processo de Enfermagem nos cenários de atendimento à COVID-19. **Métodos:** trata-se de um relato de experiência da atividade conjunta da Rede de Pesquisa em Processo de Enfermagem, formada por pesquisadores de Instituições de Ensino Superior e de Saúde do Brasil. **Resultados:** cinco instrumentos foram organizados coletivamente, envolvendo os elementos da prática de enfermagem (diagnósticos, resultados e intervenções de enfermagem) na assistência à comunidade; ao paciente (suspeito ou com COVID-19 leve e moderada, crítico e residente em Instituições de Longa Permanência para Idosos); e ao suporte à saúde do trabalhador de enfermagem, subsidiando igualmente o registro e a documentação durante a pandemia de COVID-19. **Considerações finais:** valorizar os fenômenos manifestados por famílias/comunidades, pacientes e profissionais de saúde é essencial para sua identificação precoce, intervenção e prevenção de agravos.
Descritores: Infecções por Coronavirus; Assistência à Saúde; Processo de Enfermagem; Terminologia Padronizada em Enfermagem; Diagnóstico de Enfermagem.

RESUMEN

Objetivo: describir el proceso de construcción teórica de los documentos de respaldo del Proceso de Enfermería en los escenarios de asistencia al COVID-19. **Métodos:** es un relato de experiencia de la actividad conjunta de la Red de Investigación de Procesos de Enfermería, formada por investigadores de las Instituciones de Educación Superior y Salud de Brasil. **Resultados:** se organizaron cinco instrumentos de manera colectiva, involucrando elementos de la práctica de enfermería (diagnósticos, resultados e intervenciones de enfermería) en el cuidado comunitario; al paciente (sospechoso o con COVID-19 leve y moderado, crítico y residente en Hogares para Ancianos); y apoyo a la salud del trabajador de enfermería, subsidiando además el registro y documentación durante la pandemia de COVID-19. **Consideraciones finales:** valorar los fenómenos manifestados por las familias/comunidades, pacientes y profesionales de la salud es fundamental para su identificación temprana, intervención y prevención de enfermedades.
Descriptores: Infecciones por Coronavirus; Prestación de Atención de Salud; Proceso de Enfermería; Terminología Normalizada de Enfermería; Diagnóstico de Enfermería.

INTRODUCTION

The COVID-19 pandemic (Coronavirus Disease 2019) brought a reality of health care in which decisions must be taken quickly for patient care and support for all nursing professionals involved. This context evidenced inadequacy of public health infrastructures, as they proved to be incompatible with the population's needs, especially those economically, educationally and socially fragile[1]. Since COVID-19 was discovered, incidence of cases has continued to increase worldwide. In Brazil, the first case was notified on February 26, 2020, and, until August 8, 2020, 3,012,412 cases and 100,477 deaths from the disease were confirmed[2].

The new coronavirus' origin (officially called SARS-CoV-2) that causes COVID-19 is not yet certain. The virus was first detected in the city of Wuhan, China, due to the growing number of respiratory disease cases. Such pneumonia of unknown cause was first reported to the World Health Organization (WHO) office in China on December 31, 2019. Due to the rapid transmission to other regions, the COVID-19 outbreak was declared a public health emergency of international concern on January 30, 2020, and on March 11, WHO recognized it as a pandemic[3].

COVI-19 is transmitted through respiratory droplets, direct and indirect contact through the hands, as well as contaminated objects or surfaces[4]. Treatment for this disease is under study and there is still no vaccine available. For prevention, national and international health agencies recommend measures that reduce the disease to spread, such as social distance, mask use, constant hand hygiene and respiratory etiquette[3-4].

Global public health initiatives are focused on preventing, containing and mitigating the spread and severity of COVID-19[1]. Nurses remain at the frontline, working on community and individual problems, providing relief and meeting biological, psychosocial and spiritual needs. Given the sudden and growing demand for care at different levels of complexity in the health system, a war approach has been put in place. This approach requires clinical reasoning and decision-making skills, based on structured mental models, capable of guiding nurses' work. In this scenario, the Nursing Process (NP) must reaffirm itself as a strong instrument for favoring identification of care needs, planning and execution of interventions that collaborate for favorable outcomes of individuals, families, groups and communities within the scope of a systematic organization of necessary services to provide health care.

The NP is a systematic guide that guides nurses' diagnostic and therapeutic reasoning. Moreover, the NP guides professional practice documentation, as recommended by Resolution 358/2009 of Brazil's Federal Nursing Council (Cofen - *Conselho Federal de Enfermagem*)[5]. The elements of professional practice that make up the NP (nursing diagnoses, interventions and outcomes) can be documented using the standardized language conveyed by Nursing Classification Systems.

Nursing Classification Systems facilitate the use of nurses' disciplinary knowledge, allowing, in the interdisciplinary context, to highlight their unique contribution to health teams[6-7]. They also help to document evidence-based nursing care, as they are developed through research, in addition to favoring nursing activity introduction in computerized systems, such as electronic medical records and decision support software[8-9].

The NANDA International (NANDA-I) Nursing Diagnoses[10], the Nursing Outcomes Classification (NOC)[11], the Nursing Interventions Classification (NIC)[12] and the International Classification for Nursing Practice Nursing (ICNP®) are among the several Classification Systems[13].

Thus, bearing in mind the pandemic challenges, Nursing Process Research Network (RePPE - *Rede de Pesquisa em Processo de Enfermagem*) members mobilized in order to contribute with strategies that can favor safe care and make professional practice documentation easier. This mobilization was also motivated by the desire to add efforts to Brazilian policies to guide patient care with suspected or confirmed COVID-19, in order to contribute to nurses' visibility and autonomy in their professional practice.

RePPE is composed of Higher Education and Health Institution researchers in Brazil from different regions and states, aiming at generating, synthesizing and sharing knowledge about NP and Nursing Classifications. RePPe's creation was made official in February 2020, when its objectives were defined, such as producing and disseminating research; establishing methodological standards; instituting reference standards to assess the quality of the research evidence that has the NP and Nursing Classification Systems as a focus.

RePPE's first joint action was creating five instruments involving the elements of nursing practice (nursing diagnoses, outcomes and interventions) for assisting the Brazilian community and patients and supporting nursing workers' health in times of the COVID-19 pandemic as well as streamline consultation time to Standardized Language Systems. Such documents are based on the NP stages and Nursing Classification Systems, being directed to nurses and nurse managers. It is important to note that such instruments are not prescriptive, they do not exhaust the possibility of human responses, treatments and outcomes sensitive to nursing in the context of the pandemic. They must be used after individual data collection, based on the Ministry of Health[14-15] protocols and/or reference used by each service, identification and mental grouping of clinical indicators for use of care services for patients with COVID-19, given their urgency.

OBJECTIVE

This study aims to describe the theoretical construction process of NP support documents in COVID-19 care scenarios.

METHOD

This paper reports the process of theoretical construction of support documents for nursing care for patients with suspected or confirmed COVID-19, carried out by RePPE researcher members.

Study protocol

The process of developing documents aimed at facilitating care documentation in the context of the COVID-19 pandemic began by selecting scenarios of interest. Three expert nurses defined community and health institutions as assistance scenarios. Concerning health institutions, it was decided that RePPE members would develop documents to assist patients with suspected

or confirmed COVID-19 and for health professionals. For each scenario, a set of nursing diagnostic titles considered relevant and representative of some possible physical, physiological, psychosocial and spiritual needs of groups and individuals was discussed, based on NANDA-I's Nursing Diagnosis Classification[10] and ICNP®[13]. Diagnoses focusing on problem, risk and syndrome have been included.

The proposed diagnoses were presented in a meeting with 16 RePPE members, and their relevance by scenario was discussed. Relevance was assessed considering evidence from the literature and clinical practice as to clinical clues to human responses presented by individuals and their possible antecedent factors. All members who participated in this discussion are professionals with experience regarding using nursing classifications in teaching, research, and care. The list of diagnoses was shared in a file storage and synchronization service for simultaneous editing, aiming at confirming and proposing new diagnoses of the referred classifications, in addition to including the NOC outcomes, whose indicators were aligned with NIC's and ICNP®'s diagnostic elements, interventions and nursing activities that represented possible treatments to relieve clinical clues or eliminate antecedent factors.

The edited content allowed structuring four documents to support NP implementation and registration. Such documents were organized based on the previously defined scenarios (community and health institution). In the scenario constituted by health institutions, the possible diagnoses proposed for patients made it possible to organize two documents: one for patients with a mild or moderate clinical picture, with suspected or confirmed COVID-19, and the other for critically ill patients. The other two documents were directed to health professionals and to families/community. Structuring took place in four meetings that involved the participation of five RePPE members. These members reviewed the list and reflected on the relevance of possible diagnoses, outcomes and interventions for scenarios of assistance to people and communities across the country. Nursing Classification Systems were consulted to discuss definitions and composition of elements of nursing practice as well as reflection on the complexity or specificity of diagnoses, outcomes and interventions. The four documents developed contained information from persons and community assisted, nursing diagnoses, nursing outcomes with their respective magnitude scales, nursing interventions and activities.

The preliminary documents were submitted to appraisal by RePPE members, with discussions mediated by an instant messaging application. All suggestions were analyzed by five members and accepted for documents that supported assistance to community and critically ill patients. After approval, the four documents were made available in DOC and PDF format files, sent to health institutions and posted on the RePPE website. The document entitled "Nursing diagnoses, outcomes and interventions for family/community assistance in the COVID-19 pandemic" was developed to be used with families/communities where nurses work. The documents entitled "Nursing diagnoses, outcomes and interventions for patients with suspected and mild, moderate or severe COVID-19" and "Nursing diagnoses, outcomes and interventions for caring for patients with COVID-19

in critical condition during the pandemic" were designed to be implemented in hospital with patients suspected or with confirmed COVID-19 and for critical patients. The document "Nursing diagnoses, outcomes and interventions for health professionals' protection" was developed so that managers and nurses at work can monitor nursing team workers' health. After the construction process was completed, the documents were also translated into English and Spanish.

A new document has been produced by RePPE members to guide nursing care for older persons in Nursing Homes (NHs). The theoretical construction of the document for older persons was motivated by the increasing spread of COVID-19 in NHs, entitled "Nursing diagnoses, outcomes and interventions for elderly residents in Nursing Homes with suspected or confirmed COVID-19".

Partnerships were made with professional bodies to disseminate the documents, such as the Brazilian Nursing Association (ABEn - *Associação Brasileira de Enfermagem*), the Federal Nursing Council (Cofen - *Conselho Federal de Enfermagem*) and the Regional Nursing Councils (Corens - *Conselhos Regionais de Enfermagem*).

RESULTS

Nursing diagnosis, outcomes and interventions for family/community

COVID-19 caused a significant increase in demands for health care, imposing new challenges on nursing professionals, in addition to requiring in a short time, a restructuring of health services in community and in hospitals[16]. Family/community-centered care aims to achieve health promotion and, more specifically, in the pandemic moment, prevention against COVID-19 and monitoring the population for early detection of signs and symptoms of COVID-19. Thus, providing that health services provide assistance to users, family, and community, with a view to raising awareness of the current epidemiological scenario[17].

"Family", according to ICNP®, is defined as "a group represented by a social unit or the collective whole composed of people linked by consanguinity, kinship, legal or emotional relationship, with the unit or the whole being seen as a larger system than the sum of its parts". "Community", in turn, is defined as "a group of human beings as a social unit or the collective whole, linked by sharing the geographical area, conditions and interests"[18]. Both terms are part of the "client" axis and can be used to compose nursing diagnoses, outcomes and interventions, in their original or adjective form (family/community).

Based on the NANDA-I Taxonomy, nurses can assume the family as the subject of diagnosis, which is defined as "a group of two or more people who have continuous or permanent relationships, who perceive reciprocal obligations, have common meanings and share certain obligations to other people; related by blood and/or by choice". They can also integrate the community, which represents "a group of people who live in the same place under the same government"[10].

Based on such definitions, RePPE researchers worked on proposing diagnoses, outcomes, interventions and nursing prescriptions. They base on clinical and therapeutic judgment to meet the possible of the family's/community's needs in facing

the SARS-Cov-2 pandemic, based on phenomena identified in the clientele after data collection. RePPe's support material, in its first version, lists 20 nursing diagnoses, namely: two related to the contamination phenomenon - Risk of Contamination and Contamination; one relating to impaired home maintenance; six to the psychosocial process - Fear, Anxiety, Anxiety Related to Death; Unbalanced Energy Field; Stress Syndrome Due to Change and Hopelessness; three to the socialization process - Impaired Social Interaction, Risk of Loneliness and Involvement in Reduced Recreational Activities; one for Risk-Seeking Health-Seeking Behavior; one for Deficient Knowledge; four for the grieving process - Anticipated Grieving Process, Family Grieving Process, Risk of Dysfunctional Family Grieving Process and Dysfunctional Grieving Process; and two to coping: Ineffective Community Coping and Committed Family Coping.

Knowing the possible focuses of care allows nurses to guide them to clinical judgment regarding the nursing diagnoses that best represent each situation in the family and community context, representing a proactive action by nurses[19]. It also allows nurses to focus on preventive management of illness by COVID-19, thereby avoiding the situation that is so feared of overcrowding in health services, involving family and community as leaders in the health care process of their members.

Based on each diagnosis that can be identified, nurses will be able to outline a care plan, developing a connection between diagnoses, outcomes and nursing interventions in the face of situations of each individual or group. The support material includes possible prescriptions, listed as a possibility to achieve the NOC's expected outcomes, in accordance with the NIC and ICNP® interventions, which serve as a basis for recording nursing actions performed in the face of the diagnoses identified. Thus, for the different phenomena, outcomes related to the Community Response to Disasters are assessed; Community Risk Control: Contagious Diseases/Infectious Process; Control of Symptoms; Family Functioning; Comfort Status: Environment; Family/Community Coping; Psychosocial Adaptation: Life Change; Self-Control of Anxiety; Social Interaction Skills; Social Involvement; Loneliness Severity; Health-Seeking Behavior; Knowledge: Personal Security; Personal/Family Resilience; Grieving Resolution; Depression Level.

The definitions of family and community bring to the fore that nursing actions for this clientele must foresee the scope and characteristics of the groups involved in care, as well as the purpose of interventions considering the expected outcome. Although the initial cases of COVID-19 in Brazil have been identified in economically privileged social groups, the pandemic progression has revealed inequalities in prevention practices and the ability to change family and community routines, which are determined by groups socially conditioned by their insertion in the productive process and, consequently, socially changeable in their routines. Thus, when considering possible nursing diagnoses, outcomes and interventions proposed by RePPE's documents, nurses should assess the family and community's social insertion, their determinants and health conditions, supporting a diagnostic identification based on evidence found in data collection and proposing interventions that are more appropriate to the context.

Thus, based on the care field selection, which, in the case of this manuscript, is a communicable disease of a pandemic character,

nurses will make clinical decisions centered on NP aiming at: a) enhancing the community's response capacity[20], which has as examples nursing diagnoses, outcomes and interventions aimed at coping; b) supporting the finitude of life and grieving[21-22], which has as an example the diagnoses, outcomes and nursing interventions focused on the grieving process; c) reducing the risk for community contamination; d) supporting adaptive processes and their consequences. These objectives are in line with the NOC outcomes presented in RePPE's document.

Nursing diagnoses, outcomes and interventions for patients suspected or with mild and moderate COVID-19

As the pandemic progresses, it is observed that people have manifested signs and symptoms that present themselves in a clinical spectrum representative of different levels of severity. For this reason, the clinical picture of COVID-19 has been classified into mild, moderate, severe, and critical[23-24].

Critical patients have required attention due to high risk of death. However, patients with mild or moderate spectrum have accounted for more than 80% of COVID-19 cases[23]. Regardless of the clinical picture's spectrum of manifestation, it is recommended that all patients with COVID-19 symptoms be admitted to health facilities to prevent disease progression, and should be isolated from susceptible populations, to avoid further transmission[25]. Unfortunately, the virus' rapid transmission makes it impossible for all symptomatic patients to be hospitalized due to saturation of health systems, leading to the need to adopt other care strategies. Thus, in Brazil, given the scarcity of resources, patients with mild COVID-19 have been treated at home. Meanwhile, patients with a moderate to severe clinical picture and at individual risk of disease progression have been admitted to different health units including Emergency Care Units (ECUs), field hospitals or referral services and nursing beds, to monitor their clinical condition.

In the light and moderate spectra, the manifestation of a variability of clinical signs associated with the respiratory, gastrointestinal, cardiovascular, hematological and neurological systems is common. Among the signs and symptoms, pain, cough, sputum, anorexia, hyposmia, hypogeusia, nasal obstruction, rhinorrhea, diarrhea and fatigue stand out[23,26-28]. Moderate and severe cases still have dyspnea, fever and hypoxemia[20-21]. Although limited, the evidence has pointed out that the presence of signs that reflect respiratory function, such as dyspnea and hypoxemia, have been related to the clinical deterioration of patients, especially in those with advanced age and comorbidities[29-31].

When considering the available evidence on patients' clinical profile with mild and moderate COVID-19, RePPE experts selected nine nursing diagnoses as important human responses possibly manifested by patients, namely: Risk of Infection (0004); Ineffective Breathing Pattern (00032); Impaired Gas Exchange (00030); Ineffective Airway Clearance (00031); Impaired Spontaneous Ventilation (00033); Activity Intolerance (00092); Hyperthermia (00007); Diarrhea (00013); Impaired Comfort (00214)[10].

Evidence holds that impaired gas exchange settles silently as SARS-CoV-2 injures the pulmonary parenchyma, generating vasodilation, endothelial permeability, leukocyte recruitment and extensive consolidation[32]. As a consequence of this progression,

other diagnoses may be installed, such as ineffective breathing pattern, activity intolerance and ineffective airway clearance. Impaired gas exchange may also represent an important risk factor for the diagnosis of impaired spontaneous ventilation.

In order to contribute to assessing and monitoring respiratory health status and the impact of nursing team care, the following nursing outcomes should be measured: Respiratory Status: Ventilation (0403); Respiratory Status: Gas Exchange (0402); Respiratory Status: Airway Patency (0410)[11].

A continuous collection and analysis of patient information should be considered as essential elements of nursing care for patients with mild and moderate COVID-19. In this sense, RePPE members recommended Respiratory Monitoring (3350). Airway Management (3140) interventions were also suggested to facilitate air passage; Oxygen Therapy (3320) was suggested for administration and monitoring of oxygen effects; Acid-Base Management (1910) was suggested to promote acid-basic balance and prevent complications[12].

In addition to lung tissue, SARS-CoV-2 invades other cells in the body, triggering inflammatory responses and typical hematological changes, thus increasing the risk of infection and occurrence of other diagnoses such as hyperthermia, diarrhea and a general picture of impaired comfort, including acute pain as a physiological characteristic. Based on these diagnoses, the following outcomes were suggested: Risk Control: Infectious Process (1924); Thermoregulation (0800); Electrolyte Balance (0606); Hydration (0602); Comfort Status (2008); Pain Level (2102). Also, the following interventions were suggested: Infection Protection (6550); Temperature Regulation (3902); Medication Administration (2300); Fluid Management (4120); Electrolyte Control: Hypermagnesemia (2003); Pain Management (1400); Sedation Management (2260)[11-12].

Considering that a large proportion of patients with COVID-19 have manifested negative human psychological and behavioral responses associated with disease progression, death, loneliness and concern for friends' and family's well-being, RePPE members have included the following diagnoses: Death Anxiety (00147); Fatigue (00093); Fear (00148); Hopelessness (00124); Disturbed Sleep Pattern (00198)[10]. The following nursing outcome and interventions were also suggested: Anxiety Level (1211); Emotional Support (5270); Anxiety Reduction (5820); Hope Inspiration (5310); Self-Care Assistance (1800)[11-12].

Diagnoses, outcomes and interventions and nursing for critically ill patients with COVID-19

The admission rate of patients with COVID-19 in critical environments has ranged from 2% to 32%[33-37]. Clinical deterioration has developed around one to two weeks after the onset of symptoms and is related to intervening factors such as advanced age and comorbidities such as cardiovascular and cerebrovascular diseases[33-36].

Patients with the severe form of COVID-19 initially develop clinical signs of hypoxemic Acute Respiratory failure (ARF) due to alveolar-capillary membrane destruction, with hypoxemia refractory to high oxygen concentrations, diffuse bilateral infiltrates with the presence of frosted glass imaging on chest tomography without increased pulmonary capillary pressure, characterizing

Acute Respiratory Distress Syndrome (ARDS). ARDS is considered the main cause of respiratory failure in this population and is associated with high morbidity and mortality[37].

Hypoxemic ARF and ARDS development, initially presented by patients with the severe form of COVID-19, trigger clinical signs that may support identifying Impaired Gas Exchange (00030) and Impaired Spontaneous Ventilation (00033), present in NANDA-I classification's elimination and exchange and activity/rest domains[10].

As recommendations for treating ARF and consequent ARDS are early onset of invasive ventilatory support with low tidal volume (4 to 8 ml/kg), pressure of plateau less than 30 cmH$_2$O, elevation of PEEP and adjustment of FiO$_2$ to maintain PaO$_2$ greater than 80 mmHg; in refractory cases, alveolar recruitment maneuvers with prone positioning are suggested. For ventilatory support to be performed properly, it is recommended using sedative and analgesic drugs, in addition to neuromuscular blockers to facilitate pulmonary protection[37].

These interventions, although therapeutic and necessary, can lead to secretion accumulation in the respiratory tract and decreased airway protection, dependence on hygiene/feeding/mobilization, increased risk of developing skin and cornea lesions, which supports the inference of other nursing diagnoses, such as ineffective airway clearance, risk of aspiration, risk of corneal injury, risk of pressure injury, impaired hairless integrity, deficit in self-care for bathing, deficit in self-care for feeding and deficit in self-care for intimate hygiene[10].

Given the possible nursing diagnoses, some nursing outcomes can be considered for the establishment of goals to be pursued through nursing care, especially with regard to NOC's physiological health and functional health domains. Among the main outcomes are: Respiratory Status: Ventilation (0403); Gas Exchange (0402); Airway Patency (0410); Mechanical Ventilation Response: Adult (0411). And as outcomes of the treatment imposed: Tissue Integrity: Skin & Mucous Membranes (1101); Wound Healing: Secondary Intention (1103); Dry Eye Severity (2110); Self-Care: Hygiene (0305); Nutritional Status: Food & Fluid Intake (1008)[11].

For positive outcomes to be achieved in this population, a series of nursing interventions present in NIC's basic physiological and complex physiological domains[27] was proposed, which include care that supports individuals' physical functioning and homeostatic regulation. This list is not prescriptive, but should be used individually and according to nurses' clinical and critical reasoning, who identifies each patient's needs and, thus, make their decision.

Therefore, among the interventions proposed for the improvement and/or solution of the possible nursing diagnoses mentioned are: Respiratory Monitoring (3350); Airway Management (3140); Mechanical Ventilation Management: Invasive (3300); Ventilation Assistance (3390); Acid-Base Management (1910). Eye Care (1650), Self-Care Assistance (1800), Positioning (0840), Pressure Ulcer Prevention (3540), Skin Surveillance (3590), and Wound Care (3660) are also important[12].

Other complications may occur as COVID-19 develops such as sepsis, shock, acute cardiac injury with significant increase in troponin and signs of ventricular failure, acute kidney injury and multiple organ dysfunction[34-37], in addition to abnormalities

in coagulation. Therefore, in the face of these possible clinical complications, nurses can infer nursing diagnoses, namely: Risk for Fluid Volume Deficit (00028); Ineffective Peripheral Tissue Perfusion (00204); Risk for Unstable Blood Pressure (00267); Risk for Unstable Blood Glucose (00179); Shock Risk (00205)[10].

NOC outcomes were selected for these nursing diagnoses that measured the severity of hydroelectrolytic balance, such as Fluid Balance (0601), Electrolyte Balance (0606), Vital Signs (0802), hyperglycemia or hypoglycemia management, Shock Severity: Septic (0421), and Shock Severity: Cardiogenic (0418)[11].

The NIC interventions selected to achieve the proposed outcomes were supported by the current recommendations to care for patients with hemodynamic disorders and in renal replacement therapy; they are present in the Complex Physiological domain: Hydroelectrolytic Control (2080); Hemodynamic Regulation (4150); Medication Administration (2300); Hyperglycemia Management (2120); Hypoglycemia Management (2130); Shock Prevention (4260); Shock Management (4250)[12].

In addition to all these possible dysfunctionalities that occur in patients with COVID-19, it is also possible to identify signs of difficulty in ventilatory weaning due to lung parenchyma destruction by an inflammatory process[38]. In these cases, nurses verify the difficulty or inability of patients to support the reduction of mechanical ventilatory support parameters, which denotes the presence of Dysfunctional Ventilatory Weaning Response[10]. When assessing the outcomes related to this diagnosis, nurses can use the NOC outcome Mechanical Ventilation Weaning Response: Adult (0412)[11]. To obtain an effective outcome, it is suggested to implement nursing actions present in the NIC intervention Mechanical Ventilatory Weaning (3310)[12].

As described, in general, critical patients with COVID-19 have multiple systemic conditions that require medical and nursing interventions associated with various invasive procedures that leave them more exposed to pathogens of different origins present in the hospital setting, which reports the inference of Risk of Infection. For assessment, it is suggested using indicators of the NOC outcome Risk Control: Infectious Process[11]. Among the NIC interventions, Infection Protection was listed[12], with several activities, such as maintaining contact and aerosol isolation, restricting visits and washing hands, whenever indicated.

In addition to these diagnoses, which reflect signs, symptoms and risk factors that strongly strike balance and maintain the physiological needs of patients with suspected or confirmed COVID-19, it is necessary to consider that they also present impairment of the functional role performance pattern and relationship, with the presence of Interrupted Family Processes[10] due to the abrupt change in their health status and the need for therapeutic isolation. Therefore, nurses must also assess Loneliness Severity, which is one of the outcomes proposed by NOC[11], described in the Psychosocial Health domain. As proposed interventions[12] are Emotional and Family Support, in addition to Family Presence Facilitation, which have been carried out through technological support, such as cell phones and computers; the presence of family members is not indicated due to the risk of COVID-19 to spread. These interventions seek to support the psychosocial functioning of individuals and their families, providing comfort and mitigating emotional distress.

Nursing diagnoses, outcomes and interventions for older persons in Nursing Homes with COVID-19

Brazilian NHs have historically been defined as governmental or non-governmental institutions, of a residential character, destined to the collective domicile of people aged 60 or over, with or without family support, under conditions of freedom, dignity and citizenship[39]; therefore, with a social character and that does not necessarily need a health and nursing team in their composition. However, the aged popup, NHs have modified their scope, serving an elderly population mostly with cognitive and functional disorders, expanding the social scope for a mixed purpose, that is, socio-sanitary. Currently, NHs have experienced the need to adopt an institutional policy very similar to what the developed countries call long-term care, long-term care that has a philosophy and training based mainly on geriatrics and gerontology, palliative care and rehabilitation[40-41].

In the midst of this transition and an absence of government policies defined to meet this change in Brazil[42], COVID-19 poses a threat to older persons and, consequently, put NHs in a scenario of extreme vulnerability[40-41].

Thinking about this emerging context for morbidity and mortality by COVID-19, RePPE developed an instrument to assist nurses in NP performance and documentation. Following the steps, the instrument starts with a history based on the recommendations of the Ministry of Health to assess nursing technicians, focused on measuring vital signs (temperature, heart rate, respiratory rate, saturation and blood pressure), and nurses (shows respiratory signs, fever, suspected case of flu syndrome, general assessment, comorbidities, medications for continuous use, allergies)[41].

Thus, the main nursing diagnoses in NHs were identified to prevent or mitigate the spread of COVID-19. The logic of structuring the instrument was primarily due to environmental-collective and individual actions in order of priority, i.e., with life risk. It was considered that the instrument should cover the same scenario without any cases, but that it needed preventive measures and active case search, a scenario with isolated cases and an imminent need for detection and monitoring of serious cases[39,43].

Contamination Risk (00180)[10] was established as the first diagnosis, given the institution's susceptibility to exposure to contaminants. Communicable Disease Management (8820), Risk Identification (6610), Immunization/Vaccination Management (6530), Environmental Management: Worker Safety (6489)[12] have been selected; they were carried out in order to promote a Safe Home Environment (NHs) (1910) and Community Risk Control: Communicable Disease (2802)[26]. It is important to emphasize that nurses must daily perform assistance, management and educational activities to monitor the environment, employees and older persons in relation to real and potential risks for coping with COVID-19. These are detailed in the proposed instrument.

An important nursing diagnosis of coping with this pandemic is Risk of Infection[10]. Insufficient knowledge to avoid exposure to an outbreak of the disease, mainly due to the challenge of elderly people with cognitive impairment to adhere to measures of social distance, use of masks and hand hygiene; elderly people with advanced age and with multiple morbidities living in the community and with caregivers outside the institution who, when moving or

working in more than one place, increase their exposure to the pathogen, makes the elderly population living in NHs more susceptible to invasion and multiplication viral infection. Individually, Infection Control (6540) actions are carried out with case isolation, notification, monitoring and early treatment to achieve Infection Severity (0703), and Infection Protection (6550) measures with room cleaning and disinfection measures and environments, distance and proper use of Personal Protective Equipment (PPE) to obtain Risk Control: Infectious Process (1924)[10-12].

Nursing teams must be organized to identify Ineffective Breathing Pattern (00032), with Surveillance (6650) of cases and determination of health risks for residents, with Vital Signs Monitoring (6680), establishing a risk stratification and flowchart of parameters when to contact the assistant team, emergency and clinical health services and communication with the family. Assessment, Respiratory Monitoring (3350) and Airway Management (3140) using continuous non-invasive oxygenation sensors and the positioning of older persons aim at maintaining Respiratory Status: Airway Patency (0410). However, it is known of the limitation of some institutions when the administration of aerosols is necessary, with its consequent cleaning and disinfection, and even more the emergence of an integrated support network, as many do not have infrastructure for isolating or handling cases.

Older persons must be given due importance in confusional, disoriented, agitated and or aggressive states. These may be the first warning signs of Severity of Symptoms (2103) to the detriment of Hyperthermia (00007), due to senescent mechanisms in the Thermoregulation system (0800), as well as Diarrhea (00013); they have been reported in some cases and can strongly impact the severity of the cases due to the need for constant assessment of the outcomes Electrolytic Balance (0606) and Hydration (0602), establishing measures for Fluid Management (4120) and Electrolyte Management (2000) as the record episodes of diarrhea, measuring urine output, monitoring hydration status and, if possible, weighing patients with diarrhea daily. If residents have diarrhea, fever, are bedridden, have difficulty breathing or are restricted to bed by isolation, Pressure Ulcer Risk (00249) increases; therefore, Positioning (0840), Pressure Ulcer Prevention (3540), Skin Surveillance (3590) and Wound Care (3660) and those already established to promote Tissue Integrity: Skin & Mucous Membranes (1101) and Wound Healing: Secondary Intention (1103) are needed[10-12].

There is also the diagnosis Frail Elderly Syndrome (00257), which is very important both to classify at-risk older persons and to assist nurses in monitoring the impact of COVID-19 and its measures of social distance on the functional capacity of older persons. Therefore, its identification can help nurses plan nursing actions to promote quality of care and care offered as Self-Care Assistance: IADL (1805), Cognitive Stimulation (4720), Reality Orientation (4820), Socialization Enhancement (5100), and Energy Management (0180)[10-12].

With COVID-19's social distancing actions, family visits were suspended and the family bond was compromised, which is why assessing Interrupted Family Processes (0060) guarantees holistic assistance of nurses. Adopting nursing actions to promote Family Support (7140), Emotional Support (5270) and Family Presence Facilitation (7170), such as using digital tools and protection cameras, has been an innovative strategy to reduce Loneliness Severity (1203)[10-12].

Nursing diagnoses, outcomes and interventions for health professionals

Health professionals are directly involved with the diagnosis, treatment and care of patients, working at different levels of care, which puts them at great risk of contracting COVID-19 and emotional distress[43-45].

Maintaining an adequate workforce in this crisis situation requires a balanced dimensioning of professionals. Care for critically ill patients can last from weeks to months, a work context that requires teams to cope with social changes and emotional stressors, with a greater risk of exposure to the virus, extreme workloads, moral dilemmas and rapid progression in the clinical environment[44,46].

Thus, an efficient health security system is needed to promote workers' health and not put their lives at risk. It is imperative, in the current scenario, to offer adequate sanitary conditions, PPE in quantity and quality, and also to implement updated prevention training, guidance, protocols and procedures[43-44].

Since the COVID-19 pandemic began, the number of contaminated people, deaths and suspected cases among health professionals in Brazil has been increasing, as well as the absence from work and overload of those who remain working. The problem is aggravated when there are professionals from risk groups kept on the front line of assistance, shortage of PPE, deficient training, undersized teams and lack of proof of infection. Professionals are overloaded with work and away from family and friends, which subjects them to physical and emotional suffering[43-44,46-47].

These professionals have expressed human responses to suffering. Thus, RePPE experts proposed nursing diagnoses that may be present in health professionals, especially nursing professionals, in the scenarios of care practice for patients victims of COVID-19: Hopelessness (00124); Post-Trauma Syndrome (00141); Risk for Suicide (00150); Risk for Contamination (00180); Risk of Infection (00004); Ineffective Protection (00043)[10]. It is considered that the assessment of professionals to identify their care needs can be performed in nursing consultations by a work nurse or immediate manager.

In addition to the phenomena mentioned, manifestations of Anxiety (00146) and Fear (00148) are frequent in health professionals[45], and understanding its causes is fundamental for effective approaches to be developed. The main focus should be on support efforts[45,48].

The phenomena listed may impact the physical, psychosocial and quality of life health of nursing professionals, and to measure and treat them, nursing outcomes[10] and interventions[12], respectively, have been proposed. Thus, they are expected to demonstrate the following nursing outcomes related to human psychosocial responses: Motivation (1209); Community Resilience (2704); Self-restraint to Suicide (1408); Coping (1302); Control of Anxiety (1402) and Fear Self-Control (1404). Regarding the outcomes related to aspects of functional and physiological health, Risk Control: Infectious Process (1924) and Safe Health Care Environment (1934) were considered[11].

Nursing interventions, to achieve these outcomes, include: Active Listening (4920); Anxiety Reduction (5820); Hope Inspiration

(5310); Suicide Prevention (6340); Environment Management: Worker Safety (6489); Infection Protection (6550); Risk Identification (infection) (6610); Immunization/Vaccination Management (6530); Infection Control (6540)[12].

The prescriptions listed for psychosocial nursing diagnoses and outcomes involve, but are not limited to: avoiding barriers to active listening; paying attention to non-verbal messages and unexpressed feelings; identify changes in mood control as early as possible; assessing the level of anxiety, whenever possible, with appropriate professional and resources; honestly rationalizing the impacts of professional action during the crisis and the limits of decision-making; assisting professionals to take on behaviors and routines that reduce stressful situations; encouraging professionals to verbalize their level of psychological discomfort with professionals trained in support; assess sleep indicators such as hours, pattern, efficiency, routine, feeling of repair upon waking, number of interruptions; helping professionals to rationalize about the temporary nature of a crisis; encouraging repertoire expansion of coping mechanisms; encouraging new life projects for the future; using a direct, non-judgmental approach when discussing suicide; providing information on community resources and available outreach programs; improving access to mental health services; assisting professionals to identify a network of people and support resources; providing integrative and complementary practices to improve levels of anxiety and fear[12].

In relation to nursing diagnoses and outcomes regarding physiological and functional health, the following were established as possible prescriptions: ensuring the adoption of workers' safety and health agencies recommendations and workplace adherence to standards; guaranteeing the necessary resources for protection and safety at work; identifying risks in the workplace; advising on the adoption of universal precautions; advising on the proper use and removal of PPE; maintaining contact and droplet isolation; performing swab collection in cases of suspected COVID-19; assessing network of contacts with suspected cases; advising on the need for storage of clothes and baths when returning home; advising on cleaning and disinfection at home; monitoring adherence to security measures; identifying environment organization and management to prevent COVID-19 from spreading; reviewing routine practices in the search for infection risks; maintaining continuous engagement in educational activities aimed at training in infection control; maintaining control and update of the personal immunization and vaccination program; maintaining a balanced diet and a diet with an adequate and balanced nutritional content[12,45].

Moreover, health professionals must monitor themselves, report signs suggestive of illness and not get involved in patient care while they have infectious symptoms. Should be given priority when tests, vaccinations and treatments become available and in instrumentalization regarding the proper use of PPE and hygiene[44-45,47].

Managers and leaders need to support their teams in this pandemic scenario, develop transparent communication and contribute to an environment of cooperation, with attention to self-care. Inadequate working conditions, with scarcity of human and material resources, associated with frequent experiences of death of patients, generate a risk for safety and intense emotional suffering[45]. When this context is maintained for a long time, professionals are at risk of developing depression, post-traumatic stress disorder and anxiety[44-45], making a care plan implementation relevant, with institutional support and monitoring.

CONTRIBUTIONS FOR PRACTICE

All documents produced describe the nursing practice elements that are representative of some physiological and psychosocial changes produced directly and/or indirectly by COVID-19, with a view to serving as a historical and clinical record of nurses' performance as well as allowing for proper visibility of professional performance. As such nursing elements might be in an unorganized way due to the limited knowledge about COVID-19, mainly of the joint relationships between diagnoses, interventions and outcomes, and due to the lack of published scientific material, the support documents produced can be useful for quick access and dissemination of the NP steps record. Furthermore, these documents can be guiding research projects that aim to measure, assess and monitor human responses, including their clinical dimensions and social impacts; monitoring nursing care outcome indicators; assessing the effectiveness of the proposed care plans, collaborating to obtain better physiological, psychosocial, or quality of life outcomes.

FINAL CONSIDERATIONS

Valuing the phenomena manifested by families/communities, patients and health professionals is essential for early detection, intervention and prevention of the disease. RePPE's support documents can favor planning interventions and organizing the necessary services to carry out health care in the scenarios of coping with the COVID-19 pandemic.

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