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Basic human needs affected and nanda-i nursing diagnoses for critically ill patients with covid-19

Necessidades humanas básicas afetadas e diagnósticos de enfermagem da nanda-i para pacientes graves com covid-19

Necesidades humanas básicas afectadas y diagnósticos de enfermería de nanda-i para pacientes graves con covid-19

ABSTRACT

Objective: To identify the Basic Human Psychobiological Needs and Nursing Diagnoses of NANDA-I for patients with covid-19 admitted to an intensive care unit. **Method**: descriptive, documentary, cross-sectional and quantitative study carried out in an intensive care unit for patients diagnosed with covid-19, using the patients' electronic medical record as a data source. For data analysis, descriptive statistics were used, being evaluated absolute and relative frequency, mean and standard deviation. **Results:** Seven Basic Psychobiological Human Needs and 15 more frequent Nursing Diagnoses were identified. **Conclusion:** the use of the Nursing Care Systematization and the operationalization of the Nursing Process assist in the individualized planning of care aimed at critical patients with covid-19 hospitalized in intensive care units. The identification of these needs contributes to the management of care and improves the quality of nursing care.
Descriptors: Nursing Diagnosis; COVID-19; Intensive Care; Nursing Process; Standardized Terminology in Nursing

RESUMO

Objetivo: Identificar as Necessidades Humanas Básicas Psicobiológicas e os Diagnósticos de Enfermagem da NANDA-I para pacientes com covid-19 internados em unidade de terapia intensiva. **Método**: estudo descritivo, documental, transversal e quantitativo, realizado em uma unidade de terapia intensiva para pacientes com diagnóstico de covid-19, utilizando como fonte de dados o prontuário eletrônico do paciente. Para análise dos dados utilizou-se estatística descritiva, sendo avaliado frequência absoluta e relativa, média e desvio padrão. **Resultados:** foram identificadas sete Necessidades Humanas Básicas Psicobiológicas e 15 Diagnósticos de Enfermagem mais frequentes. **Conclusão:** o uso da Sistematização da Assistência de Enfermagem e a operacionalização do Processo de Enfermagem auxilia no planejamento individualizado do cuidado voltado à pacientes críticos com covid-19 internados em unidades de terapia intensiva. A identificação dessas necessidades contribui para o gerenciamento do cuidado e melhora a qualidade da assistência de enfermagem.
Descritores: Diagnóstico de Enfermagem; COVID-19; Cuidado Intensivo; Processo de Enfermagem; Terminologia Padronizada em Enfermagem

RESUMEN

Objetivo: Identificar las Necesidades Humanas Básicas psicobiológicas y los Diagnósticos de Enfermería de NANDA-I para pacientes con covid-19 que ingresaron en una unidad de cuidados intensivos. **Método:** estudio descriptivo, documental, transversal y cuantitativo realizado en una unidad de cuidados intensivos para pacientes con diagnóstico de covid-19, utilizando como fuente de datos la historia clínica electrónica del paciente. Para el análisis de los datos se utilizó estadística descriptiva, que evaluó la frecuencia absoluta y relativa, la media y la desviación estándar. **Resultados:** se identificaron siete Necesidades Humanas Básicas Psicobiológicas y 15 Diagnósticos de Enfermería más frecuentes. **Conclusión:** el uso de la Sistematización de la Atención de Enfermería y la puesta en marcha del Proceso de Enfermería ayuda en la planificación individualizada de la atención dirigida a pacientes críticos con covid-19 hospitalizados en las unidades de cuidados intensivos. La identificación de esas necesidades contribuye a la gestión del cuidado y la mejora de la calidad de la atención de enfermería.
Descriptores: Diagnóstico de Enfermería; COVID-19; Cuidados Críticos; Proceso de Enfermería; Terminología Normalizada de Enfermería

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INTRODUCTION

In the year 2019, in the city of Wuhan (China), a new infectious disease disseminated among humans was identified. Subsequently, the disease-causing virus was isolated and named by the International Committee on Taxonomy of Viruses as SARS-CoV-2[1]. In January 2020, the World Health Organization (WHO) officially declared a global public health emergency[2].

The clinical manifestations of this disease can vary from mild to severe. In mild cases, patients may have fever, myalgia, fatigue, dry cough, dyspnea; and in severe cases, lymphopenia, abnormalities in blood clotting, pneumonia, respiratory failure and sepsis. In this context, patients who present worsening of the condition demand more health care, with artificial life support and hospitalization in Intensive Care Units (ICU)[3,2].

The ICU is a sector that offers complex nursing care, requiring technical-scientific skills from the nursing professional, rapid decision making and adoption of safe conducts, which will directly or indirectly affect the patients' life and survival[4], configuring the most appropriate environment for care and application of therapeutic measures for these patients, with a view to health recovery, since it is a new infectious disease in the health scenario, with greater difficulty in managing with the patients and with a highly severe evolution[5].

Faced with this situation and the needs that the critical patients present, nurses must use strategies that help them in decision making for care, with the Nursing Care Systematization (NCS) being an important strategy to cover health care, as it provides a method of work organization, subsidizing the operationalization of the Nursing Process (NP)[1].

The NP consists of a relevant tool that assists in the organization and qualification of the care provided. This is considered an instrument that contributes to the reduction of complications during critical treatment, helping to identify the individual's needs, providing individualized and comprehensive care[2]. The tool organizes in five stages "interrelated, interdependent and recurrent, namely: data collection, nursing diagnosis (ND), planning, implementation and evaluation"[6].

Each of these stages has the purpose of organizing and guiding patients' care. However, nursing diagnoses, the second stage of the NP, require that the nurses have sufficient knowledge to identify the needs of patients and using a standardized language from the nursing classification systems (diagnosis, results and interventions) seek to improve communication between the team and consequently start to offer the best care practices[4,5].

Among the theoretical references that can guide the development of the stages of NP most used in Brazil is Wanda Aguiar Horta's Theory of Basic Human Needs (BHN), which was developed by the author based on Maslow's theory[7]. The basic human needs, in turn, are defined by Horta as being: "states of tension, conscious or unconscious, resulting from the hemodynamic imbalances of vital phenomena"[7]. When the patient is in dynamic balance, such needs do not manifest themselves, however, when they enter into an imbalance, these basic human needs change and tend to manifest themselves in different intensities, individually, "which can be apparent, conscious, verbalized or not"[7].

Horta classifies BHN according to João Mohana, separating them into psychobiological, psychosocial and psycho-spiritual needs[7]. According to this division, psychobiological needs are presented as: shelter, environment, body care, elimination, exercise and physical activities, hydration, cutaneomucosal integrity, physical integrity, locomotion, body mechanics, motility, nutrition, oxygenation, perception, regulation, sexuality, sleep and rest, therapy. The psychosocial needs are: acceptance, love, learning, attention, self-esteem, self-image, self-actualization, communication, creativity, space, gregariousness, leisure, freedom, orientation in time and space, participation, recreation and security. Finally, psycho-spiritual needs are divided into: ethics or philosophy of life, religious or theological[7].

In critically ill patients with covid-19, the most frequently affected psychobiological BHN were identified in a literature review and ND validation study with expert nurses, namely: feeding, elimination, hormonal regulation, vascular regulation, neurological regulation, oxygenation, hydrosaline regulation, cutaneomucosal integrity, thermal regulation, painful perception and locomotion. Among the ND are the Risk of venous thromboembolism, impaired spontaneous ventilation, impaired gas exchange, impaired skin integrity, Risk of pressure injury, impaired physical mobility[5].

Therefore, it is understood that for the nursing team the planning and organization of care for patients with covid-19 becomes a great challenge, especially considering the complexity of the care demands arising from these patients, highlighting the importance of exercising the best nursing practices that can be carried out with the recognition of priorities between BHN and ND in this population, since the literature related to this theme is still incipient.

Thus, in order to contribute to the construction of evidence and scientific knowledge on the subject, the guiding question of the study was: What are the affected BHN and nursing diagnoses in critical patients with covid-19 hospitalized in an intensive care unit? Aiming to identify the Basic Human Needs (BHN) – psychobiological and nursing diagnoses in patients with covid-19 hospitalized in an intensive care unit.

METHODOLOGY

This is a descriptive, documentary, cross-sectional, quantitative study carried out in an Intensive Care Unit with patients diagnosed with covid-19 in a public teaching hospital. This institution is located in the west of Paraná, currently having 221 beds according to the National Register of Health Establishments. During the pandemic period, in-hospital adaptations were necessary, reaching a total of 90 intensive care beds intended for the exclusive care of patients affected by covid-19, becoming one of the reference hospitals for the State of Paraná.

The collection took place in June 2021 and the sample consisted of convenience. This period was selected for data collection, as it was related to the moment when the researcher acted as a resident nurse in the sector.

Electronic patient records were used as a source of data. The inclusion criteria were: patients aged between 20 and 59 years, with a diagnosis of covid-19 confirmed through laboratory examination, hospitalized in a COVID ICU, from June 1 to 30, with a minimum hospitalization time of two days, this time determined, considering the provision of the Ministry of Health in which hospitalization defines patients admitted who occupy a bed for a period equal to or greater than 24 hours[8]. In addition, the age group was defined as a result of changes in the profile of hospitalizations due to covid-19, and at that time, an increase in the admission of young adults to Intensive Care Units was observed.

For the definition of BHN, Wanda Aguiar Horta's Theory of Basic Human Needs was used, and this choice was the most appropriate for this study, as it is the theory adopted by the institution, the scenario of this study, as well as the diagnostic classification system of the North American Nursing Diagnosis Association International (NANDA-I)[9].

The affected BHN was listed from the critical reading of the medical records and through an instrument that included the following information: level of consciousness, use of devices, implemented therapy, regulation (temperature and glycemia), eliminations, presence of secretion and presence of pressure Injury. Next, nursing diagnoses were identified based on the defining characteristics, related factors and associated conditions described in the evolution of the multidisciplinary team, based on diagnostic reasoning.

The information was tabulated in *Microsoft Excel Office 365* spreadsheets, and analyzed by the statistical software R (R Core Team, 2020). The spreadsheets were fed with socio-demographic data, Psychobiological

BHN and ND. Because it is a collection of secondary data, it was decided to evaluate the patients' medical records at seven times during hospitalization, being the second, fourth, sixth, eighth, tenth, twelfth and fourteenth days. For data analysis, descriptive statistics were used, whose results were presented by means of absolute and relative frequency (percentage), mean and standard deviation.

This study was approved by the Research Ethics Committee, under Opinion number 4,047,913, approved on May 26, 2020, in accordance with Resolution 466/12, of the National Health Council.

RESULTS

In June, 151 patients were admitted to the COVID ICU. After selecting and using the inclusion criteria, the final sample included 61 patients.

Regarding the profile of the patients, Table 1 shows that they were predominantly male (59.02%); white skin color (80.33%), married (50.82%), with high school education (32.79%), from the city of Cascavel (PR) (52.46%), with comorbidities prior to hospitalization (59.02%), the most frequent being: Hypertension (27.86%), Obesity (18.03%) and Diabetes Mellitus (16.39%).

Table 1 – Characterization of the sample according to general aspects in relation to the percentage of cases and length of stay – Cascavel - PR, 2021.

Aspects	Total (n)	Mean and Standard Deviation
Gender		
Men	59.02% (36)	16.94 ± 14.45
Female	40.98% (25)	14.96 ± 10.34
Skin color		
White	80.33% (49)	16.75 ± 11.79
Black	4.92% (3)	32.67 ± 28.01
Brown	11.47% (7)	7.71 ± 4.80
Marital status		
Married	50.82% (37)	15.43 ± 10.94
Single	16.39% (10)	19.30 ± 17.61
Others	19.67% (6)	10.00 ± 6.69
Educational level		
Illiterate	1.64:1	28.00
Incomplete Elementary School	26.23% (16)	14.25 ± 12.23
Complete Elementary School	14.75% (5)	15.33 ± 9.63
High School	32.79% (20)	16.85 ± 14.18
Higher Education	4.92% (3)	19.00 ± 11.53
Previous illnesses		
Yes	59.02% (36)	18.78 ± 14.78
No	39.34% (24)	11.46 ± 7.29
Origin		
Cascavel	52.46% (32)	14.03 ± 10.37
Others	47.54% (29)	18.45 ± 15.00

Source: Prepared by the authors, 2021

It was observed that on mean people presented 43.95 years, with a standard deviation of 10.74 years. For the group evaluated it was found that even the youngest patients demanded more time of care. Also, the mean length of stay was 16.13 days with a standard deviation of 12.86 days.

The findings of the study pointed out seven main affected Psychobiological BHN, namely: oxygenation, elimination, exercise and physical activities, body mechanics, body care, cutaneomucosal integrity and locomotion affected on all days of hospitalization (Table 2).

As the focus of the study was to identify the affected Psychobiological BHN during the hospitalization period, the data recorded by nursing professionals in the electronic medical record were analyzed, which allowed the identification that the BHN hydration and nutrition were affected in more than 50% of cases at the beginning of the hospitalization; however, during the hospitalization this need decreased in the proportion of cases. On the other hand, elimination, physical integrity and regulation increased, in the proportionality of cases (Table 2).

Table 2 – Percentage and frequency of patients who had the basic human need (BHN) affected according to the first 14 days of hospitalization – Cascavel - PR, 2021.

NHB	Day of admission						
	2	4	6	8	10	12	14
Oxygenation	85.25% (52)	85.45% (47)	82.22% (37)	84.38% (27)	85.19% (23)	86.96% (20)	85.71% (18)
Elimination	72.13% (44)	78.18% (43)	77.78% (35)	87.50% (28)	77.78% (21)	86.96% (20)	85.71% (18)
Exercise and physical activity	86.89% (53)	89.09% (49)	91.11% (41)	93.75% (30)	85.19% (23)	95.65% (22)	95.24% (20)
Body Mechanics	86.89% (53)	89.09% (49)	91.11% (41)	93.75% (30)	85.19% (23)	95.65% (22)	95.24% (20)
Body care	86.89% (53)	89.09% (49)	91.11% (41)	93.75% (30)	85.19% (23)	95.65% (22)	95.24% (20)
Cutaneomucosal integrity	98.36% (60)	100.00% (55)	100.00% (45)	100.00% (32)	100.00% (27)	100.00% (23)	100.00% (21)
Locomotion	86.89% (53)	89.09% (49)	91.11% (41)	93.75% (30)	85.19% (23)	95.65% (22)	95.24% (20)

Source: Prepared by the authors. 2021

The study identified 15 ND, namely: Ineffective Clearance of Upper Airways (UAW), Impaired Gas Exchange, Impaired Spontaneous Ventilation, Risk of Aspiration, Impaired Urinary Elimination, Impaired Physical Mobility, Impaired Bed Mobility, Risk of Disuse Syndrome, Self-Care Deficit for Bathing, Self-Care Deficit for Feeding, Risk of Pressure Injury in Adult, Risk of Thrombosis, Risk of Infection, Impaired Skin Integrity and Impaired Comfort. Box 1 shows the relationship between BHN and the nursing diagnoses identified in the present study.

Box 1 – Relationship between basic human needs and the most frequent nursing diagnoses during hospitalization in an exclusive ICU for patients with covid-19.

Basic Human Need	Related Nursing Diagnosis
Oxygenation	- Ineffective Clearance of Upper Airway (UAW) - Impaired Gas Exchange - Impaired Spontaneous Ventilation Aspiration hazard
Elimination	Impaired urinary elimination
Exercise and Physical Activity Body Mechanics	Impaired physical mobility - Impaired Bed Mobility - Risk of Disuse Syndrome - Risk of Pressure Injury in Adult

(continue)

Basic Human Need	Related Nursing Diagnosis
Body care	- Deficit in Self-Care for Bathing - Deficit in Self-Care for Food
Cutaneomucosal integrity	Risk of Infection Impaired skin integrity
Locomotion	- Risk of Thrombosis

Source: Prepared by the authors. 2021

DISCUSSION

Currently, the pandemic scenario brings to light a differentiated patients' profile, with specificities and needs for individualized care. With this, the importance of using the Nursing Process (NP) in ICUs for the care of patients with covid-19 stands out.

The NCS is an important method to observe the individuals in an integral way, and requires the professional nurse technical-scientific knowledge to structure the Nursing Process [10]. The professional should stick to the needs of the individual who receives care, as well as to the clinical manifestations and characteristics of the disease. In addition, ICU nursing care is characterized by care complexity and the intimate relationship with patient survival[4]. From this, the close relationship between the severity of the condition of the individual cared for and the length of hospitalization is observed.

As for the mean length of stay, one study showed that patients with a covid-19 diagnosis admitted to the ICU, remained a mean time of 15 to 25 days of hospitalization[11]. Thus, this study corroborates this result, presenting a mean hospitalization of more than 15 days. The length of ICU stay may be related to the fact that more than half of the patients evaluated had some associated comorbidity.

Comorbidities are risk factors that can lead patients affected by covid-19 to an unfavorable outcome, consequently increasing the mortality rate. It is also observed that as cases of covid-19 evolve worldwide, people with chronic diseases such as hypertension, diabetes, cardiovascular disease, chronic lung disease and obesity had a worse prognosis and a probability of worsening the classic picture[12-13]. It was also observed that patients with any type of comorbidity presented worse clinical results than those without comorbidities[14].

With regard to the age group of patients affected by covid-19, on April 26, 2021, the Pan American Health Organization (PAHO) with the World Health Organization (WHO) published a report that pointed to a possible change in the age profile of cases hospitalized in ICUs, evidencing an increase in the hospitalization rate in the younger population. PAHO also found that hospitalization rates in the period of March 2021 doubled in the age groups ≤ 39 years, 40-49 years and 50-59 years, there was also a percentage increase in the age group of 40-49 years[15].

Studies indicate an increase in the number of hospitalizations of patients under 60 years of age in the ICU and a significant reduction in the median age of patients. In addition, young individuals have a higher percentage of hospitalization, however, mortality was low[16-17]. Thus, the results of this study corroborate the PAHO/WHO forecast, as well as the findings in the aforementioned studies.

Regarding gender and skin color, it was noted that most of the patients were male and mostly white. These results are in accordance with Special Epidemiological Bulletin 90[18] which presents the list of cases of Severe Acute Respiratory Syndrome (SARS) due to covid-19.

Regarding the origin of the patients, there was a predominance of patients from the city of Cascavel - PR, and 86.89% of the sample belonged to the 10th Regional Health of the State. This fact is explained because the study institution was considered a reference in the care of patients with covid-19 in the western region of the state.

It was also observed that in Brazil, University Hospitals stood out in the care of patients with covid-19, showing medium and high complexity reference centers for the Unified Health System (SUS). In addition, such institutions show their important role in the training of human resources in the health area, as well as in teaching, research and outreach in higher education institutions to which they are linked[19].

Based on studies related to the BHN theme, it was possible to verify that these were affected due to the clinical conditions of the patients, leading them to ICU admission[2]. The identification of BHN provides nurses with the care of the individuals in an integral way, in addition, these needs are considered common to individuals, however, they vary in the form of care, manifestation and satisfaction, being fundamental for the maintenance and promotion of health[20].

Among them, Oxygenation proved to be a widely affected need, due to the close relationship with the respiratory symptoms of covid-19. The airways are the main gateway of the virus that causes the disease, which is anchored in the alveolar cells stimulating inflammation, causing damage to the lung tissue, altering the exchange of gases and, consequently, the respiratory pattern, which can lead the individual to hypoxemia, requiring the use of invasive mechanical ventilation (IMV)[2], thus the nursing diagnoses Impaired Gas Exchange and Impaired Spontaneous Ventilation are justified by the damage caused by the viral agent and the clinical manifestations expressed by the patients.

Related to this affected need, the nursing diagnoses of Ineffective UAW Clearance and Aspiration Risk were also present. Patients entubed, as well as lack of coordination in swallowing and breathing, gastroparesis and complex pharmacological therapy, become more vulnerable to the event of bronchoaspiration[2]. The study of good practices related to the care of patients on invasive mechanical ventilation pointed out that care with the prevention of bronchoaspiration had a strong level of clinical evidence, justifying such a diagnosis, aiming at the prevention of undesirable events related to ventilatory support[21].

The individual hospitalized in the ICU has a large percentage of morbidity, because it tends to spend long periods immobile, due to its clinical condition, use of vasoactive drugs, sedatives, neuromuscular blockers, mechanical ventilation, which hinder the mobilization of the patient in bed[22]. The lack of mobilization of these patients is worrying, and can affect them in several ways. This situation was expressed by the BHN of exercise/physical activity, body mechanics and locomotion.

In line with the aforementioned psychobiological BHN, the Nursing Diagnoses of Impaired Physical Mobility, Impaired Bed Mobility, Risk of Pressure Injury (PI) in Adult and Risk of Disuse Syndrome were selected. For the same reason, these patients have a great dependence on care, expressed by the BHN of body care and by the diagnoses of Self-Care Deficit for Bathing and Self-Care Deficit for Eating.

Immobility also results in complications that can influence the recovery of patients, affecting the cardiovascular, cutaneous, gastrointestinal, respiratory and urinary systems[22]. Elimination BHN was also affected, and the diagnosis of Impaired Urinary Elimination was more frequently listed, evidenced by the use of bladder tubes in patients who did not present spontaneous diuresis.

Loss of mobility is considered a common and important acquired risk factor in the development of venous thromboembolism, increasing its incidence in immobile patients when compared to patients who walk[23]. In addition, the presence of coagulation disorders was evidenced in patients affected by covid-19 due to increased levels of D-dimer and fibrinogen, associated with lymphopenia and thrombocytopenia[5], which justifies the identification of BHN of affected locomotion and the diagnosis of Risk of Thrombosis.

When it comes to the care environment, it is very invasive in the ICU, providing patients with the acquisition of infections. The occurrence of these infections culminates in problems for the patients, increasing the length of hospital stay, interfering in the recovery process and may worsen their clinical condition [24]. There are several factors that can contribute to infections, including invasive devices, such as central and peripheral catheters, orotracheal tubes, delayed bladder catheterization, among others. With this, it is possible to make the relationship between the affected BHN of cutaneomucosal integrity with the diagnoses of Risk of Infection and Impaired Skin Integrity to all patients who had such devices (Table 3).

In a study with patients with covid-19 hospitalized in the ICU, it was pointed out that they were extremely severe and dependent on nursing care. From this, they identified the ND with the highest risk of mortality, among them: Impaired physical mobility, Impaired spontaneous ventilation, Deficit in self-care for bathing, Risk of infection, Risk of aspiration, Risk of pressure injury[25], corroborating the recent study of literature review and validation by expert nurses[5] and with ND analogous to the present study. Thus, there is a consonance between the daily practice of nurses, reinforced by theory and bibliographic references.

Because it is an isolation unit and restricted access, the collection was performed via electronic medical records, with reference to the identification of human needs and definition of diagnoses the evolution of the multiprofessional team. However, the access to information as well as the incompleteness of the records by the teams in the different work shifts proved to be a great difficulty for the study, consisting of a limiting factor of the research. Another limitation was the small number of patients who composed the final sample. In addition, the data presented represent a reality verified in a short time frame, requiring further studies with larger samples in longer time frames.

CONCLUSION

Seven psychobiological BHN and 15 most frequent ND were verified, identified through the analysis of the evolution of the multidisciplinary team documented in electronic medical records.

The implementation of the NCS and the operationalization of the NP favor the planning of qualified care, aimed at critical patients with covid-19 admitted to Intensive Care Units. In addition, the identification of affected BHN assists in the management of care and clinical decision making.

We sought to demonstrate the importance of the individual evaluation of the human being, in its completeness and complexity, in order to stimulate the evaluation of the patient and designate nursing diagnoses centered on the individual.

Studies related to this theme and with such methodology are scarce, thus, this study aims to contribute to knowledge in the area and stimulate the development of more research focused on the theme, evidencing the autonomy of nurses in care.

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