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Actuación de enfermería en el cuidado a personas con COVID-19 desde el Modelo de Roy
Nursing action in the care of people with COVID-19 from Roy's Model

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Resumen

La COVID-19 es una enfermedad infectocontagiosa de elevada morbilidad y mortalidad que requiere de la inmediata actuación del personal de enfermería, profesión cuya dirección es la esencia del cuidado, debe realizarse de forma integral desde lo biológico, psicológico, familiar y social, elementos inseparables para brindar cuidados de calidad. El artículo tiene como objetivo describir la actuación del personal de enfermería en el cuidado de personas con la COVID-19 desde el modelo de adaptación de Sor Callista Roy. Para la investigación se utilizaron métodos teóricos y análisis de documentos. La actuación de enfermería desde el modelo de Sor Callista Roy ofrece la posibilidad de conocer los diferentes estímulos, manipularlos para lograr la adaptación y afrontar los nuevos cambios que ocurren en el entorno.

Palabras clave: Cuidado de enfermería; COVID-19; Modelo de Adaptación; Sor Callista Roy

Abstract

The COVID-19 is an infectious disease with high morbidity and mortality that requires the immediate action of the nursing staff, a profession whose management is the essence of care; it must be performed in an integral way from the biological, psychological, family and social, inseparable elements to provide quality care. The objective of the article is to describe the performance of the nursing staff in the care of

people with COVID-19 from the adaptation model of Sister Callista Roy. Theoretical methods and documental analysis were used for the research. The nursing performance from the model of Sister Callista Roy offers the possibility of knowing the different stimuli, manipulating them to achieve adaptation and face the new changes that occur in the environment.

Keywords: Nursing care; COVID-19; Adaptation Model; Sister Callista Roy's

Introduction

COVID-19 is a contagious and rapidly spreading respiratory disease; the new virus that caused it was SARS-CoV-2. Declared a pandemic in 2020 by the World Health Organization (WHO) and the Pan American Health Organization (PAHO). It originated in the city of Wuhan, China. On 31 December 2019, the authorities of this country reported 27 cases of acute respiratory syndrome of unknown etiology, from that moment the world faced the emergence of a new disease caused by the coronavirus that cost the lives of millions of people.

According to data from the Ministry of Public Health of the Republic of Cuba (MINSAP, 2021), COVID-19 is an infectious disease with high morbidity and mortality that as of 17 December was registered in 191 countries, with 273,635,998 confirmed cases and 5,357,445 deaths. In the Americas region, 100 million 561,589 confirmed cases have been reported, 36.75 % of the total number of cases reported in the world, with 2 million 407,920 deaths. In Cuba, 964,355 confirmed cases and 8,314 deaths have been reported.

The Cuban public health system has faced pandemics and epidemics for several years. The first case of COVID-19 in our country was reported on 11 March 2020, the same day that the WHO declared it a pandemic. From that moment on, a National Strategic Plan was designed to confront the disease in two stages, the first starting in March 2020 and the other in January 2021, which involved all agencies of the Central State Administration, companies, civil defense, the non-state sector and the population in general.

In this regard, several authors have referred to the National Strategic Plan to confront COVID-19, such as (Peláez, 2018; Ramírez et al., 2020, among others).

Ramirez et al. (2020), reports that human resources were constantly trained, multidisciplinary working groups were created, updates on the subject through publications, the action protocol and constant information published by Infomed, MINSAP, OMS and recognized journals. The psychologists organized themselves to attend to the psychological concerns of health sector workers and the general population by telephone from their homes.

Likewise, a series of actions were drawn up, the key to which is the conscious participation of the population in preventive measures and the follow-up to the recommendations of the health authorities.

Among the actions designed, the following stand out:

- Social isolation
- Mandatory use of mask.
- Physical distancing.
- Frequent hand washing.
- Working at a distance.
- protection of vulnerable people
- Reduced outings from home.
- Quarantine states for suspected cases and contacts.
- Suspension of recreational and school activities.
- Communication and social information.

The implementation of these measures proved to be effective in containing the spread of the new SARS-CoV-2 virus.

Of vital importance have been the concrete actions of science and research, which allowed the development of biotechnology through different medicines and vaccines. This is an important element given the conditions in which Cuban scientists work due to the blockade imposed by US imperialism.

The closest precedent in Cuba to these conditions is the preparation in 2009 of a Confrontation Plan with a set of measures and indications issued by the National Health System to contain the Influenza a (H1N1) pandemic. This plan was developed in three stages of epidemiological alert: pre-epidemic, limited autochthonous transmission and epidemic.

The measures adopted during this time included International Health Control (ISC), active epidemiological surveillance of respiratory illnesses, prevention in health institutions, health protection for the population and actions to control outbreaks, medical care, a broad social communication campaign, discharge criteria and economic impact.

In July 2010, the result was a low intensity and decreasing trend of respiratory infections in Cuba, and at the end of the year, the lowest infant mortality rate in the country's history (4.0 per thousand live births), as a result of the effort, sacrifice and dedication of the workers in the national health system, according to data provided by Peláez et al. (2018).

The pandemic had a biopsychosocial impact, leading to a change in lifestyles due to the adoption of new behavior, influencing people's social lives. However, it is evident that the adoption of this behavior prevents people from making themselves and others ill.

Faced with this stressful situation, each person reacts differently, the adoption of this new behavior constitutes stimuli that generate psychosocial stress, and often have negative effects on the health and well-being of the human being, as they can trigger adaptation problems and mental disorders.

Taking into account the current epidemiological hygienic situation worldwide and the health problems caused by the disease, the aim of this article is to describe the performance of nursing staff in the care of people with COVID-19 from the adaptation model created by Sister Callistas Roy.

The contribution and relevance of the subject are in the performance of nursing staff from the model of Roy (2011), as it offers the possibility of knowing the different stimuli and manipulate them to achieve the adaptation of the human system, maintain integrity, dignity, this helps to promote health and improve the quality of life.

The study assumes the qualitative paradigm, theoretical methods and document analysis were used. In the assessment, the theoretical elements of the model proposed by Roy were taken into consideration as a central axis.

Development

Sister Callista Roy was born on 14 October 1939 in Los Angeles, California. In 1963, she obtained a bachelor's degree in nursing from Mount Saint Mary's College in Los Angeles, and in 1966 a master's degree in nursing from the University of California, Los Angeles. After completing his nursing studies, Roy began his education in Sociology; he received a Masters in Sociology in 1973 and a PhD in Sociology from the University of California in 1977.

While pursuing his master's degree in nursing, he received an assignment that changed his life. One of her professors, Dorothy E. Johnson, commissioned her to develop a novel model of nursing. While working as a pediatric nurse, she observed the high resilience of children and their ability to adapt to major physical and psychological changes. He was struck by their level of adaptation, so much so that he considered it an appropriate conceptual framework for nursing.

Roy developed the basic concepts while still a student at the University of California, Los Angeles, from 1964 to 1966, and launched his model in 1968, when Mount Saint Mary's College adopted the adaptation

framework as the philosophical basis for nursing education. The Roy Adaptation Model (RAM) was first presented in 1970 in an article published in Nursing Outlook, entitled Adaptation.

In 1978, she was admitted to the American Academy of Nursing. Between 1983 and 1985, she worked as a nurse in a neurology clinic at the University of California. Years later, in 1991, she was the founder of the Boston Based Adaptation Research in Nursing Society, an organization that later adopted the name Roy Adaptation Associations.

Following the success of her model, Callista Roy saw her career take off. During her professional life, she has been a lecturer at several universities and has published several articles and books on the subject.

In 2007, she was recognized as a Living Legend by the American Academy of Nursing. She currently holds the position of professor and theorist at the Boston College School of Nursing, and is a continuing lecturer. Her latest research focuses on the effects of interventions on the recovery of cognitive abilities after mild head injury.

According to Mulens (2009), a study is being conducted in Cuba on the provision of nursing care to patients who suffer spontaneous loss of the product of conception, using Roy's model of adaptation as a theoretical framework, which made it possible to analyze the dimensions of care focused on the achievement of positive coping mechanisms.

In this context, other research on the adaptation model, carried out by (Despaigne, 2021; Enriquez et al., 2020); Secada et al., 2021), also stands out.

The contributions of the model contribute to a comprehensive assessment of behavior and different stimuli to help people adapt to the changes that occur in the health-illness process.

There is an urgent need to appropriate the theories and models to support the practice of the discipline's own scientific knowledge in the different contexts in which it operates.

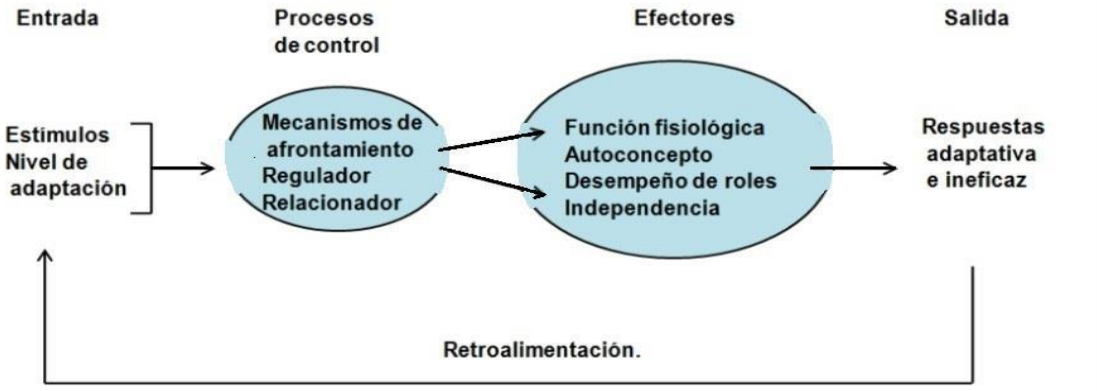
Cuba's National Public Health System conceives health as a fundamental component of quality of life, and the State assumes full responsibility for the health of the entire population. At the time of the pandemic, primary health care became the gateway to contain the new disease, community interventions were carried out, intersectoral work was put into practice, active research where family doctors and nurses, accompanied by medical science students, visited the homes of the entire population every day, even the most remote places in the country, to check if there were people with symptoms of respiratory infections, if they had had contact with suspicious people, tourists or Cubans who had returned from abroad.

When some of these risks were verified, rapid diagnostic tests were carried out or people were sent to the nearest health institution.

Nursing models are structured; ordered representations of the practical reality, where the factors involved and their relationship to each other are symbolized. The model is a system that regulates itself through a cycle of input, control processes, information output and feedback, using three fundamental abstract components: environmental stimulus, coping mechanisms and adaptive modes, which are interrelated as depicted in figure 1.

The aim of the model is to facilitate the adaptation of the individual by strengthening coping mechanisms and adaptive modes.

Figure 1. The person as an adaptive system



Source: Taken from Nursing Models and Theory (Phillips and Harris, 2015)

As it can be seen, according to this model, the person is seen as an adaptive system.

Nursing as a discipline is based on theories and models that serve as a basis in practice to strengthen the autonomy of nurses in order to improve the quality of care provided to individuals and families in the community.

According to Phillips and Harris (2015), the model is based on the adaptation of man to be able to reach an optimal state of health and a maximum level of adaptation to cope with the changes that occur in the environment, i.e. an individual who is able to adapt to the changes that are occurring in their environment is a healthy individual and is therefore more likely to cope with infectious diseases and live with better quality of life.

They also assume as adaptation the definition provided by Roy and Andrews (1999), so that it could be applied in the 21st century as "the process and outcome by which people, who have the capacity to think

and feel, as individuals or as members of a group, become aware of and choose the integration of the human being as their environment" (p. 298).

Each organism, through the regulatory system, is considered to have the capacity to ensure inner and outer balance in order to reach a maximum level of adaptation.

According to Phillips and Harris (2015), the theoretical basis used by Roy was the combination of Anatole Rapoport's general system theory, which considered the person as an adaptive system, and Helson's adaptation theory, which states that the level of adaptation determines whether a stimulus will provoke a positive or negative response to the changes occurring in the environment.

Roy's model, as cited by Gómez (2018), is a meta-theory, as he used other theories to realize it and contains five essential elements:

1. Patient: person receiving care.

2. Goal: that the patient adapts to change.

3. Health: a process that makes the person an integrated and whole being.

4. Environment: conditions, circumstances and influences that surround and affect the person's development and behavior.

5. Direction of activities: facilitating adaptation.

Roy (2000, p.139-145), defined the following paradigmatic concepts:

Person: they are holistic and adaptive system. Like any adaptive system, the human system is defined as a whole, with parts functioning as a single unit for a particular purpose.

Environment: is the set of all conditions, circumstances and influences on the development and behavior of individuals and groups, with special consideration of the relationship between human and earth resources, including focal, contextual and residual stimuli.

Nursing: as the science and practice that enhances adaptive capacity and improves the transformation of the environment. Nursing acts to improve the interaction between the person and their environment, to promote adaptation.

Health: is a state and process of being, of becoming an integrated and whole person. It is a reflection of adaptation, i.e. it is the interrelationship of the person with the environment, which can be modified by environmental stimuli.

Andrews and Roy (1991) state that in a system, information inputs and outputs, control processes and feedback are distinguished. In the model, the input is given by the stimuli; as control processes, the regulatory and relational coping mechanisms are recognized; as effectors, the functions that respond to the physiological adaptive modes of self-concept, role performance and interdependence; and the output is the responses to the stimuli. These responses can be effective if goals are achieved or ineffective where goals are not achieved. The responses provide feedback to the system.

The person as an open system receives stimuli from the environment as well as from itself, the reaction takes place, which gives way to adaptation that can be effective or not, recognizing two subsystems that are related to each other. The primary, functional or control subsystem is composed of the regulator and the correlator, and the secondary and effect subsystem is composed of the four modes of adaptation according to Phillips and Harris (2015).

Stimuli activate the regulatory and the relational coping subsystems. In the regulator, the neuronal, chemical and endocrine systems come into play and are reflected in the physiological mode that can be affected by the stress situation that occurs in some people, and the relational one in which four cognitive and emotional channels are involved: the perceptual and information processing channel, learning, personal judgement and emotions, which is explained according to the behavior of individuals and families in the current situation that they are experiencing, as explained by Phillips and Harris (2015).

Humans adapt through a process of acquired learning. According to Roy and Andrews (1999), the level of adaptation is composed of the combinatorial effect of three types of stimuli:

Focal stimuli: the most immediate internal or external stimulus faced by the human system. Precipitating changes to be coped with, this became apparent after the announcement of the first reports of patients who started testing positive for the SARS-CoV-2 coronavirus.

The disease typically presents with fever, dry cough and respiratory distress, with less frequent headache and digestive manifestations, ranging from no symptoms (asymptomatic infection) or mild respiratory symptoms to severe acute respiratory illness and death. It can progress rapidly, causing septic shock, irreversible metabolic acidosis and coagulation disorders as described by MINSAP (2020).

Sandín et al. (2020) state that it has also caused psychological effects such as anxiety, stress, depression, fear and worry.

Contextual stimuli: these are other stimuli that are present in the situation and that contribute to the effect caused by the focal stimulus. They are all those that are present in the process, as evidenced by the mode of transmission of the disease, which is through droplets generated when patients cough, sneeze or talk

that, are dispersed one to two meters. In hospitals and enclosed areas, aerosols can form, which have a greater possibility of contagion, in which the virus persists for several hours, as stated by MINSAP (2020).

Residual stimuli: These factors in the environment inside or outside the human system have a not very definite effect on the current situation. Experiences that may have an influence on the current situation.

The experience of other countries facing the COVID-19 pandemic and known past pandemics, the general population may suffer from fear of death, anxiety, depression and stress reactions, and poor coping mechanisms are created. The nursing staff, by identifying the stimuli involved and that condition the health situation, will guide them to establish an intervention that facilitates the adaptation of people to this new event, which is one of the advantages offered by this model.

Coping mechanisms: these are ways acquired by people who act in the face of changes in the environment, which is why innate mechanisms are used (automatic processes that are not thought out) and acquired mechanisms (created through methods such as learning and experiences already lived).

It is considered that the potentiation of acquired mechanisms favours the adaptive response of people to new health problems that arise. The human being is a biopsychosocial and community entity in constant interaction with the environment. This interaction takes place through the four modes of adaptation in health and illness, according to Roy and Andrews (1999):

1. Physiological and physical mode of adaptation: refers to basic physiological needs such as oxygenation, nutrition, activity and rest, elimination and protection. These will be found to be affected in these patients.

2. Adaptive mode of group self-concept adaptation: how each person sees him/herself in the group. In this pandemic context, it can generate symptoms of anxiety, worries about family and friends, emotional instability and insecurity about the future, i.e. the nursing staff will teach that one must have sensitivity and empathy towards others and towards oneself.

3. Adaptation mode of role function: the different roles or personalities that each person fulfils throughout their existence, i.e. the role that each person plays in society. In these times of pandemics, individuals have modified their behavioral patterns to conform to the prevailing norms of the social environment in which they move.

4. Adaptation mode of interdependence: relationships with their environment, especially with other people. In times of pandemic, the daily routine of life changed, people stopped

interacting with their relatives, friends and neighbors to avoid the spread of the virus, physical distancing, social isolation, which affects the physical and mental health of people.

In this case, the effective adaptive response becomes evident when people are adapting well to the events that are occurring, manage their emotions and the problems arising from the situation, enhance coping mechanisms, all of which contribute to increasing their personal strengths and become more adaptive. If the opposite occurs, the adaptive response is ineffective and brings feedback into the system.

Thus, the level of adaptation is a constantly changing point made up of focal, contextual and residual stimuli that represent the input to each person's own system with respect to the adaptive responses of the system that are the outputs.

Nursing is a profession whose essence is caring; nurses are responsible for caring for people in difficult situations and providing quality services.

In the midst of the limitations that arose, and given the situation that was being faced throughout the country and that it was not possible to develop face-to-face training for the preparation and training of nursing staff, distance education was used in the health area of the municipality of El Salvador. In addition, to put the model into practice, a WhatsApp group was created in the year 2021 as a space for the exchange of knowledge and to learn about the fulfilment of nursing care in the different scenarios where people with COVID-19 disease were found.

Nursing performance

There is research related to nursing performance in the scenarios where measures for dealing with COVID-19 were carried out, such is the case of (Begoña el al., 2021; Lahite el al., 2020; among others), which agree that nursing professionals carry out actions in a comprehensive manner from the biological, psychological, family and social, inseparable elements to provide quality care such as:

- Providing emotional support to patients who present anguish and fear.
- Keeping the patient informed about the disease, the main symptoms, preventive measures in general and self-care.
- Providing confidence and reassurance to the patient to reduce fear and strengthen the adaptive response appropriate to the current health situation.
- To promote knowledge on how to deal with patients suffering from the disease in order to change their lifestyle.

- To provide necessary information and coping tools through training for patients and their families.
- Strengthen isolation measures and ensure that means of protection are used.
- Keep the family informed about the condition and evolution of their patient, as this exceptional situation of isolation can generate marked psychological stress.
- Measure, monitor and record the patient's vital signs: temperature, heart rate, oxygen saturation (SaCO2), respiratory rate, blood pressure.
- Ensure that the patient achieves inner and outer balance in order to reach a maximum level of adaptation.
- Ensure that the relationship between patient, family and healthcare team is affectionate and mutually respectful.
- Ensure that patients remain in ventilated rooms and minimize procedures that generate aerosols; in such cases, whenever possible, they should be carried out in rooms with negative pressure.
- Rapidly identify signs and symptoms of poor prognosis, respiratory worsening and clinical aggravation: progression of dyspnea, slurred speech, abdominal breathing, functional limitation, paroxysmal nocturnal dyspnea, chills, pharyngeal pain, cough, vomiting, and diarrhea in order to act more efficiently and early.
- Carry out interdisciplinary work with physiotherapists to select patients who can benefit from primary prevention exercises (respiratory and musculoskeletal).
- Preventive, health care and post-covid work can be linked to various disciplines, such as biology, sociology, psychology and epidemiology.

Conclusions

It is a challenge for nursing professionals to appropriate the models in order to base their practice on the discipline's own knowledge. Callista Roy's adaptation model provides sufficient elements for the development of nursing work in the care of people with COVID-19, it offers the possibility of knowing the different stimuli, manipulating them to achieve adaptation and face the new changes that occur in the environment. The literature consulted and the experience lived during Covid-19 allowed us to elaborate the theoretical framework of the research and to demonstrate that the model used, together with the knowledge of nursing in Cuba, is feasible and pertinent, and can be implemented in any hospital center in the case of emerging and re-emerging infectious diseases.

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