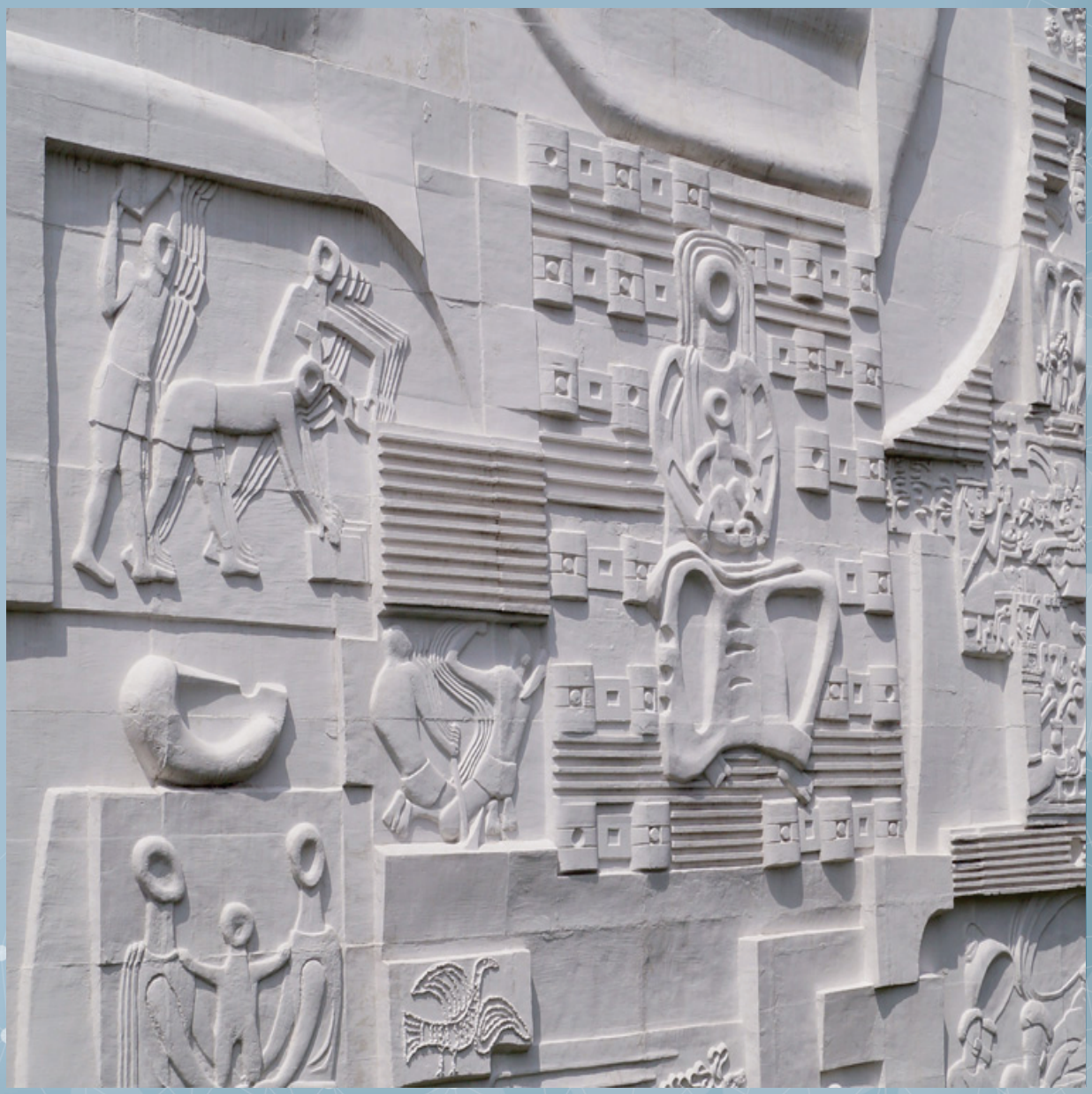
INSTITUTO NACIONAL DE NEUROLOGÍA Y NEUROCIRUGÍA

Manuel Velasco Suárez

Revista de Enfermería Neurológica



ISSN - 1870-6592 • e-ISSN: 2954-3428 Indexado en: Base de datos CUIDEN (Granada, España)

January-April 2023

Vol. 22 N.1

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Revista de Enfermería Neurológica Vol. 22, number 1, January - April 2023; is a quarterly publication. Edited by the Nursing Subdirectorate of the Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez, with address at: Av. Insurgentes Sur #3877, Col. La Fama, 14269, Tlalpan. Mexico City; telephone (55) 5606 3822 ext. 5031 and 1062. Website: https://revenferneurolenlinea.org.mx; email: rev.enfermerianeurologica@innn.edu.mx. Exclusive Use Rights Reservation No. 04-2019- 101711492900-102, e-ISSN 2954-3428 both granted by the National Copyright Institute. This issue was published on September 4, 2023. Indexed in CUIDEN, LILACS, Latindex 2.0 and VHL Enfermería Regional.

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No. 1
2023

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DOI 10.51422/ren.v22i1.443

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Nursing research has the mission of improving human health and the overall well-being of individuals. It is not limited to generating knowledge; it seeks integration of good clinical practices and continuous education. To achieve this, it is necessary to identify unmet patient needs and thereby improve service and quality of the experience provided to patients.

One of the most successful ways to encourage the acquisition of skills, abilities and specialized knowledge is to motivate all nursing personnel to directly participate in clinical research or interact with researchers, regardless of their level of education or experience.

The knowledge obtained as a result of research provides the necessary evidence for informed decision-making, development of practices and patient management recommendations. An effective implementation requires a multidisciplinary team focused on developing interventions for all nursing services. It is essential to have the human resources, preparation, experience and knowledge to guide and supervise the formulation of research questions, innovative ideas or processes. With training, it is possible to teach how to evaluate the quality of collected evidence, conduct a review of scientific literature, discern research quality, identify limitations or biases in published articles, and synthesize data to turn scientific evidence into clinical practices.

It is through collaboration with other healthcare professionals that new methods of care and attention can be discovered. Science focused on addressing the symptoms and needs of patients has the potential to improve their quality of life, as well as that of their caregivers and families throughout their lives. This can only be achieved by creating an optimal environment for the proper implementation and communication of interventions. This quest commences through collaborative teamwork, a journey where multiple domains of knowledge converge in pursuit of a shared objective.

Correspondence: Carlos Alberto Aguilar Palomeque
Email: carlos.palomeque@innn.edu.mx
Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez
Unidad de Imagen Molecular PET/CT
ORCID: https://orcid.org/0000-0003-4321-2516

The importance of multidisciplinary research work in nursing

La importancia del trabajo multidisciplinario de investigación en enfermería

La investigación en enfermería tiene la misión de mejorar la salud y el bienestar general de las personas. No se limita a la generación de conocimiento, sino que busca la integración de buenas prácticas clínicas y la educación continua. Para lograrlo es necesario identificar las necesidades insatisfechas de los pacientes, lo que a su vez contribuirá a mejorar el servicio y la calidad de la experiencia que se brinda al paciente.

Una de las formas más exitosas de fomentar la adquisición de habilidades, capacidades y conocimiento especializado es motivar a todo el personal de enfermería a involucrarse directamente en la investigación clínica o interactuar con las y los investigadores, independientemente de su nivel de educación o experiencia.

El conocimiento resultante de la investigación proporciona la evidencia necesaria para la toma de decisiones informadas, y la elaboración de prácticas y recomendaciones de manejo del paciente. Ahora bien, su implementación exitosa requiere de un equipo multidisciplinario enfocado en el desarrollo de intervenciones para los diferentes servicios de enfermería. Asimismo, es fundamental contar con los recursos humanos adecuados, así como con la preparación, experiencia y conocimiento necesarios para guiar y supervisar el planteamiento de preguntas de investigación, ideas o procesos innovadores. Mediante el entrenamiento se puede enseñar a evaluar la calidad de la evidencia recolectada, llevar a cabo revisiones de la literatura científica, discernir la calidad de la investigación, identificar limitaciones o sesgos en los artículos publicados y sintetizar los datos para convertir la evidencia científica en prácticas clínicas.

La colaboración con otros profesionales de la salud es fundamental para formular nuevos métodos de cuidado y atención. La ciencia enfocada en atender los síntomas y necesidades de los pacientes tiene el potencial de mejorar su calidad de vida, de sus cuidadores y sus familias. Esto solo se logra creando un ambiente óptimo para la correcta ejecución y comunicación de las intervenciones. El camino comienza con el trabajo en equipo, en el cual convergen múltiples disciplinas en busca de un objetivo común.

Correspondencia: Carlos Alberto Aguilar Palomeque
Email: carlos.palomeque@innn.edu.mx
Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez
Unidad de Imagen Molecular PET/CT
ORCID: https://orcid.org/0000-0003-4321-2516

DOI 10.51422/ren.v22i1.380

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Especialización de enfermería en anestesiología y reanimación como necesidad formativa en Cuba

Nursing specialization in anesthesiology and resuscitation as a training need in Cuba

Yuleidy Fernández Rodríguez[1] Mirelys Sarduy Lugo[2] Anabel Sarduy Lugo[3]

Abstract

Introducción: Las especialidades de posgrado constituyen la formación académica que le proporciona al profesional la actualización, profundización, perfeccionamiento o ampliación de las competencias laborales para el desempeño asistencial que requiere.

Objetivo: Explorar la percepción de los enfermeros certificados para la práctica de la anestesiología sobre la necesidad de la formación de enfermeros especialistas en anestesiología y reanimación.

Métodos: Se realizó un estudio cualitativo, de tipo Investigación Convergente Asistencial en el Departamento de Docencia e Investigación del Hospital Provincial Pediátrico Universitario de Villa Clara, Cuba, entre los meses de enero y marzo del año 2022. El universo estuvo compuesto por 100 profesionales de enfermería certificados en anestesiología, y la muestra seleccionada a través de un muestreo teórico quedó constituida por 80. Se realizaron entrevistas informales y ocho grupos de discusión en el proceso investigativo.

Resultados: Los participantes perciben como necesaria la formación de enfermeros especialistas en anestesiología, reanimación y alivio del dolor. Las estrategias para lograr esta formación deben estar dirigidas a su aprobación por parte de las instancias de posgrado del Ministerio de Salud Pública y el Ministerio de Educación Superior.

Conclusiones: Perciben como perentorio la formación de enfermeros especialistas en anestesiología y reanimación, ya que permitirá garantizar la adecuada renovación de este recurso humano, contar con enfermeras capacitadas y capaces de brindar atención anestesiológica óptima, alcanzar un nivel profesional superior que los coloque paralelos a otras áreas del cuidado y formar recursos humanos más jóvenes que tengan un nivel de preparación superior en esta especialidad.

Palabras clave: enfermeras especialistas, educación de posgrado en enfermería, programas de posgrado en salud, enfermeras anestesistas

Citation: Fernández Rodríguez Y, Sarduy Lugo M, Sarduy Lugo A. Nursing specialization in anesthesiology and resuscitation as a training need in Cuba. Rev Enferm Neurol.2023;22(1): pp. 5-16

Correspondence: Yuleidy Fernández Rodríguez
Email: yuleidyfr@infomed.sld.cu
[1]Provincial Clinical-Surgical Hospital Celestino Hernández Robau
[2]Provincial Pediatric University Hospital José Luis Miranda
[3]St. Helena Peninsula State University

Received: November 22, 2022
Accepted: March 16, 2023

Resumen

Introduction: Postgraduate specialties constitute the academic training that provides the professional with the updating, deepening, improvement or expansion of labor competencies for the care performance that is required.

Objective: to explore the perception of certified nurses for the practice of anesthesiology on the need to train specialist nurses in anesthesiology and resuscitation.

Methods: A qualitative study of the Convergent Care Research type was carried out in the Teaching and Research Department of the Provincial Pediatric University Hospital of Villa Clara, Cuba between the months of January and March of the year 2022. The universe was composed of 100 nursing professionals. certificates in anesthesiology and the sample selected through a proven theory was made up of 80. Informal interviews and discussion groups were conducted as instruments in the investigative process.

Results: the participants will perceive as necessary the training of specialist nurses in anesthesiology, resuscitation and pain relief. The strategies to achieve this training must be directed to its approval by the postgraduate instances of the Ministry of Public Health and the Ministry of Higher Education.

Conclusions: They perceive as peremptory the training of specialist nurses in anesthesiology and resuscitation, since it will allow guaranteeing the adequate renewal of this human resource, having trained nurses capable of providing optimal anesthesiology care, reaching a higher professional level that places them parallel to other areas of care and training younger human resources who have a higher level of preparation in this specialty.

Keywords: Specialized nurses, postgraduate nursing education, postgraduate health programs, nurse anesthetists

Introduction

Like other professions, nursing is the result of the evolutionary activity of the human being. Its gradual developmen has acquired specific characteristics in each period of history. t. During this continuous progress in different contexts, the nursing profession, has developed different specializations.[1]

Anesthesiology is considered a clinical specialty, dedicated to maintaining the well-being and physical integrity of patients during surgery and other acts that may be uncomfortable or painful Its objectives are to maintain patient hemodynamics, anesthetic depth, and adequate pain relief.[2]

The specialty of anesthesiology in Cuba had a resurgence after 1959, since the gobernement implemented several actions for its development, including the training of anesthesiologists in European countries, so that the activity of sleeping and waking up patients ceased to be its only function. Thus, the training of nurse anesthetists is recorded in history as an important step carried out in 1965.[3]

Since 1962, new medical schools were created with campuses in every Cuban province, grouped in various medical universities, in addition to the Higher Institute of Military Medical Sciences, the Latin American School of Medicine, the

National School of Public Health, and a growing number of schools of health technology and nursing. In that year, the system of specialization for physicians was also organized and in 1973 the system of continuous training and education was created to guarantee the permanent quality of medical specialists, nursing personnel, and other health technicians.[4]

The training of nurse anesthetists in Cuba, starting in 1965, arose from the need to train human resources in this area of care due to a deficit in anesthesiology, resuscitation and pain relief. This objective was achieved with the following measures: firstly, the design and implementation, of post-basic courses in anesthesiology; secondly anesthesiology diploma courses, which allowed the training of hundreds of nurse anesthesiologists. Such stepts constituted one of the earliest training programs carried out as a postgraduate activity in Cuba.

However, despite the fact that nursing specialties in this country have been approved by the Ministry of Higher Education and the postgraduate area of the Ministry of Public Health since 2005, only the specialties of intensive care and emergency, maternal and childcare and community nursing have had governmental support. It was not until 2020 that this training process was extended to the areas of pediatrics and obstetrics and gynecology, however, anesthesiology was not included.5

Currently, the lack of training of nurse specialists in anesthesiology is a a disadvantage with respect to other areas of human resources in the field of nursing and care. This absence actually represents a limitation for the professional improvement in this area and the possibility of acquiring new knowledge, as well as deepening the knowledge already acquired. Moreover, it represents a conditioning factor from the economic point of view given the better remuneration that nurse specialists receive. This constitutes the main aim of the present research: to explore the nurse's notion of certification regarding anesthesiology and the need for the training of nurse specialists in anesthesiology and resuscitation.

Methods

A qualitative study,[6,7] of the Convergent Care Research (CCR) type was carried out in the Teaching and Research Department of the Provincial Pediatric University Hospital of Villa Clara, Cuba, between January and March 2022.

The CCR is a type of qualitative research characterized by attributes that organize its development and application, such as immersion, simultaneity, expansibility and dialogue, which facilitates the approximation between care and research actions so that they can be interspersed and carried out in a better way.[8,9]

In this sense, it is worth remembering that the CCR approach was initiated in the 1990s, together with the Graduate Nursing program at the Federal University of Santa Catarina (UFSC), Brazil. This innovative proposal was based on ideas, studies and publications first found in Trentini and Paim Pesquisa em enfermagem: uma nova modalidade convergente-assistencial, published in 1999 by the UFSC publishing house, and Pesquisa convergente-assistencial: um design que une o fazer e o pensar na pratica assistencial em saúde-enfermagem, published in 2004 by Editora Insular.[10,11]

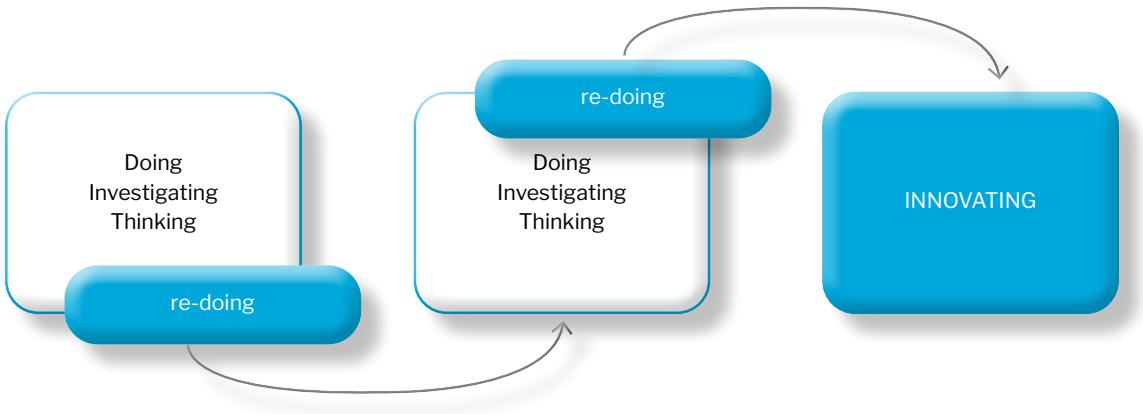
The CCR proposal includes particular assumptions and essential arguments of

the research process which aims at the simultaneity of the care process. Delimiting and justifying the typification characteristics of this type of research, this proposalpoints at possible connections between the research process and the care process. Such assumptions include the following issues:

- The CCR has the potential to produce knowledge, absorb it and incorporate it into a given healthcare space (physical and temporal). This constitutes its main connectivity feature. Thus, translational quality is inherent to CCR and is shaped within the researched healthcare practice itself.
- The context of care practice requires innovation, alternatives to minimize or solve daily health problems and renewal of practices for improvement. Such practice requires a commitment on the part of professionals to include research in their health care activities in order to connect systematic knowledge-thinking with know-how.
- The context of care practice is potentially a fertile field of implicit questions, which foster the development of scientific research.
- The relationship between research and care simultaneously revitalizes active work in the field of care practice and scientific research.
- The CCR implies the commitment to benefit the care context during the research process through free access to the information that comes from it.
- The health professional is a potential researcher of the issues he/she deals with on a daily basis His/her work enables him/her to have a critical attitude appropriate to the growing intellectual immersion in the work he/she performs.

Therefore, CCR is that type of qualitative research that maintains a close link with the healthcare practice throughout the execution process, with the aim of finding options for solving or minimizing problems, making modifications, and introducing innovations in practice. In this sense, this type of research is committed to innovation in the social context under investigation and its process incorporates doing, investigating, thinking and redoing (Figure 1).

Figure 1. Representation of the research process of the Convergent Care Research (CCR). Taken from Paim *et al.*[8]



Taking these elements into account, the present study consisted of five stages, which are described below. The authors are listed in the order in which theycollaborated in the study:

I) Planning research stage

Eighty nurses were selected by a non-probabilistic theoretical sampling12 participated out of a total of 100 professionals certified for the practice of anesthesiology in the province during the period in which the research was carried out. Therefore, 20 professionals were excluded from the study.

Inclusion criteria:

- To be a nurse or certified nurse anesthetist.
- To have signed the informed consent form supporting their acceptance to participate in the research.

Exclusion criteria:

- Not having worked or having worked out of the country during the the research.

Theoretical sampling made it possible to ask questions increasingly focused on the categories and to scrutinize the responses in the comparative analysis with systematic controls. This was done iteratively according to the richness of the information obtained for the generation of categories and their relationships. Thus, the sample size was determined at the end of the study, when the saturation of the information was achieved in the development of eight discussion groups.

The problem identified in the care setting was the absence of a training program for residents in anesthesiology and resuscitation. In addition, researchers are unaware of the need of anesthesiology certified nurses

In view of this situation, the guiding questions of the study are :

1) What is the perception of nurses certified for the practice of anesthesiology in Villa Clara regarding the need for training nurses specialized in anesthesiology and resuscitation
2) What are the strategies that can be adopted to achieve the specialization of nurses in anesthesiology and resuscitation?

II) Instrumentalization Stage

The research was undertaken in the Department of Teaching and Research of the Provincial Pediatric University Hospital José Luis Miranda of Villa Clara, where the methods for obtaining information were carried out, that is, the structured interview[13] and the discussion groups (DG). The structured interview was carried out by the main author to all the nurses certified in anesthesiology who agreed to be part of the research. It was flexible and without time limit and was carried out at the authors' request. The objective of the structured interview was to gather the general data of the participants in the study, as described below.

The study sample consisted of a total of 80 professionals, of whom 48 were women (60%) and 32 men (40%); on the other hand, 18 nurses (22.50%) had 11 to 15 years of professional experience, and another one had 16 to 20 years, followed by those with more than 25 years, represented by 15 professionals (18.75%). Of the total sample, 67 had a bachelor's degree in

nursing (83.75%) and 13 were mid-level technicians (16.25%).

Once each participant had been interviewed, the DG were organized and the date of execution of each one was planned beforehand. Eight DG were formed, and 10 professionals participated in each one. The distribution of the DG followed the existing literature on their composition:: *"The sample is composed of a reduced number of people, generally a group between 7-9 people; most authors indicate that the maximum number of participants would be 10. Although they have common characteristicsin relation to the topic under study, they are generally unknown to each other"*, Furthermore,: *"Regarding homogeneity or heterogeneity {...} The balance lies in finding participants who are homogeneous with the segments under study, but with different characteristics that contribute richness and nuances to the debate"*.[13]

The meetings were held in the classroom located on the premises of the Teaching and Research Department of the aforementioned center, which was adapted in such a way that all participants were at the same level. The DG were organized by three researchers, who performed different functions: the main author was the moderator, the second author gathered field notes,and the third author recorded the audios and videos. The average duration of the meetings was one hour, the recording of audios and videos allowed the registration and accurate transcription of the data. To record the audios, three cell phones with the necessary application for this purpose were placed in different places in the classroom. In similar situations and in the same place, the quality of the recordings of these devices had been previously tested.

The videos were made with a single cell phone, using the application that the device had for this purpose. The objective of the meetings was to explore the perception of the certified nurses on the need for nurse specialist training in anesthesiology and resuscitation, in addition to analyzing, reflecting, and making collective proposals for strategies to achieve this type of postgraduate training

III) Data processing stage

The organization of the information collected during the practice of care and research was carried out. Using each annotation obtained and the agreements reached in the eight DG, categories were established, Afterwards, a summary of each one of them in relation to their response to the objective of the research was selected. The participants were identified by the letter E, alluding to the nursing profession in Spanish (Enfermera/o), followed by the number corresponding to the order in which they carried out the interventions.

IV) Analysis stage

According to the greatest exponents of CCR, the moment of analysis requires a profound abstraction for the reading of the findings and their decoding, as well as the revelation of possible meanings. This abstraction depends on a temporary seclusion of the researcher that occurs when a detachment from the practice of care is achieved.[8]

Therefore, the data analysis carried out was qualitative and included the discovery, codification and relativization of the information, which made it possible to discover categories, codify them and establish relationships. For this purpose, content analysis and thematic coding were used as techniques.

The content analysis was performed from the inductive perspective, which affirms that the categories emerge from the data (empirical categories), and was carried out by the main author, considering Bardín's theoretical referential,[14] through an exhaustive reading of the textual body. The recording units were marked with different colors, the nuclei of meaning from which the categories emerged were then sought and the weighted frequency was applied to identify the one with the greatest relevance.

On the other hand, in relation to thematic coding, Saldaña follows Strauss: *"excellence in research largely lies in the coding method"*.[15] Coding is an exploratory technique used for problem solving without numerical data; it is cyclical and requires three to four cycles to complete the analysis and to be able to form categories. In addition, coding requires three moments: open coding, which aims to formulate the data into concepts; axial coding, which summarizes and integrates the concepts into categories; and selective coding, which uses a higher level of abstraction to generate the central category or categories, which link the identified categories by making sense of the data and their relationships.[12]

V) Interpretation stage

Three fundamental steps were involved: synthesis, theorization, and transfers. For this purpose, an in-depth analysis of the results of the previous stage was carried out. This allowed the information of each category that emerged during the analysis to be integrated in one final category.

Regarding the ethical aspects of the research, the inclusion of the participants in the study was carried out by means of a prior explanation of the objective and scope of the research, as well as the request for verbal and written informed consent. The possibility of leaving the study at any time was also guaranteed to the participants who without any consequences for their working life.

In addition, the present research was approved by the scientific council of the institution, agreement number 102/2021 dated November 20, 2021, and by the research ethics committee, agreement number 72/2021 dated November 7, 2021.

Results

Regarding the exploration carried out by the authors on the perception of certified nurses for the practice of anesthesiology in Villa Clara province, two aspects stood out in the discussion groups: on the one hand, the need for the training of nurse specialists in anesthesiology, and on the other hand, the strategies necessary to achieve such training. The results of the analysis are summarized below according to each category.

Need for the training of nurse anesthesiologists

Most of the nursing personnel certified for the practice of anesthesiology in Villa Clara province perceive that the training of nurses specialized in anesthesiology, resuscitation and pain relief in Cuba is urgent to provide excellent care in this area. Here follow some of the testimonies that predominated in the discussion groups' discourses, together with the label of other participants who sympathized with what was said.

- *"{…}to have a trained nursing human resource capable of providing optimal anesthesiologic care at all times."* (E1), (E3), (E4), (E6), (E10), (E14), (E16), (E30), (E33), (E35), (E44), (E51), (E60), (E72), (E76)
- *"It would allow us to reach a higher professional level that would place us parallel to other areas of care {…}"* (E5), (E7), (E12), (E19), (E26), (E31), (E38), (E43), (E66), (E75), (E80)
- *"{…}in addition, it would guarantee the training of younger human resources, who have a higher level of preparation in this specialty."* (E2), (E 11), (E22), (E27), (E32), (E39), (E46), (E49), (E52), (E65), (E68), (E70)
- *"To guarantee teacher training on an ongoing basis."* (E 15), (E18), (E21), (E29), (E34), (E36), (E41), (E47), (E54), (E55), (E59), (E61), (E64), (E71)
- *"{…}necessary to provide for the adequate renewal of this human resource."* (E8), (E17), (E23), (E25), (E28), (E37), (E40), (E45), (E50), (E58), (E62), (E67), (E73)
- *"{…}necessary to meet the challenges posed by the current increase in surgical activity and to ensure the quality of care {…}"* (E13), (E24), (E42), (E48), (E56), (E63), (E69), (E74), (E77), (E79)

Despite the predominance of positive opinions on the need for the training of specialist nurses, the authors also registered divergent opinions, which are presented below.

- *"{…} this type of training is not necessary to assume the care practice of the nurse anesthetist {…}"* (E9), (E57), (E78)
- *"The training of specialist nurses is going to make our work more complex."* (E20), (E53)

Strategies for the training of nurse anesthesiologists

Nurses certified for the practice of anesthesiology in Villa Clara province mostly perceive that among the strategies to achieve the training of specialist nurses in anesthesiology, resuscitation and pain relief is the design and approval of a program for this specialty by the National Postgraduate Directorate of the Ministry of Public Health, as well as the request by certified nurses for this postgraduate training. Some voices illustrating these arguments are briefly presented here:

- *"…meeting with the head of the provincial nursing section and raising this need is an option {…} years before, we were able to restart the training of specialists in other areas thanks to this strategy."* (E1), (E4), (E12), (E18), (E26), (E33), (E39), (E44), (E47), (E49), (E54), (E56), (E62), (E65), (E68), (E73), (E77), (E80)
- *"{…} it is also necessary to involve the Cuban Nursing Society {…} it has always been directly related to the professional improvement of its associates."* (E2), (E5), (E7), (E11), (E14), (E16), (E19), (E21), (E24), (E27), (E29), (E32), (E36), (E38), (E43), (E45), (E52), (E60), (E67), (E71), (E79)
- *"{…}huntil it is seen as a real need, we will not succeed in making anesthesiology one of the nursing specialties {…}"* (E3), (E6), (E8), (E17), (E23), (E28), (E31), (E35), (E42), (E46), (E50), (E59), (E64), (E70), (E75), (E79)
- *"Approval by the Postgraduate Department of the Ministry of Public Health and also by the Ministry of Higher Education is required {…}*

the specialty program is designed by specialists designated by these instances." (E10), (E13), (E15), (E22), (E25), (E30), (E34), (E37), (E40), (E41), (E48), (E51), (E55), (58), (E61), (E63), (E66), (E69), (E72), (E74), (E76)

The discourses were dominated by suggestions on strategies to achieve the training of nurse anesthesiologists; however, there were also disagreement perspectives:

- *"A training program is not going to change anything about what we have done so far."* (E9), (E57)
- *"I don't think it's necessary to do anything, we'd better continue like this."* (E20), (E53)
- *"It takes a long time from the time we apply for it to the time it is approved, everything takes a process that often becomes bureaucratic."* (E78)

Discussion

In 2020, the Medical Sciences Publishing House published the second edition of the Anesthesia Manual for Nurses,[16] which, together with other educational efforts, such as editions of diplomas, courses, and training, have become fundamental pillars in the improvement of what are known today as nurse anesthetists.

Promoting the professional development of nursing human resources in each of their areas of action is undoubtedly a concern of the Ministry of Public Health, the Ministry of Higher Education and the Cuban Nursing Society, as well as raising the quality of the care provided.

The surgical area has specific characteristics, different from the rest of the services in which nursing develops its activity. The care of the patient's evolution in anesthesia procedures before the surgical event makes it necessary for the nursing professional to be constantly updated, in order to be able to approach them in an adequate way, facilitating the patient's comfort and minimizing the associated surgical risks. For these reasons, the authors consider it essential for nurses to specialize in this area of care.

Advances in surgical procedures, resuscitation, and pain therapy, together with the implementation of new technologies, make anesthesiology in the surgical area a highly complex field. Nursing professionals must respond to this new reality by means of a solid, specific and continuous training to develop in a holistic and competent way the tasks related to care in this area of action.

Anesthesia and operating room nursing requires quality training, determined and complex, based on efficiency and quality parameters such as anesthetic safety of the patient. The evolution of the specialty in recent years, both from the pharmacological and technological point of view, is a recognized fact that has contributed significantly to the progress of surgery. In this aspect, the collaboration of the nurse anesthetist is fundamental to achieve the care objectives, as has been pointed out by specialists in most countries.

The vision of a training program for nurse specialists in anesthesiology and resuscitation should be aimed at achieving excellence in the training of these human resources in these health care contexts. This will make it possible to have many specialists with high scientific, technical and

humanistic preparation, committed to the principles of the Revolution, who act in accordance with the policy and strategy of the Ministry of Public Health, and who are focused on achieving care that translates into superior quantitative and qualitative changes in the quality of life and satisfaction of the population.[16]

The antecedents in Cuba regarding the training of certified nurses for the practice of anesthesiology date back to 1962. In view of the lack of personnel at the beginning of the triumph of the Revolution, a select group of nurses was trained through intensive theoretical and practical courses to organize and support the work of anesthesiologists. Since then, this need, as well as the figure of the nurse anesthetist, has lasted for six decades.[17]

The results obtained in the present study, in relation to the age of nurse anesthetists in Villa Clara province, show that this position is often assigned as a way of work improvement to professionals who have worked for years in other areas of care, which may guarantee certain experience if they come from units of care for seriously ill patients, but does not guarantee specialization.

The COVID-19 pandemic has changed the paradigm of medical care with a set of implications and precautions to be considered in anesthesiology care, which makes the need for the training of qualified and expert nursing human resources in this activity even more urgent.[18]

In other countries, such specialization exists, as is the case of the University of Oviedo, which has a training program for University Specialists in Surgical Nursing and Anesthesia, which lasts one year and consists of four modules with a specific program, methodology and evaluation system. Another example is the Master of Science in Nursing with Specialty in Anesthesia at the School of Nursing of the University of San Juan, Puerto Rico. This program now has a doctoral degree, which gives it a transcendent role in postgraduate training.

Conclusions

The nurses certified for the practice of anesthesiology in Villa Clara have the general perception that the training of nurse specialists in anesthesiology is necessary for the holistic development of the profession and the achievement of better standards of care in clinical practice in this area of care. On the other hand, they believe that among the strategies that can be implemented for the training of nurse specialists in anesthesiology, resuscitation and pain relief is the approval of this specialty by the National Postgraduate Directorate of the Ministry of Public Health. This requires the request of professionals for this postgraduate training, as well as the design of a program, for which the specialization programs that exist in institutions at the international level can be used as a reference.

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DOI 10.51422/ren.v22i1.401

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Experiencias del cuidador familiar con la utilización de las Tecnologías de la Información y la Comunicación: implementación de una intervención educativa

Experiences of the family caregiver with the use of Information and Communication Technologies: Implementation of an educational intervention

Ana María Olivares Roldan, Virginia Reyes Audiffred

Resumen

Introducción: Las Tecnologías de la Información y Comunicación (TICs) son un recurso a través del cual los profesionales de la salud pueden proporcionar apoyo y asesoría a distancia.

Objetivo: Describir las experiencias de una cuidadora familiar (CF) con el uso de las TICs en la implementación de una intervención educativa como apoyo para su autocuidado y el cuidado del adulto mayor (AM).

Metodología: Estudio de caso con abordaje cualitativo. Una pasante de la licenciatura en Enfermería y Obstetricia implementó una intervención educativa en una CF del 15 diciembre 2020 al 25 junio 2021, periodo de pandemia por COVID-19. La recolección de datos se realizó a partir de entrevistas a profundidad, mensajes de texto y voz de WhatsApp, así como por observación. Se realizó análisis de contenido tipo temático según de Souza Minayo.

Resultados: Se identificó el teléfono celular como el dispositivo más utilizado, las funciones de videollamada y mensaje de voz de WhatsApp como las herramientas más útiles y preferidas por la CF, y las infografías y videos como los materiales educativos más adecuados para esta población.

Limitaciones: Solo se incluyó una CF y un AM, lo cual puede generar un sesgo de respuesta, ya que la CF quizás estuvo más motivada y dispuesta a participar que otros cuidadores hipotéticos.

Valor: Implementar un nuevo canal de comunicación entre el profesional de enfermería, el AM, la CF y otros familiares.

Conclusiones: El uso de las TICs fue aceptado por la CF para recibir capacitación en su autocuidado y cuidado del AM.

Palabras clave: cuidador familiar, adulto mayor, enfermeras, tecnología de información de la salud, celular.

Citation: Olivares Roldan AM, Reyes Audiffred V. Experiences of the family caregiver with the use of Information and Communication Technologies: Implementation of an educational intervention. Rev Enferm Neurol.2023;22(1): pp. 17-30.

Correspondence: Virginia Reyes Audiffred
Email: vreyesaudiffred828@gmail.com
School of Nursing and Midwifery,
National Autonomous University of Mexico

Received: November 7, 2022
Accepted: December 23, 2022

Abstract

Introduction: Health professionals can use Information and Communication Technologies (ICTs) to provide support and advice at a distance.

Objective: Description of the experiences of a family caregiver (FC) with the use of ICTs in the implementation of an educational intervention to support her self-care and the care of the Older Adult (OA).

Methodology: Case study with qualitative approach. An undergraduate intern in Nursing and Midwifery implemented an educational intervention with a FC from December 15, 2020 to June 25, 2021, during the covid-19 pandemic. Data collection was gathered with in-depth interviews, Whatsapp text and voice messages, as well as direct observation. Thematic type content analysis was performed according to de Souza Minayo.

Results: The cell phone was identified as the most used device, Whatsapp video call and voice message functions as the most useful and preferred tools by the FC, and infographics and videos as the most appropriate educational materials for this population.

Limitations: Only one female FC and one male OA were included in this study. This may generate response bias, as the FC was perhaps more motivated and willing to participate than other hypothetical caregivers.

Value: Implementation of a new communication channel between the nursing professional, the OA, the FC, and other family members.

Conclusions: Training in the use of ICTs was accepted by the FC to improve her self-care and care of the OA.

Keywords: family caregiver, older adult, nurses, health information technology, cell phone.

Introduction

In Mexico there are 2,941,589 dependent older adults, 41% of whom have a family caregiver (FC),[1] who must invest much of her or his time and energy in meeting the needs and care required by the older adult (OA).[2] However, most of the time these functions are performed without prior knowledge, guidance or support of a health professional, putting at risk the quality of care provided and the safety of the person to be cared for.[1] In addition, this brings about the appearance or loss of control of pre-existing health problems, since the responsibility of caregiving implies constant stress for the caregiver.[3,4]

Currently, Information and Communication Technologies (ICTs) are a convenient resource for health professionals to provide support and advice at a distance.[5] By disseminating reliable, easy-to-read, and easy-to-understand information for the health care of both the FC and the person being cared for, positive changes are generated in the quality of life of the OA.[6] In other words, in the area of health care, ICTs facilitate access to knowledge and also the possibility of enabling new models of care.[5] In Spain, nurses use ICTs to support caregivers, remotely managing healthcare resources such as digital medical records, personalized and interdisciplinary care plans, support groups, medical appointment

reminders, remote monitoring of vital signs, and visualization of wounds.[7] On the other hand, although Mexico has made progress in the incorporation of ICTs in the healthcare system, there are still many pending issues to be solved[8] in terms of the support of FCs, de León Castañeda considers this aspect to be an area of opportunity to provide telenursing.[8]

For these reasons, the aim of this study is to describe the experiences of a FC with the use of ICTs as a means of educational intervention. The results obtained may constitute a reference point for introducing ICTs as a tool for remote implementation of the nursing care plan, thus promoting self-care of the FC and care of the OA that favors her or his well-being.

Materials and methods

A case study of the qualitative approach is presented, with the purpose of carrying out an intensive and holistic analysis9 of the experiences of an FC in the use of ICTs as a support in an educational intervention for her self-care and care of the dependent OA9, both inhabitants of the State of Mexico. This intervention was implemented by an intern for the Bachelor's Degree in Nursing and Midwifery during her social service (*Figure 1*). The following steps were taken to carry out the study:

a) Design of the educational intervention

Theoretical Phase. A literature review was conducted for two months to identify the essential elements to be integrated into the educational intervention.

b) Selection of the participant

Thirteen FCS were recruited from a database, with whom communication was established through messaging and WhatsApp calls, and from which a typical case was selected. The selection criteria included the following charcateristics: being an FC of an OA, having at least one year of experience in such work, being over 18 years-old, having a cell phone or a computer, and agreeing to participate in virtual sessions on a regular basis.

c) Data collection

This last step was carried out in six phases. In the first phase, the objectives of the research project were explained to the participating caregiver, who signed the informed consent form. In the second phase, the OA underwent a comprehensive geriatric assessment, and the health status of the FC was evaluated. Then, the nursing and midwifery intern, together with the FC and the OA, identified and prioritized the needs to address them in the educational intervention. In the third phase, opinions were exchanged to decide on the ICTs to be used and the didactic material, as well as the days and schedule for the implementation of the intervention. In the fourth phase, which was carried out from December 15, 2020 to June 25, 2021, during the covid-19 pandemic, the FC education intervention was implemented. This consisted of 60-minute educational sessions twice a week via WhatsApp video call. Prior to each session, the FC was sent the reading material or video corresponding to the topic to be addressed. The topics were chosen according to the needs identified and covered aspects such as arterial hypertension, anxiety, risk of falls, diabetes, depression, administration of analgesics, hypoglycemic agents, bronchodilators, non-pharmacological pain management, glucose and blood pressure measurement, massages for muscle relaxation and activation of blood circulation, importance of the application of the COVID-19 vaccine, burned caregiver syndrome, healthy aging and self-care. For each topic, infographics were prepared with large letters, without italics or many reliefs, non-phosphorescent colors, and subtitles

highlighted in a different color. In addition, links to two videos selected for their clear and concise content and good-quality images were sent via WhatsApp to the FC. To resolve doubts, the FC could send messages or make phone calls via cell phone once a week or whenever required.

The fourth and fifth phases of data collection were implemented simultaneously. The fourth focused on the implementation of the educational intervention for the FC, while the fifth phase evaluated the didactic materials used in each educational session. After each session, the FC was asked the following open-ended questions: *are videos, infographics, and web pages adequate to learn how to take care of yourself and your family member? what suggestions would you have to improve the quality of the didactic materials in terms of font, design, and format? can you access the didactic materials quickly and easily via WhatsApp?*

In the sixth and last phase, doubts related to the topics covered in the educational sessions were resolved. Once the sessions were finished, two in-depth interviews were conducted with the FC, in which the following open questions were asked: *how has the information provided in the educational sessions benefited her? what was her opinion about the use of phone calls, video calls, messaging and sending didactic material by WhatsApp in the educational sessions? how was her experience during the educational sessions?* Each interview lasted 90 minutes on average and was recorded and transcribed in Word 2013 for later analysis. In addition, 20 voice messages and 311 text messages sent by WhatsApp with information related to the study case, were considered as qualitative material.

Ethical aspects

Ethically, the research complied with the Helsinki Declaration,[10] the Belmont Report[11] and the Regulations of the General Health Law on Health Research.[12] In addition, each interview was kept under a pseudonym to protect the anonymity of the FC and the OA, and each participant signed an informed consent form. This article derives from the research project *"Training Model in Advanced Nursing Practice for Primary Health Care in the care of older adults with chronic disease (Diabetes Mellitus, Arterial Hypertension) with a family approach",* and obtained the favorable verdict of Research Committee (CI/ENEO/114).

Methodological rigor criteria

To ensure the application of the criteria of methodological rigor,[9] credibility and confirmability were met with continuous and persistent observation throughout the educational intervention and the in-depth interview. Also, the information was validated with the participant. For the auditability criterion, the audio recordings, interview transcripts, records as concrete as possible, and direct quotations from documentary sources are available; likewise, for the transfer criterion, the description of the research context and the socio-demographic characteristics of the study participants are presented.

Data analysis

Thematic content analysis was conducted in three stages, according to de Souza Minayo.[13] In the first stage, pre-analysis was carried out, which consisted of the fluctuating reading of the interviews in order to become impregnated with their content, followed by the constitution of the corpus, in which compliance with validity standards such as completeness, representativeness, homogeneity and relevance

in relation to the phenomenon under study was reviewed. This, in turn, led to the formulation and reformulation of hypotheses and objectives. In the second stage, the text was shortened into thematic units related to the study case and a code was placed, which was quantified for a better understanding. Thus, the categories responsible for the specification of the themes emerged. Finally, in the third stage, inferences and interpretations were made and interrelated with the theoretical framework initially designed.

Case Study Background

"Peach" is the pseudonym for the FC and *"Gold"* for the OA (Table 1). Both live in the municipality of Nezahualcóyotl, State of Mexico, in a house that has basic services (water, electricity, drainage) and is shared with people without family ties. During their marriage they conceived three sons who already have their own families and homes (*Figure 2*), all of whom sporadically visit the OA's house and contribute in different ways to his wellbeing.

Results

Two categories emerged from the analysis of the interviews that evidence the FC'S experiences with the use of ICTs: 1) Cell phone and WhatsApp, valuable tools for nursing care with the subcategories: 1.1 Phone call, 1.2 Written messages, 1.3 Voice messages, 1.4 Video call, 1.5 Sending didactic material, and 2) gaining trust from family members.

Category 1. Cell phone and WhatsApp, valuable tools for nursing care.

The cell phone was used as the main device by both the nursing and midwifery intern and the FC for the implementation of the educational intervention. The FC had a cell phone equipped with a camera with 4 Mpx resolution, 2-core processors, 8 GB internal storage and good connection to wireless networks, which allowed the correct functioning of applications such as Google, Facebook, WhatsApp, Messenger, Chrome, YouTube.

1.1 Telephone call

The FC used the cell phone without difficulty to make calls to the nursing and midwifery intern once she registered her in her contacts. The intern made phone calls on average twice a week, lasting 10 to 30 minutes, and only on two occasions did the FC make phone calls to the intern. On the first call, a few days after starting the educational intervention, the FC reported that the OA *"Gold"* was pale, droopy and cold to the touch. After conducting an interrogation, physical examination and vital signs check through the FC via videoconference, the intern indicated that they should go for a medical checkup, and as a result the OA remained hospitalized. The second call was to receive guidance on analgesics, since *"Peach"* suffers from low back pain and headaches.

1.2. WhatsApp

Through the WhatsApp application, written and voice messages were exchanged, video calls were made for discussing diffent topics and explaining procedures, in addition to the sending of didactic material such as videos, infographics, web page addresses and reading materials.

1.2.1. Written messages

Text messages were used for specific situations such as: meeting days and times, confirming,

cancelling or rescheduling appointments, inquiring about the health status of the OA, the FC and important events. Short written messages were exchanged at least twice a week, on average for 15 minutes and no more than 30 words in length. The FC found it difficult to write by cell phone and expressed "*not feeling at ease*" due to the lack of perception of emotions and tedious communication:

> *I don't like messages; I like video calls more (Peach).*

1.2.2. Voice messages

The FC's lack of knowledge of how to send voice notes was identified as one of the causes of poor communication with her children, since due to the covid-19 pandemic they could not be in person at home where the FC performed her OA caring duties. The intern produced a video to explain and exemplify how to use voice memos. In this way, the FC learned to use them:

> *I find voice notes much more practical, because my fingers get tired when I type messages{…} my children are happy when I send them voice notes {…} they say that now we can talk more often and they understand me better. (Peach)*

The use of voice notes resulted in more fluid communication with both her children and the intern. The voice notes lasted from 1 to 5 minutes and were used to clarify doubts regarding infographics, nutrition, medications (analgesics), covid-19 preventive measures and anxiety management.

1.2.3 Video Calling

The FC did not know how to make video calls either, so she learnt how to videocall watching an educational video. The FC's enthusiasm for acquiring new knowledge was important for her to learn how to make video calls. She even took the initiative for video calling when her son was not available to help her:

> *You tell me when we reconnect to review a new topic {…} At such time he (her son) is no longer here, but I'll try to do it alone. What do you think (Peach).*

Almost immediately after watching the educational video, she was able to make video calls . This increased her self-confidence to use technology. The video call protocol included: 1) welcome and thanks for the meeting, 2) report on the FC's health status and the relevant event(s), 3) reminder of the previous topic, 4) evaluation of the material sent, 5) discussion of previously agreed topic with the didactic material sent, and 6) clarification of doubts. There were 16 video calls during the educational intervention, generally from 9:00 - 11:00 am, before starting the FC started her household duties, and sporadically from 18:00 - 20:30, when she had already finished her daily household activities and before dinner time. These sessions lasted from 1 to 2 hours. The FC preferred video calling because she felt closer contact when she saw and heard the nurse talking to her:

> *Yes, I prefer videocalls because in that way we can look at each other's eyes {…} that's the way I like it better, rather than when people just talk to me and I hear their voice {…} When you look at the other person on*

screen, it´s better because there is eye contact. With a phone call you can say things, but not directly. When we see each other's faces {...}the contact is closer (Peach).

Both the FC and the OA expressed their pleasure in receiving clear explanations from the intern during the educational sessions:

I like your topics of conversation very much because you explain everything very well {...} we miss you when we don't have a meeting (Gold).

I feel that with video calls we can clarify many doubts, when we have time for them. (Peach).

In the first two sessions, the FC complained several times of severe headaches, and after questioning her, anxiety and stress symptoms were identified. These issues were addressed, and she was provided with relaxation and occupational therapies, thus reducing the headache and, with it, the stress:

Personally, my headaches and general wellbeing have improved{...} I can tell you that out of 100%, 90% of my stress is under control now.

I feel more secure since you have been supporting me, I feel good, I am calm, my headaches have reduced a lot for the past three days {...} I feel very relaxed, very calm and I´m sleeping very well {...} you have calmed my anxiety a lot {...} I feel good, very sheltered, that you cared for me, because you are there at all times {...} I feel very calm, with the video calls. (Peach)

The accompaniment of the intern also counteracted the isolation due to the restrictions imposed on this age group by the covid-19 pandemic:

Being in touch with you has helped me a lot, because honestly I have no one to talk to (Peach).

During the video calls, the FC also mentioned how she learnt to take care of her own health by improving her eating habits:

I am learning to eat everything, but in small portions, something I didn't do before [...] you give me very good tip-offs for my health. (Peach)

As one of her main needs, she expressed interest in learning how to measure blood pressure, as her greatest difficulty was the placement of the blood-pressure manometer cuff:

What I would like the most is to learn how to measure the blood-preassure correctly, that would be very helpful and useful {...} you know that I haven't found yet the exact point to place the manometer (Peach).

Using video calls, the intern was able to explain several times the procedure to the FC, who repeated continuously both verbally and practically, until she was able to use it correctly without any problem:

Ok, let's start again, first I touch my arm and where I feel the pulse I place the cuff {...} then, I put stethoscope with the olives facing out and then I start {...} I close the valve here and pump it up to 160-180 {...} and then I

start releasing the air until I start to hear the noise like a heartbeat and then when it stops, that's the pressure beat. (Peach)

Another use of the video calls was to provide advice and manage the paperwork for the application of the COVID-19 vaccine, which brought peace of mind to the FC when she registered her husband and herself:

I fell more relaxed now because we are already registered, we just have to wait for our turn (Peach).

1.2.4 Sending of didactic material

The didactic material included media and resources, such as infographics and videos, which facilitated the teaching-learning process of the FC. The infographics were sent by WhatsApp in image format and the FC got them without problem because in such format she could use them easily and at any time. The FC showed her confidence and gladness when the topic was addressed, the infographic was a valuable resource to remember its content:

I am very happy with the material (the infographics) because when I feel that I have forgotten something, I look at it again or if not, I call you {...} the infographics have always been very clear (Peach).

The YouTube videos were selected according to the topics and with a maximum duration of 6 minutes, since the FC expressed tiredness:

I don't like to spend too much time on the cell phone because then I feel as if my eyes start burning (Peach).

Two videos were sent. The first, lasted 2:57 minutes and shows the correct placement of the inhaler in order to avoid medication leakage, and the second video, with a duration of 5:06 minutes displays the beginning of the application of the covid-19 vaccine to older adults. Regarding the video on the effective placement of the inhaler, the ease of repeating it as many times as necessary and pausing as required was useful and indicated both by both the FC and the OA.

Three videos with a maximum duration of 2 minutes were sent via WhatsApp. The first video indicated how to make a video call via WhatsApp; the second one showed how to send voice notes, and the third video how to send or forward photos and videos in the same application. The FC confirmed having learned how to use the indicated ICTs:

Hello, good afternoon {...} here I am trying out what you sent me today (video), I got it {...} I´ve told my son that you explain everything very well and I understand everything you tell me very clearly {...} now I just need to practice more. (Peach)

Category 2. Gaining the trust of family members.

A 40-minute virtual meeting was held with the FC'S third son, who was at the senior citizens' home. At the end of the meeting, the son made positive comments about the educational sessions and the information provided:

My son has told me that "she (the nurse and obstetrics intern) explains everything very clearly, mom, we have no doubts after her explanation" (Peach).

Based on these comments, the FC was more confident and willing to participate in the educational intervention, as well as to make changes in her daily routine to improve both her self-care and the care of the OA.

Discussion

The FC participant did not have a computer, as is the case with most of the OAs and their caregivers according to INEGI.[14] She only had a cell phone with which she only made phone calls. It was necessary to train the FC so that the different WhatsApp functions (video calls, voice messages, and sending didactic material) could serve as a means of communication in the educational sessions. This outcome agrees with various investigations in which it was reported that the FC had insufficient knowledge[15] and skills to use ICTs, such as cell phone devices, computers, or laptops, an issue which became most evident during the pandemic.[16,17]

Especially the video call was the most appreciated ICT too. It allowed training the FC in procedures to be performed for the care of the OA, as referred to in other research.[18] Through the video call, a feeling of closeness of the FC with the nursing staff was achieved, as well as accompaniment for her self-care and follow-up care for the OA. O'Leary agrees with this aspect, highlighting the video call as the main means for the implementation of an educational intervention.[19]

On the other hand, written messages via WhatsApp were not easily sent by the FC's, while voice messages were a more accepted and used resource. In this sense, the publication by Sánchez Juárez coincides with the results found, since it refers that OAs did not like sending text messages either.[20]

The results obtained in the present research coincide with O'Leary *et al*.[19] and Barbara *et al*.,[21] who consider telephone calls, video calls, and voice messages as the ICTs most accepted by FCs in the implementation of educational interventions. However, it is also true that the use of ICTs is a challenge for the elderly population,[15,17] although in some cases they are open to acquiring this type of knowledge and skills, as the present study or Pino Juste *et al* show,[22] where a positive attitude towards their use was found.

The interactive sessions and the characteristics of the material used played an important role in the motivation of the FC to participate and achieve the goals of the study. This is also pointed out in the work of Barbara *et al*.:[21] the motivation was achieved using adequate and attractive didactic material with interactive advisories is important. In addition, this coincides with Barrera-Ortiz *et al*.,[23] who state that the development of the materials should be based on the characteristics of the participants, such as their educational level, in order to adapt the language to be used in the materials and tutorials.[23] Likewise, the use of YouTube videos via WhatsApp was well accepted; this coincides with the statistics of the consumer study in Mexico conducted by Yim Min Shum.[24] YouTube is among the top three platforms with the highest usage in all age ranges, with 8.3% of OA participation.

An important element of the FC's participation in the educational intervention was the trust generated in one of her children, an aspect that coincides with Guzmán's research,[25] since she affirms that, as a means to speed up the learning process, the family is the main support nucleus to validate or not the information and teaching provided by someone external. Finally, the FC and the OA stated that they felt accompanied by the Nursing and Midwifery intern during the entire distance learning intervention, as well

as satisfied with acquiring new knowledge that helped to improve their health, similar to the findings in various studies.[17,26]

Conclusions

Evidence was found that the cell phone is the device that FCs have and use the most and that ICTs, in particular video calling, voice messages, and videos sent through WhatsApp, were useful and accepted tools by the FC for communication and learning. Interactivity and adequate didactic material were also key factors for the motivation and participation of the FC in the educational intervention. In addition, the trust generated by the participant's son was an important factor in achieving adherence to the intervention. Overall, the results suggest that the implementation of distance educational interventions can be an effective strategy to improve the health of OAs and their caregivers, as long as the limitations and needs of this population are adequately considered.

Limitations of the study

The lack of diversity of the sample was the main limitation, as it only included one FC and one OA and, consequently, the same geographic region. This could also have caused a response bias, as the FC participant was perhaps more motivated and willing to participate in the educational intervention at a distance than other hypothetical caregivers.

Acknowledgments

Research carried out thanks to the Technological Research and Innovation Support Program (TRISP) of UNAM IN306819: Design and evaluation of a training model in Advanced Nursing Practice for primary health care in the care of older adults with chronic disease (DM, HTA) with a family approach: Diagnostic Phase.

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Figures and Tables

Figures

Figure 1. Educational intervention

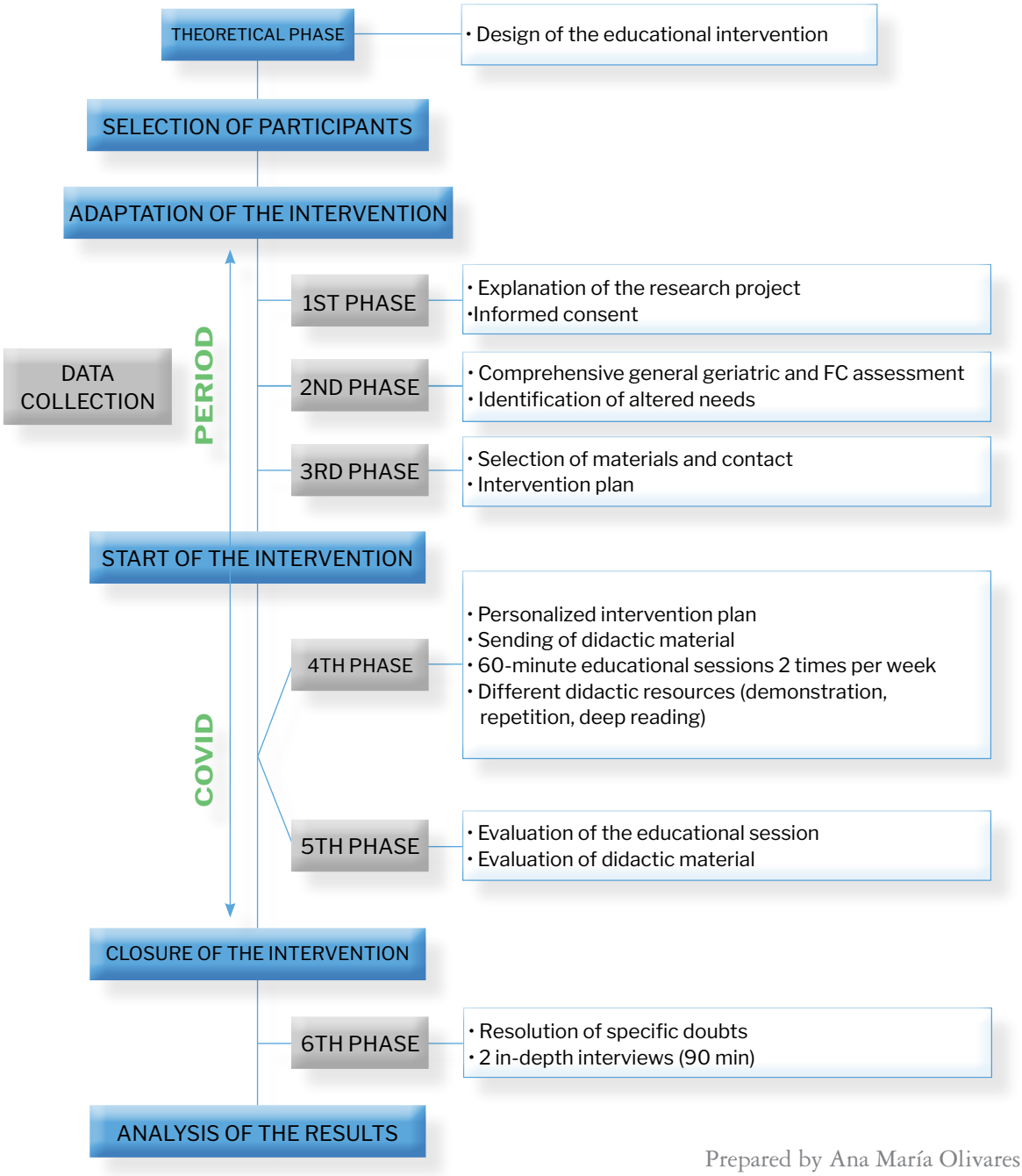

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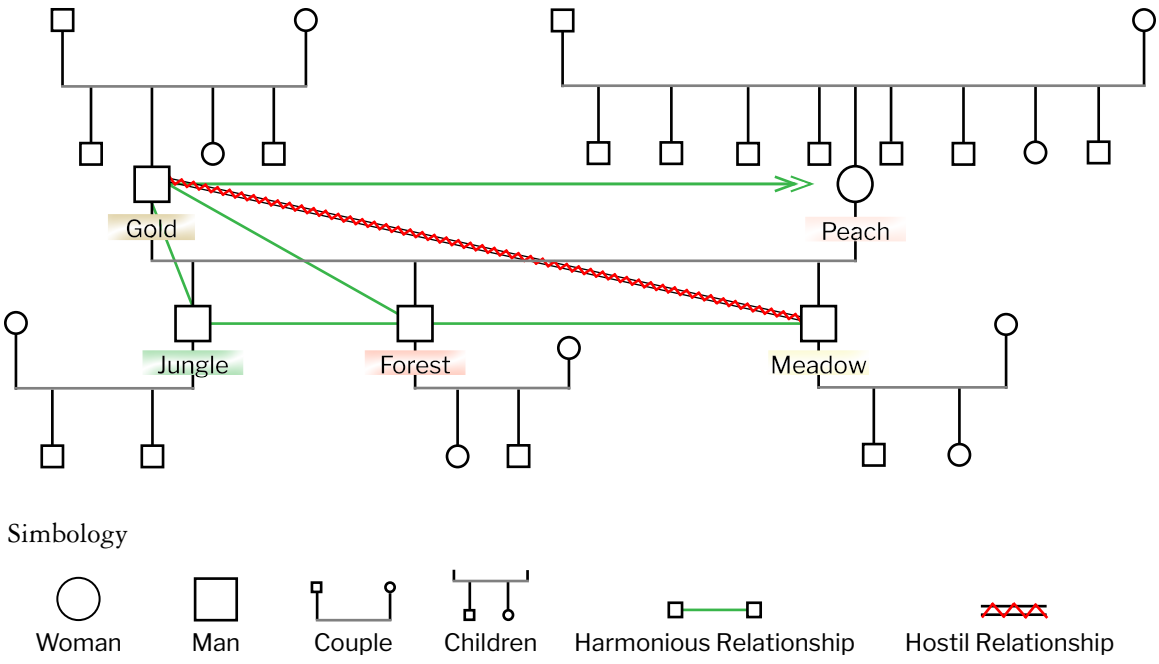
Figure 2. Peach and Gold Genogram



Prepared by Ana María Olivares

Tables

Table 1. Profile of participants

	FC "Peach".	*OAM "Gold"*
Age	58	60
Sex	Female	Male
Relationship	Wife	Husband
Level of education	Primary	Primary
Occupation	Housewife	Retired
Chronic diseases	DM II, depression, scoliosis (severe low back pain), Anxiety, Migraine	COPD

Prepared by Ana María Olivares

DOI 10.51422/ren.v22i1.421

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Cuidado humanizado del profesional de enfermería en la atención del paciente oncológico hospitalizado

Humanized care of the nursing professional in the care of hospitalized cancer patients

María del Carmen Gómez Lucio[1]

Resumen

Introducción: El cuidado a pacientes oncológicos consiste, más allá de satisfacer necesidades físicas, en una atención holística, pues el cuidado humanizado favorece una interrelación esencial entre ciencia y valores para establecer una asistencia de calidad, que dé solución a las demandas humanas del usuario.

Objetivo: Identificar el nivel de cuidado humanizado que proporciona el profesional enfermero a pacientes hospitalizados en un centro de oncología.

Material y métodos: Estudio descriptivo, observacional-transversal. Muestreo no probabilístico de oportunidad y secuencial con cuota de 35 pacientes. Medición realizada con el instrumento *"Percepción del cuidado humanizado en pacientes hospitalizados"*. Análisis de resultados mediante estadística descriptiva.

Resultados: El cuidado proporcionado a pacientes oncológicos hospitalizados es humanizado, pues afirman recibir trato amable con efecto positivo en ellos derivado de la actitud de la enfermera en su labor, en la que impera el conocimiento y la experiencia para proveer cuidados individualizados y empáticos a partir de comunicación, expresión de sentimientos y escucha, atendiendo no sólo necesidades físicas, sino también sociales, culturales y espirituales.

Discusión: Los pacientes oncológicos mencionan que el profesional de enfermería actúa comprendiendo al usuario integralmente, lo que les permite enfrentar positivamente su proceso de enfermedad.

Citation: Gómez Lucio M del C. Humanized care of the nursing professional in the care of hospitalized cancer patients. Rev Enferm Neurol.2023;22(1): pp. 31-46

Correspondence: María del Carmen Gómez Lucio
Email: golucar1@yahoo.com.mx
[1] Instituto de Seguridad Social del Estado de México y Municipios (ISSEMyMM)
Red Mexicana de Enfermería en la Prescripción A.C. (REDMEPresc)
Colegio de Profesionales de la Enfermería del Estado de México (COPEEM)

Received: 10 Jan, 2022
Accepted: 25 Mar, 2022

Conclusiones: El cuidado humanizado de calidad es una relación entre el profesional de enfermería y el paciente a cuidar, en la que impera la comunicación, el debido uso de la palabra y la escucha para generar confianza, lo cual se suma a la base científica y las habilidades técnicas, a fin de intervenir de forma humana, eficiente y segura.

Palabras clave: atención de enfermería, humanismo, paciente, oncología.

Abstract

Introduction: Caring for cancer patients is an interaction that goes beyond satisfying physical needs, it is caring for the person in a holistic way, where the humanization of care favors the essential link of the profession, it is an interaction between science and values to establish quality care. quality, giving solutions to the human responses of the patient.
Objective: To identify the level of humanized care provided by the nursing professional to patients hospitalized in an oncology center.
Material and methods: Descriptive, observational cross-sectional study. Non-probabilistic opportunity and sequential sampling with a quota of 35 patients. Measurements carried out with the: *"Instrument Perception of Humanized Care in Hospitalized Patients"*. Analysis of results through descriptive statistics
Results: The level of care provided to hospitalized cancer patients is very humanized, patients report receiving friendly treatment with a positive effect on them, derived from the attitude of the nurse in her being and doing care, they perceive a relationship of trust where knowledge and Experience in favor of your health since the nursing professional provides individualized and empathetic care, favoring communication, expression of feelings and emotions; listening to them beyond their illness satisfying their physical, social, cultural and spiritual needs.
Discussion: People with oncological disease perceive receiving humanized care when mentioning that the nursing professional acts understanding the patient by knowing, knowing how to do, and knowing how to be, which allows them to positively face their disease process.
Conclusions: The level of quality humanized care is a relationship that occurs between the nursing professional and the person they care for, in this human quality of care, communication prevails, the power that the word and hearing have in the field of attention, transcendental to generate confidence; coupled with the scientific foundation, empathetic attitude, technical and professional skills given by experience, allowing intervention in a humane, effective, efficient and safe way.

Keywords: nursing care, humanism, patient, oncology

Introduction

Nursing emerged as a profession *"in the mid-nineteenth century by Florence Nightingale"*,[1] who prioritized the satisfaction of biological needs. This care, which over time was perfected, *"began to find theoretical justifications from that moment, which has allowed nurses to improve their daily practice through observation, description, explanation, prediction and control of phenomena"*.[1] Care was based on the observation of the environment, which is why the needs and competencies that the nurse should possess were identified to initiate human care in an organized manner. In this sense, *"nursing care is conceived as an eminently human act, characterized by respect, trust, and intimacy, which is given based on a value judgment to identify needs and decide on a plan of action together with the patient and the family, in which knowledge, technique, and attitude are at play"*.[2]

Care is linked to *"healing, ethics and the scale of values of care and health; they comprise the professional context, the nurse's mission and his or her raison d'être for society"*,[3] since it is the backbone of nursing, whose purpose is to provide solutions to *"the human responses of the person in conditions of health or illness"*.[4] Of course, this is the case of the oncology patient, for whom nursing interventions in terms of assistance, listening, education or counseling are indispensable, *"which are of utmost importance in providing quality care with a high critical and reflective sense to these patients, since they need a prolonged care system, with changing requirements at each stage of the disease, demanding specialized knowledge and attributes from the nursing team"*.[5] Nursing is, therefore, a highly relevant profession in meeting the physical, emotional and spiritual needs of those in its care, even though these functions are often invisible. The expectations of nursing must aim at holistic care to assume the transcendence that their professional practice requires, as Christian Bobin points out: *"The needs of patients are rarely met by medical technology. The patient expects a gaze that rests on him. He expects the imponderable, the invisible, he longs for a human link, a link that suddenly widens the sky and frees him. He longs for an honest gesture, the truth of a word that will take him beyond, to a place where he can breathe, where he can live. Perhaps, the sick person longs for the arrival of a presence. And if it is sincere, he will feel accompanied. The sick person needs to be taken to another space, to a place that transports him out of the hospital bed, even if he continues to stay in it. Silence between two people is a promise of blossoming, as healing as medicine can be"*.[6] These are actions that are often provided by the nurse practitioner.

It is *"in the second half of the 20th century that nursing revolutionized with the search for theoretical explanatory frameworks of the phenomena related to the field of knowledge and the different practices"*.[7] In this context, professional nursing care arises, which demands different aptitudes and skills, *"it requires knowledge, attitudes, and skills that are only acquired with the deep and systematic study of society, man, health and the nursing discipline itself. For care to be provided with professionalism, nurses must: integrally understand man, have well-defined actions and goals based on scientific principles, use a work methodology, and have the ability to respond to an ethical and legal obligation that they have contracted"*.[3]

This specialized care encompasses the patient in his or her different aspects, since *"the World Health Organization (WHO) defines health as a state of complete physical, mental, spiritual, emotional*

and social well-being, not merely the absence of disease or infirmity".[8] Humanization, in this sense, consists of understanding the human being as an integral being, including his or her different biological, spiritual, social, and emotional aspects; now, *"the humanization of care is the interaction between the knowledge of science and the values of the human being to establish quality care centered on the individual, through a bond"*[9] of care, which is not always visible.

Huércanos Esparza, quoted by Fernández Rubio *et al.*, defines: *"invisible care is a set of interventions resulting from attentive observation, empathy, knowledge and experience, which lead nurses to the development of deliberate professional and ethical judgments, highly focused on the needs of each patient"*.[6] That is, care that transcends therapeutic action: *"They are imponderable and intangible and are understood as a new dimension of the tasks of care as they are based on humanization and dignity"*.[6]

According to Watson, quoted by Vázquez Arreola *et al.*, humanized care refers to *"the human, spiritual and transpersonal aspect, it is a unique approach to nursing, a special kind of human care, which depends on the moral commitment of the nurse to protect and enhance human dignity, which allows nurses to provide quality care in patient care, practice, administration, education, and research"*.[10] To perform warm and safe interventions, *"quality humanized care is based on scientific knowledge, technical capacity and therapeutic relationship that the nurse establishes with the patient"*,[11] professional relationship and experience that derives from perfecting the work in patient care, guaranteeing humane professional care that responds to the needs and demands of the user.

In the oncology patient, *"the humanized treatment is relevant because in the daily work, we deal with people who have feelings, doubts, and fears regarding the health care act and the health-disease continuum, therefore, it is essential to incorporate guidelines that measure the quality of care from a humanized perspective. The quality of nursing care is the result of doing the right thing at the right time by listening to their concerns, alleviating discomfort, and strengthening trust through communication"*.[12]

Therefore, if a humanized practice is carried out, the care will be of quality and the user's perception will be positive. This interlocking is strengthened when *"the quality of nursing care is timely, personalized, humanized, continuous and efficient, provided by the nursing professional in a responsible manner, to achieve patient and professional satisfaction"*.[13] Thus, it is an interaction that benefits both the user and the professional who provides the care.

This bidirectional commitment is governed by the code of ethics that supports Mexican nurses and guides practice within their scope of competence since it states: *"The nurse, through care, sets in motion everything that moves the energy of the human being, his or her potential, his or her desire to live. Care is an attitude that transcends the dimensions of human reality. It has a meaning of authentic humanism, because it involves sensitivity that is incomparably greater than technical efficiency because the former is related to the order of the ends and the latter to that of the means"*.[7]

Oncology patients require humanized care because, from the moment of diagnosis, they face the disease and the challenges of survival,

which increases the psychological signs combined with the symptoms of cancer and its treatment. At this point, the nursing staff has been shown to improve the patient's quality of life through holistic interventions, comprehensively performing their care. The nurse is directly involved in every moment, from the patient's admission to the stages of the disease that involve acceptance or denial, the treatment process, relapses, and complications, until the patient is cured or dies. Therefore, it is important to identify the level of humanized care provided by nurses to patients hospitalized in an oncology center, to propose strategic guidelines for this work, and implement actions to strengthen the care provided.

Material and methods

Quantitative methodology study with descriptive and observational-transversal design. The study universe was patients hospitalized and treated in a third-level oncology center in the State of Mexico. A non-probabilistic opportunity and sequential sampling were performed, with a quota of 35 patients. The inclusion criteria were: patients in the hospitalization service of an oncology center hospitalized during the application of the instrument, who were between ECOG scale 0 (completely active and without restrictions) and ECOG 2 (can take care of oneself but cannot perform other activities; stays awake more than 50% of the time).[14] The exclusion criteria were: patients outside the hospitalization service or admitted outside the period of application of the instrument, who had an ECOG different from that established, and who did not wish to participate in the study.

For data collection, a questionnaire was applied to users admitted to the hospitalization service of the oncology center. The instrument applied was designed according to the instrument *"Perception of humanized care in hospitalized patients"*, developed in 2016 by Hermosilla Ávila *et al.*,[15] from the Universidad del Bío-Bío of Chile; in addition, it was validated in a first sample of 35 users with Cronbach alpha score of 0.835, that is, of *"acceptable reliability and good internal consistency"*. According to Watson's transpersonal theory of human care, the applied instrument consists of 36 items, classified into 10 dimensions.[15] Each dimension has 3 to 6 indicators and, since humanized care is a qualitative attitudinal variable, they were measured through the Likert scale, characterized by an ordinal measurement with the following scales and values: never=1, sometimes=2, regularly=3, almost always=4 and always=5. The results were represented by frequencies and percentages and were analyzed using descriptive statistics for the demographic variables and the dimensions studied.

It is worth mentioning that the General Health Law, title two, article 13, *"referring to the ethical aspects of research on human beings, mentions that in all research in which the human being is the subject of study, the criteria of respect for his dignity and the protection of his rights and well-being must prevail"*.[16] The research belongs to the category of studies without risks or ethical implications, since documentary research methods and techniques were carried out without direct intervention on the patient. Only a questionnaire was applied to users who agreed to participate, after applying the informed consent following *"article 14,*

section V, which states that it will have the written informed consent of the research subject or his/her legal representative",[16] in which it is mentioned to the participants that the data collected will only be used for statistical purposes, maintaining confidentiality and anonymity at all times.

The research was submitted to the research and ethics committees of the third-level care center where it was carried out and approved under COE/CEI/PT/16/2019 and COE/029/2019.

Results

Information was collected from 35 patients hospitalized in the oncology center, of whom 66% were female, 34% male, and 48% were of productive age; the most reported schooling was a bachelor's degree with 40%, the hospital stay from 1 to 10 days was 74% and from 11 to 20 days was 17% (Table 1). In the analysis of each dimension of the 36 indicators of the instrument *"Perception of humanized care in hospitalized patients"*, the results shown in Table 2 were obtained. The data obtained according to each dimension are presented below:

In dimension 1, the formation of a

Table 1. Demographic characteristics of patients hospitalized in an oncology center in the State of Mexico.

	Frequency (%)
Gender	
Female	23 (66)
Male	12 (34)
Age	
20-40 years	10 (29)
41-60 years	17 (48)
61-80 years	8 (23)
Schooling	
Illiterate	1 (3)
Primary	6 (17)
Secondary	5 (14)
High School	4 (11)
Technical career	4 (11)
Bachelor's Degree	14 (40)
Postgraduate	1 (3)
Days of hospital stay	
From 1 to 10 days	26 (74)
From 11 to 20 days	6 (17)
From 21 to 30 days	2 (6)
More than 30 days	1 (3)

Source: Humanized care perception questionnaire applied to users.

Tabla 2. Assessment of the perception of humanized care.

Dimension	Indicators	Never f (%)	Sometimes f (%)	Regularly f (%)	Almost always f (%)	Always f (%)	TOTAL
Dimension 1: formation of a system of humanistic and altruistic values	1. You are treated kindly by the nurse	1 (3)	1 (3)	1(3)	3 (9)	29 (83)	35
	2. You feel that the nurse's attitude has a positive effect on you	1 (3)	2 (6)	1 (3)	1 (3)	30 (86)	35
	3. You feel that the caring nurse gives you something of her/himself	1 (3)	2 (6)	1 (3)	5 (14)	26 (74)	35
	4. You feel that the caring nurse gives you something of her/himself that distinguishes her/him from others	1 (3)	1 (3)	2 (6)	4 (11)	27 (77)	35
Dimension 2: installation of faith and hope	5. The nurse has considered your religious or spiritual preferences in the care provided	15 (43)	1 (3)	3 (9)	4 (11)	12 (34)	35
	6. You feel that the nurse's actions help to strengthen your faith	7 (20)	3 (9)	1 (3)	4 (11)	20 (57)	35
	7. You feel that the caring nurse conveys hope (ways to feel better)	1 (3)	4 (11)	1 (3)	2 (6)	27 (77)	35
Dimension 3: cultivating sensitivity to oneself and others	8. You feel that you have a close relationship with the nurse	4 (11)	1 (3)	1 (3)	4 (11)	25 (71)	35
	9. You feel that the nurse is touched by your health situation	4 (11)	3 (9)	2 (6)	7 (20)	19 (54)	35
	10. The nurse knows how you feel and consults with you about it	2 (6)	2 (6)	1 (3)	4 (11)	26 (74)	35
	11. You feel that the communication with the nurse is genuine	2 (6)	2 (6)	4 (11)	1 (3)	26 (74)	35
	12. You can identify how the nurse feels and say so with confidence	7 (20)	3 (9)	1 (3)	5 (14)	19 (54)	35
	13. The nurse can know how you are feeling	1 (3)	3 (9)	2 (6)	8 (23)	21 (60)	35
Dimension 4: developing a human care relationship of support and trust	14. You can express your feelings to the nurse	4 (11)	2 (6)	2 (6)	4 (11)	23 (65)	35
	15. You feel a mutual trust between you and the nurse	1 (3)	4 (11)	2 (6)	3 (9)	25 (71)	35
	16. The nurse puts herself in your place when you express your feelings	3 (9)	4 (11)	3 (9)	6 (17)	19 (54)	35
Dimension 5: Promoting and accepting the expression of positive and negative feelings	17. The nurse encourages or allows you to express your feelings	4 (11)	2 (6)	1 (3)	4 (11)	24 (69)	35
	18. The nurse gives you time to express your emotions	1 (3)	3 (9)	4 (11)	4 (11)	23 (66)	35
	19. You feel that the nurse listens to you beyond what is going on with your illness	5 (14)	1 (3)	1 (3)	6 (17)	22 (63)	35
	20. You feel that the nurse accepts what is going on with you	4 (11)	4 (11)	1 (3)	4 (11)	22 (63)	35

Dimension 6: Systematic use of the scientific method for problem solving and decision making	21. You feel that the care provided by the nurse is organized and knowledge-based	1 (3)	2 (6)	1 (3)	1 (3)	30 (86)	35
	22. You feel that the procedures performed are appropriate to your way of being	1 (3)	1 (3)	1 (3)	4 (11)	28 (80)	35
	23. You feel that the care provided to you is different from that given to others	10 (29)	3 (9)	3 (9)	5 (14)	14 (40)	35
Dimension 7: promoting transpersonal teaching and learning	24. You have been informed or educated about the care you are given	1 (3)	1 (3)	1 (3)	4 (11)	28 (80)	35
	25. You are consulted for your opinion on the procedures performed on you	3 (9)	1 (3)	1 (3)	3 (9)	27 (77)	35
	26. You know the reason for the procedures provided to you	1 (3)	3 (9)	1 (3)	1 (3)	29 (83)	35
	27. You recognize what your participation is and how important you are in the care given to you	1 (3)	1 (3)	1 (3)	3 (9)	29 (83)	35
Dimension 8: creating a supportive environment or mental, physical, socio-cultural, and spiritual connection	28. You feel that you and your environment (family) have been included in your healthcare	1 (3)	1 (3)	1 (3)	6 (17)	26 (74)	35
	29. You feel that you have been treated with dignity and that your integrity is protected	1 (3)	1 (3)	1 (3)	2 (6)	30 (86)	35
	30. You feel that you are supported concerning your personality and body	1 (3)	1 (3)	1 (3)	5 (14)	27 (77)	35
Dimension 9: Helping to meet human needs	31. You feel that the nurse works to meet your physical needs	0 (0)	1 (3)	0 (0)	1 (3)	33 (94)	35
	32. You feel that the nurse is concerned about your social needs	8 (23)	1 (3)	4 (11)	3 (9)	19 (54)	35
	33. You feel that the nurse incorporates your spiritual needs into your care	9 (26)	1 (3)	3 (9)	5 (14)	17 (49)	35
Dimension 10: acceptance of existential-phenomenological forces	34. The nurse helps you understand why you are in that condition, place, or state	4 (11)	1 (3)	0 (0)	3 (9)	27 (77)	35
	35. You gain insight into the meaning of your life through communication with the nurse	4 (11)	3 (9)	2 (6)	6 (17)	20 (57)	35
	36. The nurse helps you to better understand yourself and others	5 (14)	1 (3)	1 (3)	5 (14)	23 (66)	35

Dimensions and indicators of the instrument *«Perception of humanized care in hospitalized patients»*, developed by Hermosilla Ávila *et al*.[15] Source: Humanized care perception questionnaire applied to hospitalized users in an oncology center in the State of Mexico.

system of humanistic and altruistic values, 80% of the patients answered that they always receive kind treatment with a positive effect on them, derived from the attitude of the nurse in her work of care.

In dimension 2, installation of faith and hope, 77% of the patients affirm that they feel confidence and security with the nurses' interventions, actions that are manifested in a positive emotional state; however, it is worth considering that 43% of the interviewees answered that religious preferences are never taken into account.

In dimension 3, cultivating sensitivity towards oneself and others, it is observed that over 70% of the interviewees perceive that there is a nurse-patient relationship at all times of care, in which the professional's communication, knowledge, and skills allow her to identify the patient's state of health, creating an environment of trust favorable to the quality of care provided.

In dimension 4, developing a human care relationship of help and trust, users identify that the nursing professional always provides care with empathy, favoring communication and not only a biological treatment, which is why they feel confident to express their feelings.

In dimension 5, promoting and accepting the expression of positive and negative feelings, 65% of users think that nurses always help patients to express their emotions or afflictions by listening to them and giving them the necessary time to do so; this allows patients to express themselves and encourages hope and coping with the course of their pathology.

In dimension 6, systematic use of the scientific method for problem-solving and decision-making, over 80% of users mention that the care provided by the nursing professional is adequate and based on knowledge, since they point out that the interventions are individualized regardless of their diagnosis, which gives them confidence in the quality of care received.

In dimension 7, promoting transpersonal teaching and learning, 81% of users report that they know the reason for the procedures performed on them, as they have been previously informed about the care provided, which allows them to become aware of its importance and feel involved in requesting quality care.

In dimension 8, creating a supportive environment or mental, physical, sociocultural, and spiritual connection, 79% of the informants report having received care that is dignified and protective of their integrity as a person, their family, and present context, which characterizes a level of humanitarian care that takes into account the patient's entire environment to transcend strictly biological treatment.

In dimension 9, helping to meet human needs, 66% of patients perceive that the nursing staff always meets their physical needs: food, oxygenation, elimination, sleep or rest, activity, exercise, and hygiene, as well as social and spiritual requirements in a lower percentage.

Finally, in dimension 10, acceptance of existential-phenomenological forces, 67% of the informants indicate that the nursing staff supports them in identifying the process they are going through, which allows them to give meaning to their life that is favored by their health care and the improvement of their quality of life.

Five weightable responses were identified

for each indicator, so a Likert-type scaling was performed and is presented in Table 3, to identify with the following degrees the level of care provided by the nursing professional in the oncology center: never = 1, sometimes = 2, regularly = 3, almost always = 4, and always = 5.

Subsequently, according to the measurement ranges described in Table 4, the level of humanized care provided by the nursing professional was classified. It is obtained that there is *"very humanized"* care, since the overall percentage of nine dimensions is higher than 85%, in a range of 140 to 174 points, while only dimension 2 shows humanized care in a range of 105 to 130 points, equivalent to 74%.

Tabla 3. Likert scaling of each indicator

	Never (1)	Sometimes (2)	Regularly (3)	Almost always (4)	Always (5)	TOTAL
Dimension 1: formation of a system of humanistic and altruistic values						
1. You are treated kindly by the nurse	1	2	3	12	145	163
2. You feel that the nurse's attitude has a positive effect on you	1	4	3	4	150	162
3. You feel that the caring nurse gives you something of her/himself	1	4	3	20	130	158
4. You feel that the caring nurse gives you something of her/himself that distinguishes her/him from others	1	2	6	16	135	160
					Dimension 1	161
Dimension 2: installation of faith and hope						
5. The nurse has considered your religious or spiritual preferences in the care provided	15	2	9	16	60	102
6. You feel that the nurse's actions help to strengthen your faith	7	6	3	16	100	132
7. You feel that the caring nurse conveys hope (ways to feel better)	1	8	3	8	135	155
					Dimension 2	130
Dimension 3: cultivating sensitivity to oneself and others						
8. You feel that you have a close relationship with the nurse	4	2	3	16	125	150
9. You feel that the nurse is touched by your health situation	4	6	6	28	95	139
10. The nurse knows how you feel and consults with you about it	2	4	3	16	130	155
11. You feel that the communication with the nurse is genuine	2	4	12	4	130	152
12. You can identify how the nurse feels and say so with confidence	7	6	3	20	95	131
13. The nurse is able to know how you are feeling	1	6	6	32	105	150
					Dimension 3	146

Dimension 4: developing a human care relationship of support and trust						
14. You can express your feelings to the nurse	4	4	6	16	115	145
15. You feel a mutual trust between you and the nurse	1	8	6	12	125	152
16. The nurse puts herself in your place when you express your feelings	3	8	9	24	95	139
					Dimension 4	**145**
Dimension 5: Promoting and accepting the expression of positive and negative feelingss						
17. The nurse encourages or allows you to express your feelings	4	4	3	16	120	147
18. The nurse gives you time to express your emotions	1	6	12	16	115	150
19. You feel that the nurse listens to you beyond what is going on with your illness	5	2	3	24	110	144
20. You feel that the nurse accepts what is going on with you	4	8	3	16	110	141
					Dimension 5	**146**
Dimension 6: Systematic use of the scientific method for problem solving and decision making						
21. You feel that the care provided by the nurse is organized and knowledge-based	1	4	3	4	150	162
22. You feel that the procedures performed are appropriate to your way of being	1	2	3	16	140	162
23. You feel that the care provided to you is different from that given to others	10	6	9	20	70	115
					Dimension 6	**146**
Dimension 7: promoting transpersonal teaching and learning						
24. You have been informed or educated about the care you are given	1	2	3	16	140	162
25. You are consulted for your opinion on the procedures performed on you	3	2	3	12	135	155
26. You know the reason for the procedures provided to you	1	6	3	4	145	159
27. You recognize what your participation is and how important you are in the care given to you	1	2	3	12	145	163
					Dimension 7	**160**
Dimension 8: creating a supportive environment or mental, physical, socio-cultural and spiritual connection						
28. You feel that you and your environment (family) have been included in your healthcare	1	2	3	24	130	160
29. You feel that you have been treated with dignity and that your integrity is protected	1	2	3	8	150	164
30. You feel that you are supported concerning your personality and body	1	2	3	20	135	161
					Dimension 8	**162**

Dimension 9: Helping to meet human needs						
31. You feel that the nurse works to meet your physical needs	0	2	0	4	165	171
32. You feel that the nurse is concerned about your social needs	8	2	12	12	95	129
33. You feel that the nurse incorporates your spiritual needs into your care	9	2	9	20	85	125
					Dimension 9	142
Dimension 10: acceptance of existential-phenomenological forces						
34. The nurse helps you understand why you are in that condition, place, or state	4	2	0	12	135	153
35. You gain insight into the meaning of your life through communication with the nurse	4	6	6	24	100	140
36. The nurse helps you to better understand yourself and others	5	2	3	20	115	145
					Dimension 10	146

Dimensions and indicators of the instrument «Perception of humanized care in hospitalized patients», developed by Hermosilla Ávila et al.15 Source: Humanized care perception questionnaire applied to hospitalized users in an oncology center in the State of Mexico.

Table 4. Level of humanized care provided by the nursing professional.

Level of humanized care provided to hospitalized patients in an oncology center in the State of Mexico			
Measuring range	35 - 69 Not humanized	140 - 174 Very humanized	
	70 - 104 Poorly humanized	> 175 Excellently humanized	
	105 - 139 Humanized		

Dimension	Total scores	Percentage	Level of humanized care
Dimension 1: formation of a system of humanistic and altruistic values	161	92%	Very humanized
Dimension 2: installation of faith and hope	130	74%	Humanized
Dimension 3: cultivating sensitivity to oneself and others	146	84%	Very humanized
Dimension 4: developing a human care relationship of support and trust	145	83%	Very humanized
Dimension 5: Promoting and accepting the expression of positive and negative feelings	146	83%	Very humanized
Dimension 6: Systematic use of the scientific method for problem-solving and decision-making	146	84%	Very humanized

Dimension 7: promoting transpersonal teaching and learning	160	91%	Very humanized
Dimension 8: creating a supportive environment or mental, physical, socio-cultural, and spiritual connection	162	92%	Very humanized
Dimension 9: Helping to meet human needs	142	81%	Very humanizedo
Dimension 10: acceptance of existential-phenomenological forces	146	83%	Very humanized
Total instrument average	148	85%	Very humanized

Dimensions and indicators of the instrument *«Perception of humanized care in hospitalized patients»*, developed by Hermosilla Ávila *et al*.[15] Source: Humanized care perception questionnaire applied to hospitalized users in an oncology center in the State of Mexico

Discussion

The results of this research are consistent with statements of previous studies, in which the level of quality humanized care provided by the nursing professional is based on scientific foundations, empathetic attitude, technical and professional skill, as well as experience based on close observation, which together leads to the production of *"deliberate professional and ethical judgments, highly focused on the needs of each patient"*.[17]

It is shown that the users identify the treatment received, and the time dedicated to listening to their concerns or doubts, which allows them to face their health-disease process positively. This is also shown in the research of Anacleto et al., who analyze different studies on this type of population and state that different *"factors that promote humanized nursing care such as welcome, patient appreciation {...}, establishment of a good relationship, good communication, active listening, creation of bonds with the patient and family, respect for individuality, autonomy {...}, spiritual needs and faith..."*.[18] Therefore, there is a direct relationship between oncological care and the dimensions assessed in the present study.

This process involves the *"formation of a system of humanistic and altruistic values"*,[15] in which nursing interventions generate trust and acceptance of care, as found in the research of Monje *et al*.: *"the qualities in the delivery of humanized care by the nursing professional that patients emphasize are those related to the category 'qualities of doing', i.e., they perceive that they can identify their needs, maintain cordial treatment, are available when required and educate them"*.[19]

It is important to emphasize that the instrument allowed a concrete evaluation of each of the dimensions and items since the ranges of measurement of the level of care were implemented according to the scores obtained. Therefore, according to the instrument applied, it is found that the care provided to the oncology patient is perceived as *"very humanized"*, in which priority is given to the person as a human being, respecting his/her decisions, values, and beliefs, a quality that substantially influences the work of nursing professionals in the art of care.

This is in agreement with the postulations

of Leininger, who *"affirms that care is those acts of assistance, of support, directed to another human being with real or potential needs, to improve or alleviate their living conditions"*.[20] This type of action helps to reduce the perception that *"the act of caring, today, is being deficient, both in professional healthcare practice and training"*.[21] Although there are indeed many biases, it should be emphasized that the bond generated in the care of the person with an oncologic pathology is one of understanding and listening from the first encounter, in which *"communication and emotional skills are essential elements of humanized care"*,[21] skills that are characteristic of nursing professionals.

Conclusions

It is concluded and substantiated that the care provided by the nursing professional in the attention to hospitalized patients in an oncology center in the State of Mexico is very humanized, due to the bond that is generated in the attention that has as a priority to consider the user integrally, including mind, body, soul and environment.

In this study, a scale of values was generated to classify the level of care. This was developed from Likert scaling scores, obtaining five levels ranging from *"non-humanized care"* to *"very humanized care"*. This scale is a fundamental pillar for future research measuring this type of variable.

The importance of humanized care in the assistance of people with cancer lies in the quality of the knowledge of praxis, communication, the proper use of words, and listening in the care setting. The latter is transcendental to provide confidence to the person who wants to express him/herself or who needs emotional support to have a more encouraging outlook, since during the disease there may be crises that give rise to fluctuating moods. These actions strengthen the profession since humane care characterized by quality, warmth, and safety is reflected in user satisfaction, which gradually improves their quality of life and positively influences their person, family, and society.

Therefore, it is advisable to continue reinforcing a culture of humane care that creates an environment of trust and guarantees quality and risk-free work, as Mijangos-Fuentes mentions: *"Care reduces the distances between treatments and the meaning of the disease. However, this care must be provided from a holistic vision, such as the one that distinguishes the discipline of nursing"*.[22]

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DOI 10.51422/ren.v22i1.403

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Nivel de adaptación y ansiedad en adultos mayores durante el confinamiento por COVID-19 en Tepetitlán, Hidalgo

Level of adaptation and anxiety in older adults during confinement due to COVID-19 in Tepetitlán, Hidalgo

Raul Huitron Narváez[1] Diana Laura García Mendoza[2] Zazzil Alexa Callejas García[3]
Benjamín López Nolasco[4] Ariana Maya Sánchez[5] Gabriela Maldonado Muñiz[6]

Resumen

Objetivo: Examinar la relación que existe entre el nivel de adaptación y la ansiedad durante el confinamiento por la pandemia COVID-19 en adultos mayores residentes del municipio de Tepetitlan.
Métodos: Estudio descriptivo transversal realizado de noviembre de 2021 a marzo de 2022 en una muestra *no probabilística por conveniencia* de 170 adultos de 60 años y más. De acuerdo con lo señalado por la declaración de Helsinki y la ley general de salud en materia de investigación, se obtuvo la aprobación del comité de ética en investigación de la Universidad Autónoma del Estado de Hidalgo así como el consentimiento informado, a partir de lo cual se aplicó una cedula de datos sociodemográficos. Para conocer el nivel de ansiedad de los participantes se empleó el inventario de ansiedad de Beck. Se utilizó el *instrumento de adaptación de adulto mayor activo*, que evalúa la adaptación en relación con los siguientes modos o dimensiones: fisiológico, función del rol, interdependencia y autoconcepto. Para estimar la relación entre las variables de interés se empleó la prueba de correlación de Spearman.
Resultados: El promedio de edad fue de 70 años (± 7.6 años). Más de la mitad de los participantes fueron del sexo femenino (62.9%). Se observó una correlación alta y estadísticamente significativa entre el nivel de adaptación y la ansiedad de los adultos mayores (rho=0.61; valor p=.000).
Conclusión: Los resultados indican que el nivel de adaptación de los adultos mayores durante el confinamiento por COVID-19 probablemente se relaciona con su nivel de ansiedad.

Palabras clave: adaptación, ansiedad, adulto mayor, COVID-19.

Citation: Huitron Narváez R, García Mendoza DL, Callejas García ZA, López Nolasco B, Maya Sánchez A, Maldonado Muñiz G. Level of adaptation and anxiety in older adults during confinement due to COVID-19 in Tepetitlán, Hidalgo. Rev Enferm Neurol.2023;22(1): pp. 47-55.

Contact: Benjamín López Nolasco
Email: benjamin_lopez8494@uaeh.edu.mx
[1-6] Autonomous University of the State of Hidalgo

Received: September 21, 2022
Accepted: November 5, 2022

Abstract

Objective: To examine the relationship between the level of adaptation and anxiety during COVID-19 pandemic confinement in older adult residents of the municipality of Tepatitlan.

Methods: Cross-sectional descriptive study conducted from November 2021 to March 2022 in a *non-probabilistic convenience* sample of 170 adults aged 60 years and older. In accordance with the Helsinki declaration and the general health law on research, the approval of the Research Ethics Committee of the Autonomous University of the State of Hidalgo was obtained, as well as informed consent, from which a sociodemographic data form was applied. The Beck anxiety inventory was used to determine the level of anxiety of the participants. *The active older adult coping instrument* was used, which evaluates coping in relation to the following modes or dimensions: physiological, role function, interdependence and self-concept. Spearman's correlation test was used to estimate the relationship between the variables of interest.

Results: The average age was 70 years (± 7.6 years). More than half of the participants were female (62.9%). A high and statistically significant correlation was observed between the level of adaptation and anxiety in older adults (rho=0.61; p-value=.000).

Conclusion: The results indicate that the level of adaptation of older adults during COVID-19 confinement is probably related to their level of anxiety.

Key words: adaptation, anxiety, older adult, COVID-19.

Introduction

According to data reported by the World Health Organization (WHO), the global population is aging at an accelerated pace. Estimates indicate that between 2015 and 2050, the proportion of the population over 60 years of age will double from 12% to 22%, and most older adults will live in low- and middle-income countries.[1] In the specific case of Mexico, figures reported by the National Survey of Demographic Dynamics (ENADID) indicated that in 2018 the number of inhabitants aged 60 years and over was 15.4 million.[2]

Moreover, in January 2020, the WHO declared the outbreak of the new coronavirus disease, COVID-19, an international public health emergency. In response to this situation, social restrictions were activated, confinement was decreed, and everyone was asked to stay indoors as long as possible due to the mortality rate of this disease.[3-5] The significant growth in the number of confirmed cases and related deaths caused negative feelings and thoughts that threaten mental health worldwide.[6]

The global pandemic of COVID-19 has had important implications for older adults' health because they constitute the group at highest risk. In addition, other related health problems arised from this situation, such as post-traumatic stress disorder, confusion, depression, anxiety, panic, and behavioral disturbances. In addition, related such as family separation,

distress, bereavement and loneliness affect older adults to a greater extent.[7,8]

Likewise, social restrictions interfere in the daily life activities of older adults, provoking different reactions among them. Some elderly people have a maladaptive reaction, as they perceive such restrictions as an emotional overload that results in a greater degree of uncertainty, frustration and anxiety. By contrast, others try to keep up with their daily routine as much as possible and make the most of the situation, adapting to their current living conditions, thus presenting an adaptive reaction.[9] In this sense, the concept of adaptation proposed by Callista Roy refers to the process in which, through the use of different capabilities, people cope with various situations arising from their environment.[10]

Anxiety is defined as an emotional state of displeasure that is accompanied by somatic and psychic changes, which can occur as an adaptive reaction, or as a symptom or syndrome that accompanies various medical and psychiatric conditions. Anxiety affects mental processes, tends to produce distortions in the perception of the environment and of oneself, interfering with the capacity for analysis and evidently affecting the individual's functionality.[11] It has been suggested that anxiety is one of the mental health problems that affects the elderly population worldwide mostly.[1] Despite this, to date there is no scientific basis for a relationship between the level of adaptation of older adults and the level of anxiety. Thus, the aim of this research is to determine the presence of this relationship during the confinement due to the pandemic of COVID-19 in the municipality of Tepetitlan, Hidalgo.

Methodology

A quantitative, descriptive, and correlational study was conducted from November 2021 to March 2022. A non-probabilistic convenience sample of 170 adults aged 60 years and older, residents of the municipality of Tepetitlan was formed. Both men and women were included regardless of having any type of chronic disease or having suffered COVID-19. In accordance with the Helsinki declaration12 and the general health law on research for health13, older adults were invited to participate in the research at the Tlahuelilpan High School. Informed consent was obtained from each participant and a sociodemographic data questionnaire was applied, in addition to obtaining the approval of the Research Ethics Committe of the Autonomous University of the State of Hidalgo. Subsequently, the Beck Anxiety Inventory was applied to measure the level of anxiety of the participants. This scale has been previously used in the Mexican population with acceptable reliability levels (0.70). It is worth mentioning that this instrument consists of 21 questions, with a Likert-type scale. The total score of this scale ranges from 0 to 63 points. When a participant's score is between 0-5 it is considered minimal anxiety, when it ranges from 6 to 15 it is mild anxiety, if it ranges between 16-30 it is considered moderate anxiety and, finally, a score between 31 and 63 corresponds to severe anxiety. To measure the level of adaptation, the Adaptation of the Active Older Adult instrument was used, which has an acceptable reliability (level > 0.70) both for its general score and for the scores of the adaptive modes it evaluates. This scale is made up of 111 items, which in turn are divided into

the following four modes: physiological, self-concept, interdependence and role function. Each item has a dichotomous response option of Yes and No, with a maximum value of one point and a minimum of zero points. The level of adaptation is categorized as integrated, compensatory and compromised, depending on the score of each adaptive mode.

- Physiological mode: integrated <15, compensatory 15-18, and compromised 19-42.
- Self-concept mode: integrated <12, compensatory 12-23, and compromised 24-35.
- Interdependence mode: integrated <7, compensatory 7-12, and compromised 13-18.
- Role function mode: integrated <7, compensatory 7-12, and committed 13-18.[14]

Sociodemographic variables, as well as anxiety and coping level, are described with means, frequencies, and percentages, depending on the quantitative or qualitative nature of the variables. Spearman's correlation test was used to examine the relationship between the level of adaptation and anxiety. We chose to apply this nonparametric test instead of Pearson's correlation, since the variables of interest did not meet the assumption of normal distribution after evaluating them with the Shapiro-Wilk normality test. Data analysis was performed with the spss version 22 statistical package.

Results

The sample consisted of 170 older adults aged 60 years or more, of whom 62.9% were women. The average age was 70 ± 7.6. About 51.2% of the population was married, 55.3% had only a primary school education and most of them were Catholics (89.4%). Only 22.9% of the participants had a paid job. Regarding the presence of chronic diseases, 34.1% had hypertension and 21.8% had diabetes type 2. In addition, only 5.3% of the study population reported suffering or having suffered from COVID-19 at some time in their lives (Table 1).

Table 1 General data of the study population

Characteristics	*F*[a]	*%*[b]
Age in years	70	± 7.6
Sex		
Men	63	37.1
Women	107	62.9
Marital status		
Married	87	51.2
Single	20	11.8
Widowed	54	31.8
Divorced	9	5.3

Characteristics	*F*[a]	*%*[b]
Religion		
Atheist	2	1.2
Catholic	152	89.4
Evangelical	8	4.7
Other	8	4.7
Schooling		
No schooling	32	18.8
Primary	94	55.3
Secondary	29	17.1
High school	11	6.5
University	4	2.4
Occupation		
None / Unemployed	15	8.8
Household	116	68.2
Paid work	39	22.9
Diseases		
Hypertension	58	34.1
Diabetes	37	21.8
COVID-19	9	5.3
Cancer	2	1.2
Other	13	7.6
None	51	30

Abbreviations: a Frequency, b Percentage
Source: sociodemographic data questionnaire N=170

When the level of adaptation of the older adults was evaluated, it was observed that in the interdependence mode (81.2%) and in role function (69.4%) there was a higher percentage of the population with an integrated level of adaptation, while in the self-concept mode there was a higher frequency of people with a compensatory level of adaptation (92.9%). In addition, in the physiological mode, 27.1% of the participants presented a compromised level of adaptation (Table 2).

Table 2 Frequency and percentage of adaptation levels for each adaptive mode

Physiological mode	*F*[a]	*%*[b]
Integrated	90	52.9
Compensatory	34	20
Committed	46	27.1

Self-concept mode		
Integrated	9	5.3
Compensatory	158	92.9
Committed	3	1.8
Interdependent Mode		
Integrated	138	81.2
Compensatory	19	11.2
Committed	13	7.6
Mode Role Function		
Integrated	118	69.4
Compensatory	49	28.8
Committed	3	1.8

Abbreviations: a Frequency b Percentage
Source: Adaptation instrument for the active older adult N=170

On the other hand, regarding the level of anxiety of the older adults, 26.5% presented a minimal level of anxiety, while 38.2% presented mild anxiety, 32.9% moderate anxiety and the rest severe anxiety (Table 3).

Table 3 Frequency and percentage of anxiety level

Anxiety level	**F[a]**	**%[b]**
Minimum anxiety	45	26.5
Mild anxiety	65	38.2
Moderate anxiety	56	32.9
Severe anxiety	4	2.4

Abbreviations: a Frequency b Percentage
Source: Beck Anxiety Inventory N=170

From the correlation analysis with the total score of the Older Adult Adjustment Instrument and the Beck Anxiety Inventory, a positive and high correlation was observed between both variables, which was also statistically significant (Table 4).

Table 4 General Correlation of the level of adaptation and level of Anxiety

Adaptation	***Anxiety***	
	Correlation[a]	**p-Value**
	0.61	0.000

Abbreviations: a Spearman´s correlation coefficient
Source: own design

When the correlation of each of the adaptive modes with the level of anxiety was analyzed, a high and significant correlation was observed between the physiological mode and the participants' anxiety (rho=0.74 and p-value=.000). Likewise, similar results were found between the self-concept mode and anxiety. However, in this case the correlation was moderate (rho=0.46 and p-value=.000). On the contrary, in the interdependence mode a low and non-significant correlation with anxiety was observed (rho=.19 and p-value= .010). Similarly, a low and non-significant correlation was observed between role function mode and anxiety (rho=.108 and p-value= .10; Table 5).

Table 5. Correlation analysis between the level of anxiety and level of adaptation by mode

Adaptive Modes	*Anxiety*	
	Correlation[a]	p-Value
Physiological mode	0.74	0.00
Self-concept mode	0.46	0.00
Interdependence mode	0.19	0.10
Role function mode	0.10	0.16

Abbreviations: a Spearman›s correlation coefficient
Source: Active Older Adult Adjustment Instrument and Beck Anxiety Inventory

Discussion

Judging from the review of the literature on the subject, it seems that the present investigation is the only one, so far, that has examined at national level the relationship between adaptation and anxiety in older adults during COVID-19 pandemic confinement. Regarding the level of anxiety, the participants in this study presented mainly mild (38.2%) and moderate (32.9%) levels of anxiety, results that differ from those reported in 2007 by Acosta Quiroz *et al.*,[14] who reported mainly minimal (48%) and mild (32%) levels in their study population. These differences are probably due to the fact that this research was conducted several years before the COVID-19 pandemic confinement. Likewise, the findings of the present article contrast with those of the study published in 2018 by Buitrago Bonilla *et al.*,[9] who found low levels of anxiety in most cases in their population, despite the fact that they were institutionalized older adults. This work was conducted a year before the COVID-19 pandemic, which seems to suggest that this health contingency had some effect on the levels of anxiety in older adults.

Regarding the level of adaptation of older adults, we observed that in the physiological mode there was a greater prevalence of older adults with an integrated level (52.9%). Likewise, in the self-concept mode there was a greater frequency of the compensatory level (92.9%). On the other hand, the interdependence (81.2%) and role function (69.4%) modes were more prevalent at the integrated level. These results partially agree with those of Pérez *et al.*,[15] as they reported in 2019 that in the physiological mode there was a higher frequency of participants with

integrated level, while in the self-concept mode they recorded a higher proportion at the compromised level. In addition, in the interdependence and role function mode 100% of the population was classified with an integrated level of adaptation. By contrast, in our results there is a significant proportion at the compensatory level in the interdependence (11.2%) and role function (28.8%) modes. These differences may be due to the fact that, the population in the Perez *et al*., study was composed of institutionalized adults; in addition, such study was also carried out before the COVID-19 confinement. Such fact indicates that COVID-19 restrictions had an impact on the adaptation levels of older adults. On the other hand, the previously mentioned study was conducted with a much smaller sample size, which may also limit its statistical interpretations. It is worth mentioning that such research took place in rural communities, an issue that may had influenced its results with respect to other studies that were conducted in different settings, as mentioned above.

Conclusions

The findings of this study show a possible relationship between the level of adaptation and anxiety in older adults in the municipality of Tepetitlán during COVID-19 confinement. However, it is necessary to consider that this is a cross-sectional study, so it is not possible to determine causality between the variables of interest. Nevertheless, it shows the relevance of implementing nursing interventions that comprehensively address the case of older adults and considering their physical and mental health.

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DOI 10.51422/ren.v22i1.405

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Lesiones por presión: la incidencia en el paciente crítico con neumonía por SARS-CoV-2, en respuesta a la estrategia del decúbito prono durante la pandemia COVID-19

Pressure lesions: incidence in critical patient with pneumonia due to SARS-CoV-2 in response to decubitus prone position during COVID-19 pandemic

Abraham Medrano Godoy[1] Marissa de Lourdes Becerra Pérez[2]

Resumen

Introducción: Se suele aplicar en pacientes con SARS-CoV-2 el decúbito prono (DP) prolongadamente, pues ha demostrado beneficios para solventar la falta de equipos de ventilación mecánica; sin embargo, también tiende a producir lesiones por presión (LPP) en regiones anatómicas no experimentadas en otras prácticas.

Objetivo: Calcular la incidencia de LPP en el paciente crítico de COVID-19 en DP, describir características de los pacientes y las lesiones.

Metodología: Estudio observacional, descriptivo, de carácter transversal con enfoque retrospectivo. La recolección de datos se realizó en un hospital de tercer nivel de la Ciudad de México, incluyó 230 pacientes que desarrollaron LPP posterior a su ingreso. Se analizó el expediente electrónico y los registros de la clínica de heridas, la recolección de datos se generó en Excel y el análisis estadístico en el programa SPSS.

Citation: Medrano Godoy A, Becerra Pérez M de L. Pressure lesions: incidence in critical patient with pneumonia due to SARS-CoV-2 in response to decubitus prone position during COVID-19 pandemic. Rev Enferm Neurol.2023;22(1): pp. 56-69

Correspondence: Abraham Medrano Godoy
Email: mega-london@hotmail.com
[1-2] Naval Medical Center (CEMENAV)

Received: November 17, 2022
Accepted: December 23, 2022

Resultados: La incidencia fue de 18.05%, las LPP con esfacelo corresponden al 33.9% y las de necrosis al 40%. La localización anatómica en pabellón auricular, pómulos y tórax fue de 36.1% y 46.5% fueron lesiones de categoría III con afectación de las estructuras musculares. La correlación con el IMC demostró que pacientes con sobrepeso presentaron mayor incidencia de LPP con fibrina y esfacelo en un 60.3%.
Limitación del estudio: No se consideraron variables como la carga de trabajo de enfermería.
Originalidad: Esta investigación no ha sido postulada previamente en ningún órgano editorial.
Conclusiones: La incidencia coincide con estudios en otros países, por lo que es necesario estandarizar las acciones para la prevención de LPP y reducir su incidencia.

Palabras clave: lesiones por presión, pronación, neumonía, estado crítico.

Resumen

Introduction: Prolonged prone decubitus (PD) is usually applied in patients with SARS-CoV-2, as it has shown benefits to solve the lack of mechanical ventilation equipment; however, it also tends to produce pressure injuries (PI) in anatomical regions not experienced in other practices.
Objective: To calculate the incidence of PI in the critical patient of COVID-19 in PD, describe patient characteristics and injuries.
Methodology: Observational, descriptive, cross-sectional study with retrospective approach. Data collection was performed in a tertiary level hospital in Mexico City, including 230 patients who developed PI after admission. The electronic file and wound clinic records were analyzed, data collection was generated in Excel and statistical analysis in the SPSSs program.
Results: The incidence was 18.05%, PI with slough corresponded to 33.9% and those with necrosis to 40%. The anatomical location in the pinna, cheekbones and thorax was 36.1% and 46.5% were category III lesions with involvement of muscular structures. Correlation with BMI showed that overweight patients had a higher incidence of PI with fibrin and sphacel in 60.3%.
Limitation of the study: variables such as nursing workload were not considered.
Originality: this research has not been previously postulated in any editorial body.
Conclusions: The incidence coincides with studies in other countries, so it is necessary to standardize actions for the prevention of PI and reduce its incidence.

Keywords: pressure injuries, pronation, pneumonia, critical condition.

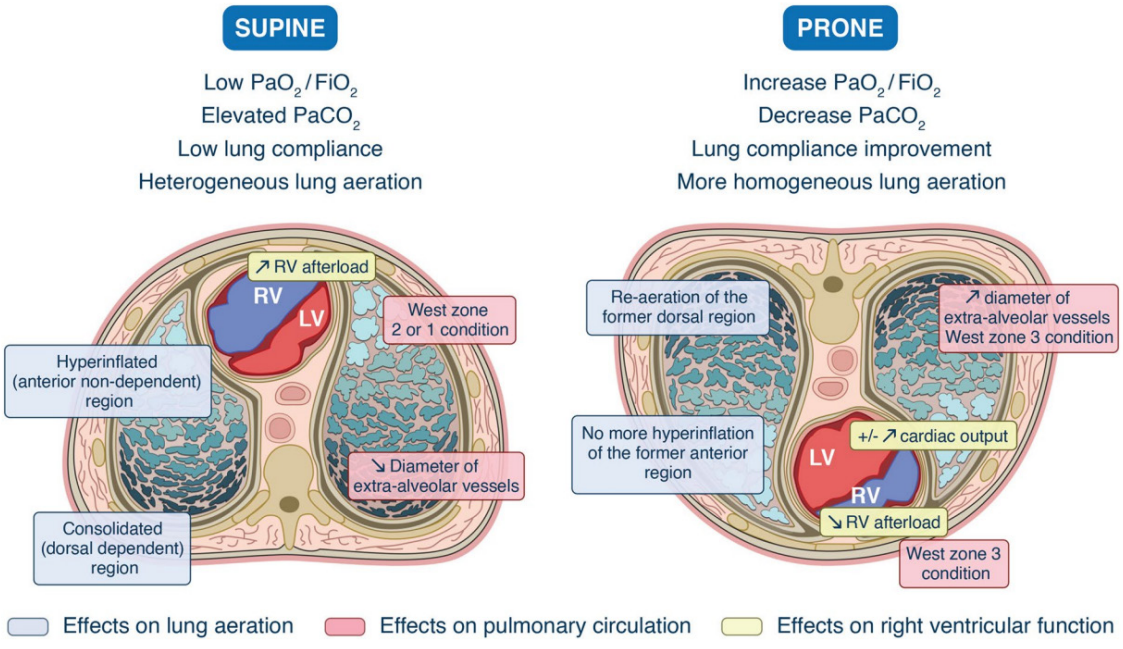
Introduction

COVID-19 pathology is an emerging disease, since in March 2020 the World Health Organization announced the increase of cases in several countries, declaring a pandemic status.[1] This caused a radical change in medical service assistance, since the spread of the virus led to a 9% increase in the number of patients requiring care in Adult Intensive Care Units (AICU).[2]

Consequently, the pressure on healthcare systems and the lack of knowledge of the disease left patient safety, considered a priority and mandatory element of the universal right of the AICU patient, in the background,[3] as the main measure chosen was prone decubitus (PD). Implemented for several hours, PD can increase the risk of pressure injuries (PI) if the patient is critically unstable and is subjected to hemodynamic support through fluid therapy, application of vasopressor drugs, mechanical ventilatory support, neuromuscular relaxants, vasodilators and treatments aimed at counteracting COVID-19.[4]

The worldwide lack of specialized equipment to provide ventilatory support made it necessary to implement measures such as the PD, an anatomical position that improved the respiratory condition of patients.[5] This practice has been used for people with acute respiratory distress syndrome (ARDS), and is the main strategy that has shown benefit in patients with clinical manifestations of COVID-19 (Figure 1).

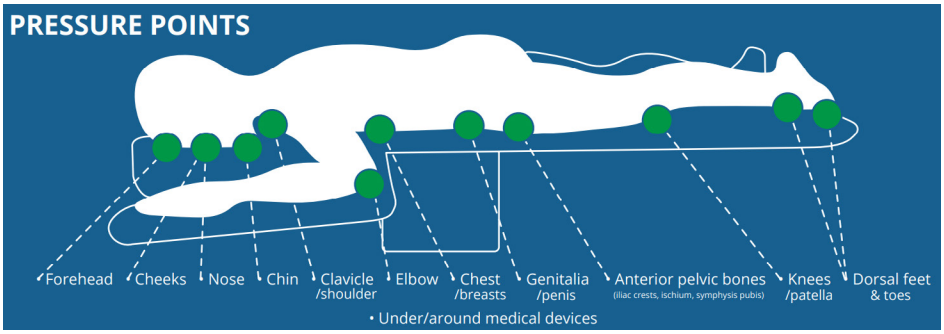
Figure 1. Effect of prone decubitus on the COVID-19 patient.



In supine position the weight of the heart and the abdominal mass compress the posterior part of the diaphragm. In prone position the shape of the thorax and lungs is modified, increasing the lung mass in independent zones resulting in significant modification of PaO2 (partial pressure of oxygen), PaCO2 (partial pressure of carbon dioxide) and SatO2 (oxygen saturation). Source: Vieillard *et al*.

However, this measure has generated injuries in body areas with greater susceptibility to direct contact with certain surfaces, such as mattresses and some devices used during PD (Figure 2). In this sense, the PI that previously occurred in the supine position are also currently manifested in PD and, therefore, change the panorama of this practice, since in some contexts PI become unavoidable or their risk is highly elevated due to inadequate or contraindicated preventive techniques.[6]

Figure 2. Pressure points in the patient in prone position.



The figure depicts the critical pressure points during patient positioning in PD. For recommendations on PD positioning, please refer to the National Pressure Injury Advisory Panel website (npiap.com).

PI are the main complication in hospitalized patients in the AICU, however, the evidence on necessary and specific interventions for their prevention in the PD is quite limited.[7] In this sense, PI are a problem that affects health systems worldwide, directly impacting the morbidity and mortality of patients.[8]

Specifically, PI are located in the skin and consist of the loss of continuity with the underlying tissues, causing an increase in pressure on them, generally in a bony prominence, which exceeds the 20 mmHg that the skin physiology supports before injury (Figure 3).[9]

Figure 3. PI in patients in PD.

The image represents a grade III PI with 80% sphacelated tissue and 20% granular tissue islets, located in the thoracic anatomical region in a female patient in PD, admitted to the CEMENAV AICU. Rights provided by family member.

Worldwide, the antecedents prior to the COVID-19 pandemic show that the prevalence rate of PI in hospital areas is diverse (Table 1).[10] In the study by Pancorbo et al. carried out in Spain, it is mentioned that the prevalence is centered on adult patients admitted to hospital areas with a population of 0.12%; and in patients over 65 years of age with 0.47%.[11] In Brazil, a significant prevalence of 41% is reported.[12] Multicenter studies in Mexico report a crude prevalence of PI of 12.94% to 17%. Dr. Leonardo Liceaga hospital reported 11.60% prevalence, with a risk of presenting PI of 17.79%, while in 2019 Hospital General de Zona no. 30 in Baja California recorded 79.15%.[12]

Table 1. Background of PI.

Pre-COVID-19 pandemic global PI history	
Country	PI incidence
Japan	5,1%
Spain	8%
Italy	8,3%
Netherlands	23.1%
United States	15%
Canada	26%

The percentage prevalence of PI prior to the COVID-19 pandemic in patients in the supine position is presented.

In Ecuador, one of the few incidence studies was conducted in 2019, which showed that 34% of patients presenting with PI range between 60 and 70 years of age, while 17% are older than 71 years.13 It should be noted that works on prevalence are cited as background of great importance, as little evidence has been found on studies of the incidence of PI in the prone patient.

Objective

The objective of the present investigation is to calculate the incidence of PI in the critically ill patient by COVID-19 taken to the PD, as well as to describe the type of patients and lesions identified.

Materials and methods

The study was observational, descriptive, cross-sectional and retrospective in nature, and was carried out at the third-level hospital of the Naval Medical Center (CEMENAV) in Mexico City, with prior authorization from the hospital bioethics committee and the biostatistics department. For the analysis, only the total number of patients admitted to the AICU-COVID area in the year 2020 was considered, and data was collected from the physical and digital records of this area from May 1 to August 30, 2022. For the correct use of the collection, verification and recording formats, prior training was given to intensive care nursing staff, who analyzed

the digital and physical clinical records with the support of nursing staff specialized in wound and stoma care, as they provided records of the PI in the patients.

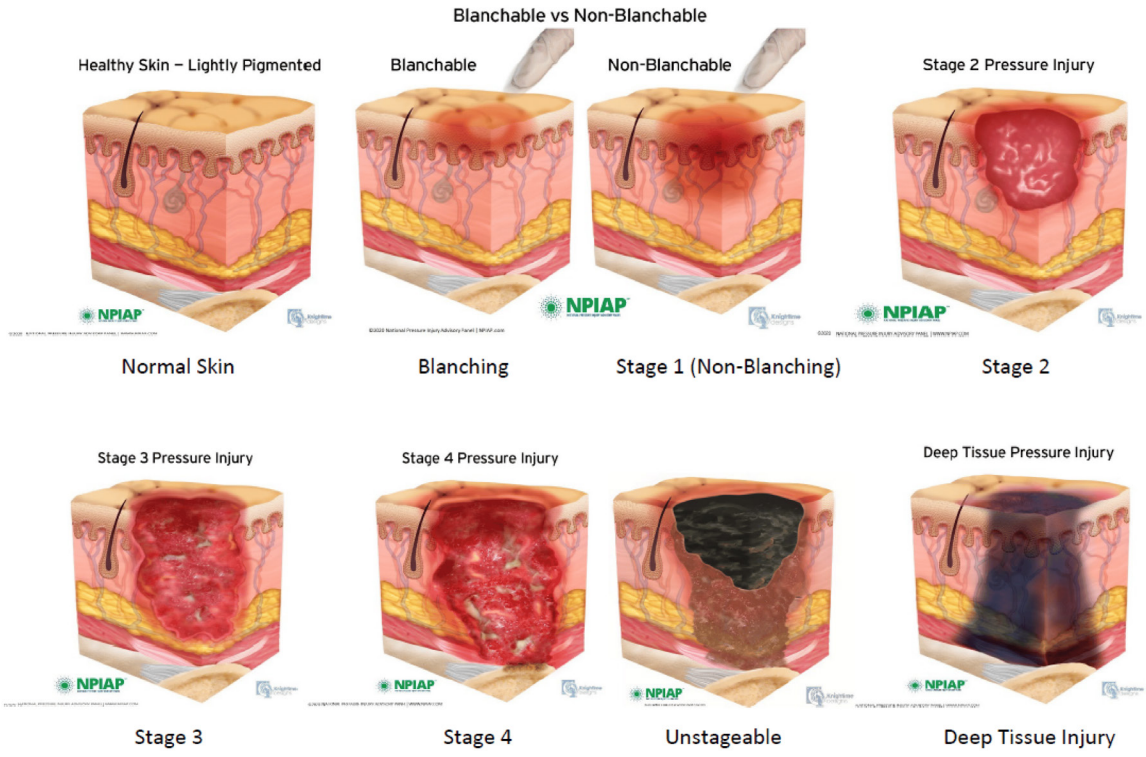
The selection criteria only considered critically ill patients with established PD protocol, men and women between 45 and 90 years of age, with mechanical ventilatory support, sedated, diagnosed with SARS-COVID-2 and without previous injuries at admission.

To verify the quality of the data obtained, the information from the CEMENAV's Hospital Information System (HIS), in which the legal documents of the patients' hospital stay are recorded, was compared with the physical clinical record in the AICU-COVID area.

Likewise, the processing of the general and determinant data on the incidence of PI was carried out using an Excel database, in which the information obtained was recorded.

On the other hand, in order to standardize the evaluation of PI and its development, the PI classification system of the National Pressure Ulcer Advisory Panel (NPUAP) and the European Pressure Ulcer Advisory Panel (EPUAP) was applied; this information is part of the data recording instrument to categorize lpp according to the grades established as I, II, III and IV (Figure 4).[14]

Figure 4. Classification of PI.



Source: The image represents the categorization of PI classifications as adapted from EPUAP (European Pressure Ulcer Advisory Panel), NPUAP (National Pressure Ulcer Advisory Panel) and PPPIA (Pan Pacific Pressure Injury Alliance). Vecin *et al.*

This assessment was applied by the wound clinic staff who were in direct contact with the patients and was recorded in their physical and electronic records, as well as in the wound clinic registry as part of their routine. In this way, the information was recorded so that it could be extracted at a later date.

In order to facilitate data collection and evaluate the study variables (body mass index or BMI, days of hospital stay, comorbidities and time in PD), the document *"Wound Assessment Form"* of the Danish company COLOPLASTt, which is widely validated and used in the most important countries in the world in wound treatment, was used. In addition, as part of the instrument used for data collection, a modification was made to the PD to allow evaluation of the anatomical areas injured in it. Subsequent to data collection, the data was entered into an Excel database.

Data processing was carried out with the SPSS software, which was used to obtain descriptive statistics to determine the frequencies and percentages of each of the variables and Pearson's chi-squared correlation, in order to analyze the impact of these variables on the incidence of PI. The SPSS was also used to calculate the incidence rate, which is represented by the formula I.R. $= \frac{x}{y}\ x\ K$, in which X is the total number of people in the population who became ill due to the specific cause of the study, in this case PI, Y is the total amount of time without the presence of the disease in the patient during the observation period, and K represents the assigned extension factor or enhancer. Likewise, the incidence density was represented by the formula I.D.$= \frac{x}{y}\ x\ K$, with the substitution of values.

Results

The total population was 1,274 patients admitted to the critical areas during the COVID-19 pandemic in 2020; the sample size selected was calculated electronically with a 95% confidence level and a margin of error of 5%, with a total of 230 patients. A stratified sampling was chosen in order to establish only the number of patients admitted per area, where each patient was assigned according to the availability of a bed for their care, intended only for unstable patients, with mechanical ventilatory support and pronation protocol. During the analysis, 10 patients were excluded because they did not meet the inclusion criteria, 7 because their age was between 45 and 90 years old, and 3 because they did not have the base diagnosis according to the International Classification of Diseases (ICD) for patients with COVID-19.

Absolute frequencies and percentages were applied to the sociodemographic data of the patients by means of SPSS, and the result was that 64.3% (N=148) were men and only 35.7% (N=82) were women, with an average mean age of 61 to 70 years old.

The incidence of the 1,274 patients was also calculated with the SPSS and it was found that only 230 presented PI during hospital stay, which is a total incidence rate of 18.05%, that is, out of every 100 admissions for COVID-19; 18 patients presented one or multiple PI. Regarding the density of the calculated incidence, it was obtained as a result that out of every 1000 patients in 12 months of risk 15.04 of them may develop PI during the PD.

Likewise, the statistical test of frequencies and percentages of the SPSS was applied for the specific data of the PI, which gave the following results: 40% (N=92) presented a PI with sphacellar/necrotic tissue, and only 46.5% (N=107) had category III lesions, whose depth affects the subcutaneous cellular tissue and muscular structures (Table 2).

Regarding the anatomical location of the PI, the use of frequencies and percentages of the SPSS resulted in 36.1% (N=83) occurring in the pinna, cheekbone, thorax and sternum (Table 2).

Table 3 shows the general and clinical data (BMI, days of hospital stay, time in PD, and comorbidities) and the predisposing factors for PI. Pearson's chi-square test was used for the correlation analysis, which allowed us to identify the variables with the greatest

Table 2. General data on PI at the Naval Medical Center (CEMENAV).

General data on PI		
Total patients with pressure injury		
Type of injury	***N***	*%*
No injury	1	0.4%
Erythema	21	9.1%
Erythema/Edema	37	16.1%
Fibrin	1	0.4%
Sphacelated	78	33.9%
Sphacelated/Necrotic	92	40.0%
Total	230	100%
Classification of PI by stage		
No injury	1	0.4%
Stage I	25	10.9%
Stage II	97	42.2%
Stage III	107	46.5%
Total	230	100%
Anatomical location of PI		
Anatomical area	***N***	*%*
NO INJURY	1	0.4%
PAB. A, ZB.	25	10.9%
MAM, PECT	1	0.4%
PAB. A, ZB, THOR, STNM	83	36.1%
PAB. A, ZB, SC, MAM, PECT, THOR, STNM	48	20.9%
PAB. A, ZB, SC, MAM, PECT, THOR, STNM, TIB, IC	72	31.3%
Total	**230**	**100%**

Source: Area of biostatistics of CEMENAV 2020. Data are presented as the number of patients (N) with PI and their corresponding percentages. Abbreviations: PAB. A= pinna; ZB= cheekbones; MAM= breast; PECT= pectoralis; THOR= thorax; STNM= sternum; SC= supraclavicular; TIB= tibia; IC= iliac crest.

association to PI. The relationship with BMI resulted in 60.3% (N=47) of overweight patients (BMI=25-29.9) presenting a higher incidence of PI with fibrin and sphacel, while 59.8% (N=55) of obese patients (BMI=30.0-39.9) presented PI with characteristics of sphacel and necrosis; this implies that the higher the degree of obesity measured in BMI, the greater the lesions and complications. In relation to BMI and anatomical location,

Table 3. General data on predisposing factors for PI.

General data on the predisposing factors for PI		
Total number of patients by BMI and degree of obesity		
BMI	***N***	*%*
BMI < 18.50 = Low weight.	1	0.4%
BMI 18,5 – 24,99 = Medium weight	43	18.7%
BMI 25,00 – 29.99 = Overweight.	97	42.2%
BMI 30 – 39.99 = Obesity.	71	30.9%
BMI > 40 = Morbid obesity.	18	7.8%
Total	**230**	**100%**
Days of hospital stay in the AICU		
Days of stay.	***N***	*%*
1-10 days of AICU..	70	30.4%
11-20 days de AICU.	92	40.0%
21-30 days de AICU.	42	18.3%
31-40 days de AICU.	14	6.1%
41-50 days de AICU.	8	3.5%
55-65 days AICU.	4	1.7%
Total	**230**	**100%**
Temporality in prone decubitus		
Prone cycles.	***N***	*%*
Without Pronation = 0 horas.	1	0.4%
Incomplete cycle = 24 to 48 hours.	45	19.6%
1 cycle = 72 hours.	31	13.5%
2 Cycles = 144 hours.	54	23.5%
3 Cycles = 216 hours.	42	18.3%
4 Ciclos = 288 horas.	57	24.8%
Total	**230**	**100%**
Associated comorbidities		
Type of comorbidity	***N***	*%*
No comorbidities	43	18.7%
DM2.	20	8.7%
DM2+SAH.	41	17.8%
DM2+OB.	14	6.1%
SAH.	37	16.1%
SAH+OB.	21	9.1%
DM2+SAH+OB.	22	9.6%
OB.	27	11.7%
Other	5	2.2%
Total	**230**	**100%**

Source: CEMENAV 2020 biostatistics area. Data are presented as the number of patients (N) and their corresponding percentages, categorized by body mass index (BMI), days of hospital stay in the Adult Intensive Care Unit (AICU), temporality of the patient in PD and comorbidities presented. Abbreviations: DM2= Diabetes Mellitus Type 2; SAH= Systemic Arterial Hypertension, OB= Obesity.

patients with obesity presented the greatest number of lesions in the auricular pavilion, cheekbones, breasts or pectorals (depending on gender), thorax, tibias and iliac crests, which establishes that the degree of BMI has a direct influence on the lesions in greater anatomical areas (Table 4).

Pearson's chi-square statistical test was also applied to the correlation between the length of stay of the patients and the appearance of PI. The result was that during a stay of 1 to 10 days the lesions with greater frequency were only erythema and edema, considered not serious within the classification of PI, which were manifested in 56.8% (N=21). However, in stays of 11 to 20 days patients had more severe lesions, with presence

Table 4. Relationship between BMI and anatomical location of PI.

Relationship between BMI and anatomical location of PI								
		Anatomical area of present injury						
BMI	**% / Total N.**	**No Injury**	**PAB. A. - ZB.**	**MAM. - PECT.**	**PAB. A. ZB - THOR. STNM**	**PAB. A. ZB, SC, MAM. PECT, THOR– STNM**	**PAB. - A ZB, SC, MAM - PECT, THOR– STNM, TIB. IC.**	**TOTAL**
BMI < 18.50 - Low weight.	% of Pressure Injury	(0%).	(0%).	(0%).	(0%)	(0%)	(1.4% N=1)	(0.4% N=1)
BMI 18,5 – 24,99 – Medium weight.	% of Pressure Injury	(0%).	(40.10% N=10).	(0%).	(18.1% N=15)	(29.2% N=14).	(5.6% N=4)	(18.7% N=43)
BMI 25,00 29.99 – Overweight.	% of Pressure Injury	(100% N=1).	**(52.0% N=13).**	(100% N=1).	**(55.4% N=46).**	**(52.1% N=25).**	(15.3% N=11).	(42.2% N=97)
BMI 30 – 39.99 Obesity.	% of Pressure Injury	(0%).	(4.0% N=1).	(0%).	(24.18% N=20)	(18.8% N=9)	**(56.9% N=41).**	(30.9% N=71)
BMI > 40 – Morbid obesity.	% of Pressure Injury	(0%).	(4.0% N=1).	(0%).	(2.4% N=2)	(0%)	(20.8% N=15)	(7.8% N= 18)
Total		N=1	N=25	N=1	N=83	N=48	N=72	N=230

Source: biostatistics area of CEMENAV 2020. Data are presented as the number of patients (N) and percentages of the relationship between categorical variables of anatomical location and BMI intervals. Abbreviations: PAB.A= pinna; ZB= cheekbones; MAM= breast; PECT= pectoral; THOR= thorax; STNM= sternum; SC= supraclavicular; TIB= tibia; IC= iliac crest.

in tissues such as slough and necrosis in 40.2% (N=37), which may include involvement of deep tissues, cartilage and even bone. This indicates that a greater number of days of stay implies a higher degree of complication of PI.

The time in PD and the appearance of PI derived mostly in mild lesions in patients with incomplete prone cycles, however, patients with more than 288 hours in PD developed more severe lesions, which determines that the time in PD considerably influences the probability of lesion appearance and its severity (Table 3).

Discussion

In the health care field, the study of PI

is frequent, since they are direct and indirect indicators of the quality of health care. Within this scenario, some issues are more susceptible to the nursing staff, since they are with the patients most of their hospital stay, although their care is not only their responsibility. It is necessary to remember that there are pathologies that can aggravate the conditions for the incidence of PI, as happened during the COVID-19 pandemic due to the lack of an effective treatment for the disease, the limitation of resources and the overcoming of hospital capacity, which required an optimization of care. The PD showed great benefits in patients subjected to mechanical ventilation, since the evidence that was analyzed refers that it improves oxygenation, however, it is also a factor associated with the development of PI. The factors related to the incidence of PI continue to be a topic of great interest in the health area, since they not only have detrimental effects on the patient's health, but also economic and social effects that deteriorate their quality of life. The control of PI continues to be one of the fundamental pillars of nursing care, therefore, it is of great importance to search for strategies to reduce its incidence and achieve its complete prevention.

In relation to the targets established for the incidence of PI in CEMENAV during 2020, our results indicate that the figures have remained in ranges similar to those shown in other national and international studies. The incidence of PI in the AICU-COVID areas in the 2020 period reached levels of 18.05%, above those presented by Japan with 5.1%; Spain with 8%; Italy with 8.3% and the United States with 15%. These figures are lower than those of the Netherlands (23.1%) and Canada (26%), where an increase in incidence is reflected according to the study by Andrade Fonseca *et al*.10

On the other hand, according to the study by Parra Carlo *et al*,[12] Brazil reported a significant prevalence of 41% in the same year 2020, above the incidence in CEMENAV, given that the study was carried out during the pandemic and the study in Brazil in a pre-pandemic period; being above Mexico with 21.0%. Multicenter studies in Mexico report a crude prevalence of PI of 12.94% to 17%, that is, below the 18.05% reached by CEMENAV during the pandemic.[15]

In the study by Pancorbo Hidalgo *et al*.[11] carried out in Spain in 2013, it is described that the prevalence of PI occurs in adult patients with 0.12%, and in patients over 65 years of age with an increase of 0.47%, which is relevant in terms of age range as a parameter for comparison with with the CEMENAV figures in patients aged 61 to 70 years. Due to the period in which the research by Pancorbo Hidalgo et al. was carried out, it should be noted that this study has the significant difference that only patients admitted to COVID areas were considered. Finally, in the study by García et al. it was found that 34% of the patients presenting PI were between 60 and 70 years of age, while 17% were older than 71 years, similar to the results of the CEMENAV study.[13]

According to the NPUAP and EPUAP PI classification system, 46.5% of the CEMENAV patients in PD had category III PI, considered a serious injury, and 42.2% had category II PI, results that differ from those found by Pancorbo Hildalgo *et al*. who reported that the most prevalent PI were category I with 24.6% and category II with 39.3%. The contrast with the severity of the injuries of the CEMENAV patients is evident, reaching degrees that compromise deep tissues such as muscle, with the possibility of aggravating the state of health and causing complications, from systemic infection by bacteria that invade the wounds to the loss

of functionality of the affected anatomical area. The importance of the severity of a PI should be considered for patients, as it is not a secondary finding.

Finally, with respect to the location of the PI in the present investigation, the scenario differs greatly from the other studies, as they only refer to PI in supine patients, which have a higher incidence in sacrum and heels.16 Since our analysis focuses on the PD, the lesions occur in anatomical locations that are uncommon in other positions: 36.1% were lesions in cheekbones, pinnae thorax and sternum, and patients with a BMI of 30.0 to 39.9 generated a greater number of lesions in tibia, iliac crest and supraclavicular, represented in 31.3%.

The above leads to reconsider studies on PI in patients who require the use of the PD protocol, in order to analyze whether the high incidence found is related to work overload or even to the lack of knowledge, stress and anxiety that may affect nurses during the COVID-19 pandemic. One of the limitations of this study was probably not considering in the variables certain subjective data for the appearance of PI, such as the application of risk scales specifically for critically ill patients or the assessment of severity scales for mortality, which some authors consider as predisposing factors for patients at greater risk, among them the APACHE or SOFA, as well as the workload of nursing personnel and the number of patients assigned that prevent safe and quality care.

Conclusions

In response to the main objective of the research, of the 1,274 patients admitted to the CEMENAV's AICU-COVID in 2020 who required PD, 230 developed PI. Therefore, the incidence was 18.05%, a figure similar to that found in other national and international studies and considered by the National Group for the Study and Advice on Pressure Ulcers and Chronic Wounds (GNEAUPP) as a high incidence. The application of the scale for the classification of PI allowed us to analyze that stage I, II and III lesions were those with the greatest presence in the patients.

The variables that had the greatest impact on PI were the degree of obesity of the patients according to the BMI scale and the hours in PD. The anatomical areas with the highest incidence of PI were pinnae, cheekbones, breasts or pectorals, thorax, tibiae and iliac crests, which indicates that the BMI has a direct impact on the appearance of PI in greater anatomical areas.

It has become evident that PI are present in hospital units, of which CEMENAV is not exempt. This shows an incidence of great importance, so it is necessary to consider new evaluations with possible variables not included in this research, as well as the analysis and implementation of guidelines and protocols that allow the prevention of PI during PD. In this sense, the study is considered a highly relevant contribution to the search for quality care and patient safety in the AICU of CEMENAV and any other institution aimed at maintaining integrity and health.

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DOI 10.51422/ren.v22i1.415

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Competencia clínica del personal de enfermería para el manejo de la hipotensión arterial intradialítica en el servicio de hemodiálisis del Centro Médico Naval

Clinical competence of nursing staff for the management of intradialytic hypotension in the hemodialysis service of the Naval Medical Center

Ángel Citalán Morales Isidora Gallardo García Jesús López Rivera

Resumen

Introducción: el correcto manejo de la hipotensión arterial durante la hemodiálisis es fundamental en la formación y trabajo del personal de enfermería nefrológica del Centro Médico Naval. El personal debe tener conocimientos suficientes sobre la hipotensión y sus factores asociados que le ayuden a predecirla y actuar de manera preventiva, así como con habilidades instrumentales para llevar a cabo medidas en la práctica.

Objetivo: analizar la competencia clínica del personal de enfermería en el servicio de hemodiálisis del Centro Médico Naval con respecto a su formación académica y experiencia profesional en el manejo de la hipotensión arterial intradialítica.

Metodología: estudio prospectivo, descriptivo y observacional. Se emplearon dos instrumentos: una adaptación del Cuestionario de conocimientos para el manejo de hemodiálisis de Miller y la Guía de observación de habilidades instrumentales en el personal de enfermería de Murillo.

Resultados: se contó con una muestra de doce enfermeros pertenecientes al servicio de hemodiálisis. El 33.3% mostró un nivel regular de competencia clínica y 66.7% un nivel bueno. En promedio, la competencia clínica se ubicó en 78%.

Citation: Citalán Morales A, Gallardo García I, López Rivera J. Clinical competence of nursing staff in the management of intradialytic arterial hypotension in the hemodialysis service of the Naval Medical Center. Rev Enferm Neurol. 2023;22(1): pp. 70-83

Correpondence: Ángel Citalán Morales
Email: angel210890@hotmail.com
Naval Medical Center (CEMENAV)

Received: January 11, 2023
Accepted: March 25, 2023

Discusión: los resultados obtenidos difieren de los reportados en otras investigaciones, tanto por el año de aplicación como de los sujetos evaluados.
Limitaciones: se contó con una muestra baja debido a que el personal del servicio no es numeroso.
Conclusiones: es necesario reforzar los conocimientos del personal sobre el tema. Sin embargo, se observó que las habilidades instrumentales fueron excelentes en todos los casos. No se observa relación con el nivel de estudios o la experiencia profesional.

Palabras clave: hipotensión; hemodiálisis; competencia clínica

Abstract

Introduction: the correct management of arterial hypotension during hemodialysis is fundamental in the training and work of the nephrological nursing staff at the Naval Medical Center. The staff must have sufficient knowledge about hypotension and its associated factors to help them predict it and act preventively, as well as instrumental skills to carry out measures in practice.
Objective: to analyze the clinical competence of the nursing staff in the hemodialysis service of the Naval Medical Center concerning their academic training and professional experience in the management of intradialytic arterial hypotension.
Methodology: a prospective, descriptive, and observational study. Two instruments were used: an adaptation of Miller's Hemodialysis Management Knowledge Questionnaire and Murillo's Guide to Observation of Instrumental Skills in Nursing Personnel.
Results: There was a sample of twelve nurses belonging to the hemodialysis service. 33.3% percent showed a fair level of clinical competence and 66.7% a good level. On average, clinical competence was 78%. Discussion: the results obtained differ from those reported in other studies, in terms of both the year of application and the subjects evaluated.
Limitations: there was a low sample size due to the small number of service personnel.
Conclusions: it is necessary to reinforce the knowledge of the personnel on the subject. However, it was observed that instrumental skills were excellent in all cases. No relationship was observed with the level of studies or professional experience.

Keywords: hypotension; hemodialysis; clinical competence.

Introduction

In hemodialysis treatment, arterial hypotension is one of the most frequently occurring complications.[1] It arises as a cardiovascular response to a significant reduction in plasma volume, i.e., it usually originates when a large amount of plasma fluid is removed in a short period and the remaining substance moves from the interstitial space to the intravascular space. [1] Kidney Disease Improving Global Outcomes (KDIGO) defines this condition as a decrease of more than 20 mmHg in systolic blood pressure (SBP) or more than 10 mmHg in mean arterial pressure (MAP) associated with symptoms.[2,3]

Arterial hypotension is considered of special concern because it produces discomfort in the patient during the extracorporeal dialysis process and generates obstacles to guarantee the success of the treatment. In the most extreme cases, it can generate a risk of death.[4] It is estimated that between 10% and 30% of hemodialytic treatments have shown hypotension at some point. Its management is even more complicated if we take into account that it has a multifactorial origin attributable to a set of variables, such as various comorbidities (for example, a reduced blood reserve in the heart due to coronary disease, the consequences of antihypertensive effects or autonomic dysfunction), and to factors inherent to the dialysis process, among which the management by the nursing staff stands out.[1,5]

As mentioned, during hemodialysis, patient morbidity and mortality and the risk of suffering a hypotension event are significantly increased. To deal effectively with this procedure, the nursing team must train continuously to achieve better technical-scientific skills and develop critical thinking to increase the quality of the service, through efficient performance and better decision-making when hemodialysis emergencies occur. This type of action not only has benefits for the patient but also helps to reduce the implications, complications, and costs that the procedure represents at the institutional level.[6,7]

Hemodynamically, an inadequate response may negatively influence the patient's adaptation and tolerance to hemodialysis treatment, and, therefore, its efficacy will be reduced. This highlights the importance of preventing the emergence of episodes of hypotension in the patient who has undergone this process. In addition, constant episodes of intradialytic hypotension can lead to permanent cardiac alterations, such as left ventricular hypertrophy and reduced arterial distensibility. Among patients constantly undergoing hemodialysis, volume overload, and heart failure are causes of acute myocardial infarction, cerebrovascular events, syncope, and reduced effectiveness of hemodialysis treatment.[7,8]

Nursing interventions in hemodialysis sessions are framed within the actions of integral patient management, from their admission to the dialysis unit until their discharge. Therefore, this process includes the patient's reception, the verification of monitors and facilities, the assembly and priming of the hemodialysis circuit, the previous evaluation of the patient's state of health, the connection of the patient to the monitor through the puncture of vascular accesses, as well as the programming of therapy and nursing care

during the sessions.[1,9] However, the main function of the nursing staff is to continuously monitor the patient to avoid complications. Such monitoring includes control of monitor parameters (conductivity, flow, temperature) and vital signs. Similarly, it is the responsibility of the staff to communicate to the patient the need to report any changes in his / her general condition.[9,10]

There are already some studies that have evaluated the clinical competencies of nursing staff in the management of arterial hypotension during hemodialysis, and some experiences recorded in recent years stand out. In 2017, Lazcano et al.[11] investigated to determine the nursing staff's competencies in the hemodialysis patient. They had a sample of 13 nurses to whom they applied two instruments: one that measured knowledge about hemodialysis with 14 items and another to measure work variables, with 10 dimensions. Among the results, more than half of the sample (77%) knew what to do during an episode of hypotension, which indicates a good level of knowledge on the subject; likewise, the sample was predominantly made up of graduates in nursing. The authors did not perform contrasts between variables.[11]

In 2015, Quirós and Parrales[8] developed a research study to assess the level of knowledge of the nursing staff of a public clinic in Guayaquil, Ecuador. The experimental design was mixed and a knowledge test was applied, that is, an observation guide to determine the nursing staff's scientific-technical knowledge, capacity to apply it, and instrumental skills. Among the findings, the fact that only 15% of those surveyed were aware that intradialytic hypotension manifests itself episodically stands out; it is also noteworthy that 60% did demonstrate adequate management of hypotensive crises during hemodialysis sessions. Thus, it was concluded that the nursing team was well trained in the application of their instrumental skills; however, there were areas of opportunity in their level of technical-scientific knowledge. It was also concluded that the staff must improve their skills in detecting risk situations when monitoring hypotensive crises, and emphasis was placed on the need to transmit adequate instructions to the patient on the prevention of such crises.[8]

The hemodialysis service of the Naval Medical Center (in Spanich abbreviated CEMENAV) is an area where hemodialysis treatment is performed continuously and its staff is constantly trained in the correct application of the techniques and procedures involved. In the population attended at this health center, arterial hypotension is a frequent complication most of the time that extracorporeal dialysis treatment is provided, and the occurrence of crises is high. Therefore, it is necessary for the nursing staff assigned to the hemodialysis service at CEMENAV TO have better technical-scientific skills on this subject and to develop more critical thinking, since, to the extent that they improve their skills in dealing with frequent complications, they will be able to prevent their occurrence more efficiently or attenuate the effects on the general health of patients treated under this procedure.

It should be ensured that healthcare personnel have adequate training in the assessment and monitoring of the signs and symptoms of hypotension in patients

during hemodialysis. To achieve this, it is necessary to apply instruments that evaluate the competence of nursing personnel in the management of intradialytic hypotension. Therefore, the general objective of the present study was to analyze the clinical competence of nursing staff concerning academic training and professional experience in the care of intradialytic arterial hypotension in the hemodialysis service of the CEMENAV.

Material and Methods

An observational, descriptive, and prospective study was carried out. The research was carried out in the hemodialysis service of the CEMENAV between January and June 2022. Nursing personnel of the aforementioned service, working in the morning and evening shifts, with a minimum seniority of one month and who voluntarily agreed to participate in the study, were selected.

The notion of *"clinical competence"* is complex, multifaceted, and multifunctional. It can be defined as the set of knowledge, skills, and aptitudes of health professionals for the organization, retention, and use of processes and techniques in their academic and work practice. According to various studies,[12,13] the study of clinical competence should be divided into two dimensions: knowledge and instrumental skills of the personnel. Due to this, the variables to be considered in the research were the level of scientific-technical knowledge, level of instrumental skills, academic training, professional experience, and sex.

The variable *"knowledge"* is broken down into two indicators: the technical-scientific knowledge possessed by the nursing staff to carry out their functions, as well as the integration of knowledge, which refers to their ability to make an adequate diagnosis and design an optimal care plan. Both were evaluated using an instrument adapted from the *"Questionnaire of Knowledge in the Management of Intradialytic Arterial Hypotension"* by Miller[13] and Murillo.[12] The instrument is made up of ten items. The cut-off points considered were: deficient level (equal to or less than 50%, equivalent to 5 or fewer correct answers); regular (level of knowledge between 60 and 80%, equivalent to 6 or 8 correct answers), and excellent (level of knowledge between 90 and 100%, equivalent to 9 or 10 correct questions). As with the instrument, these cut-off points were determined based on an adaptation of the instrument used by Miller[13] and Murillo.[12] The adaptation was made based on expert criteria regarding sufficiency concerning the topic; these are institutionalized cut-off points, determined by the health center where the test is usually administered.

On the other hand, the skill variable is intended to assess the habitual practice of the nursing staff, using the instrument *"Guide for the observation of instrumental skills in nursing staff"* by Murillo.[12] This variable is broken down into seven indicators, each containing a certain number of items to be evaluated. The indicators and the number of items in parentheses are mentioned below: hemodialysis preparation (7), initial patient assessment (8), vascular access preparation (17), vascular access approach (10), connection to the monitor (8), follow-up of the session and resolution of complications (13), and conclusion of the session (12). Because this is an observational guide, time

was required to review how participants performed the hemodialysis procedures. The following cut-off points were used: Excellent (91 - 100%); Good (75 - 90%); Fair (65 - 74%) and Poor (0 - 64%). These were established in Murillo's research12 and taken up again for the present study.

Once the results of both variables (level of knowledge and level of application of instrumental skills) were available, the level of clinical competence would be determined through the averaged integration of the scores obtained in both instruments. For clinical competence, the cut-off points proposed in Murillo's research were used:12 Excellent (91 - 100%); Good (75 - 90%); Fair (65 - 74%) and Poor (0 - 64%).

Initially, nursing personnel were invited to participate in the study. Those who accepted and met the inclusion criteria were 12 persons. All were asked to sign the informed consent form and to answer the printed questionnaire. Additionally, two eight-hour days were used for the observation of each participant for the completion of the application and skills guide. Once this was done, a database was integrated with the information obtained through both instruments.

Descriptive statistics were used to characterize the sample and describe the level of scientific-technical knowledge and instrumental skills that make up the clinical competence of the nursing staff. A contrast was made between the variables of professional experience and level of studies with the level of scientific-technical knowledge and application of instrumental skills, using tables and graphs that reported the frequencies and percentages of the distribution of the sample. Two statistical tests were used: a Spearman correlation to determine the association between level of knowledge and years of work experience, and a Chi-square for the correlation between level of knowledge and level of studies. The data obtained were recorded through a Microsoft Excel spreadsheet and subsequently imported into the specialized software Statistics Package for the Social Sciences (SPSS), version 26.0 for Windows.

Results

Of the 12 participants who made up the study sample, 33.3% were men and 66.7% were women. Regarding the age of the participants, 41.7% were older than 35 years of age, 33.3% were between 31 and 35 years of age, and the remaining 25.0% said they were between 26 and 30 years of age. The minimum age of the participants was 27, the maximum was 49, and the average age was 35.67, with a deviation of ±6.315.

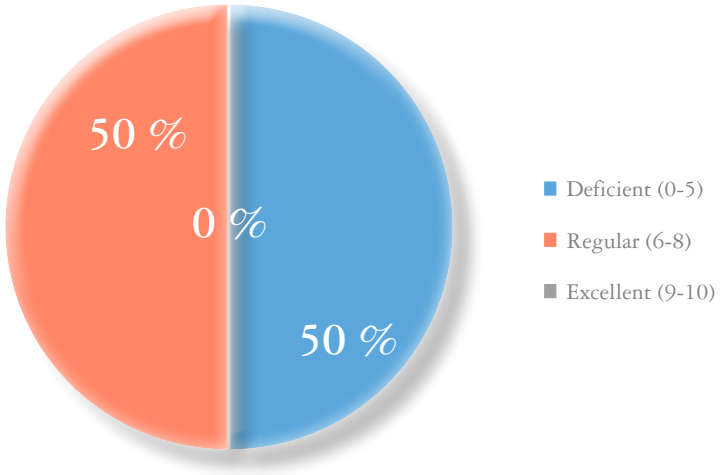
It was observed that 50% of the nurses interviewed had more than 10 years of work experience, 33.3% had 6 to 10 years, and the remaining 16.7% had 1 to 5 years. The minimum time of work experience was 2 years, the maximum was 27 years, and the average was 12.75 years. Regarding seniority in the hemodialysis service, 41.7% of the study participants had more than 10 years of seniority, 8.3% had 6 to 10 years, 25.0% had 1 to 5 years, and the remaining 25.0% had less than one year in the service. The mean length of service was 7.57 years.

Regarding the level of education: 58.3% of the participants have completed a bachelor's degree in nursing and a postgraduate degree in

nephrology nursing, 25.0% have completed a bachelor's degree and a postgraduate degree in urologic nursing, and 16.7% are professional nursing technicians with a postgraduate degree in urologic nursing. It is observed that about 66.7% of the participants did not attend any type of training in the last two years.

Fifty percent of the nurses showed a deficient level of knowledge, which is equivalent to only obtaining 50% or fewer correct answers, the remaining 50% had a regular level, which means that they answered between 6 and 8 questions correctly. It should be noted that none showed an excellent level of knowledge (9-10 correct questions). The data described above are represented graphically in Figure 1, and in scalar terms, the data are broken down in Table 1.

Figure 1. Level of scientific-technical knowledge of nursing staff



Source: own elaboration.

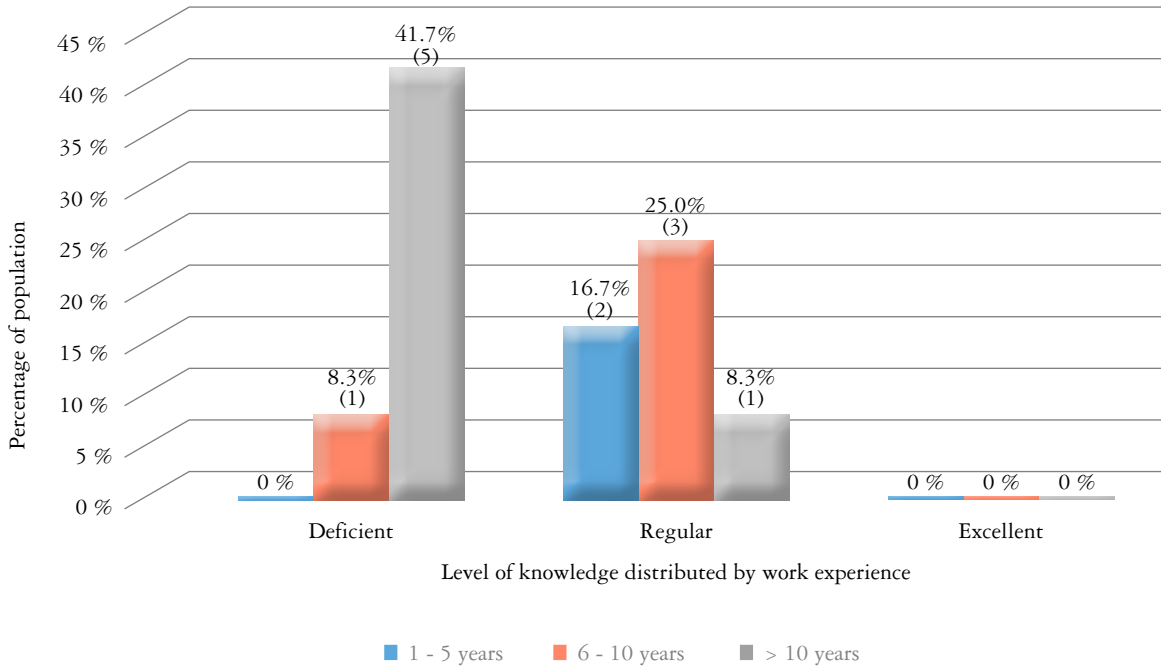
Table 1. Level of scientific-technical knowledge of nursing staff (scalar).

Knowledge level	*Frequency*	*Percentage*	*Calificación*
30% (3 correct answers)	1	8,3	Deficient
40% (4 correct answers)	4	33,3	Deficient
50% (5 correct answers)	1	8,3	Deficient
60% (6 correct answers)	2	16,7	Regular
70% (7 correct answers)	2	16,7	Regular
80% (8 correct answers)	2	16,7	Regular
Total	12	**100,0**	

Source: own elaboration.

Subsequently, the level of knowledge was contrasted with the work experience of the nursing staff. As can be seen in Figure 2, those with a deficient level are concentrated in the group with more than 10 years of experience (41.7%). Only one nurse with 6 to 10 years of experience showed a poor level. The nurses who obtained a fair level of knowledge were distributed in the three groups of years of experience: 16.7% had between 1 and 5 years of experience, 25% had between 6 and 10 years, and 8.3% had more than 10 years. A Spearman correlation test was performed; however, since the p-value was 0.065, which is greater than the 0.05 reference value, it is concluded that there is no significant association between the two variables.

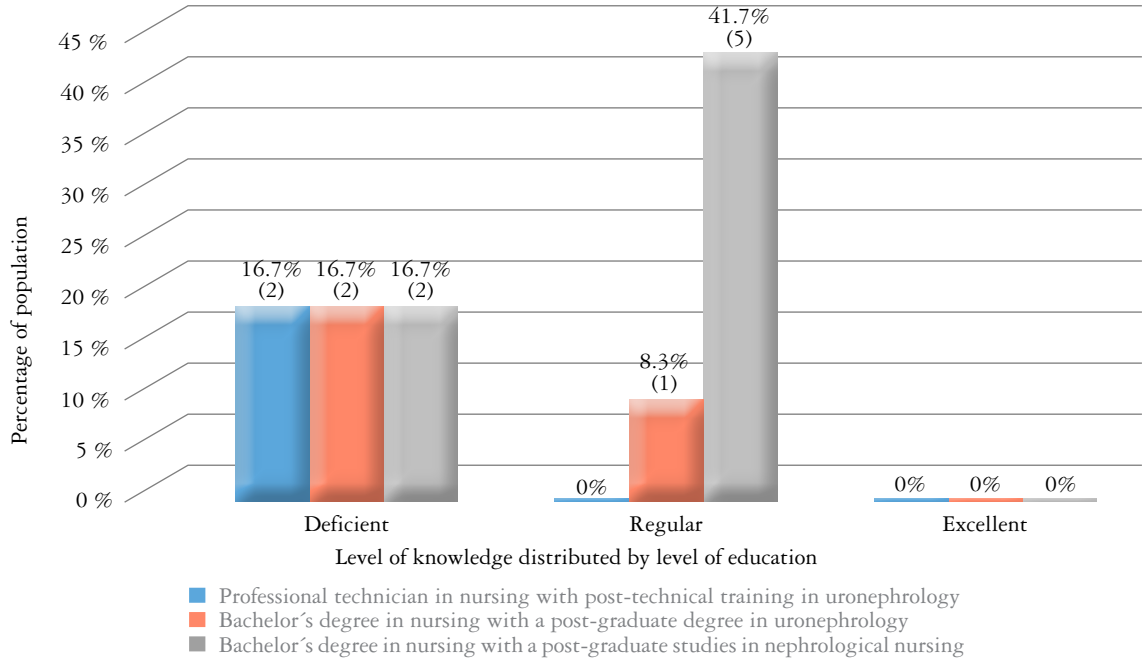
Figure 2. Level of knowledge related to work experience



Source: Own elaboration.

Regarding the level of studies, Figure 3 shows that two technical nurses with a post-technical degree in uronephrology (16.7%), two graduates with a post-technical degree in this same area (16.7%) and two graduates with a post-graduate degree in nephrology showed a deficient level of knowledge. On the other hand, one nurse with a bachelor's degree and a postgraduate degree in uronephrology (8.3%) and five with a postgraduate degree in nephrology (41.7%) had a fair level of knowledge. The Chi-square test yielded a p-value of 0.164, so there was no significant association between the variables.

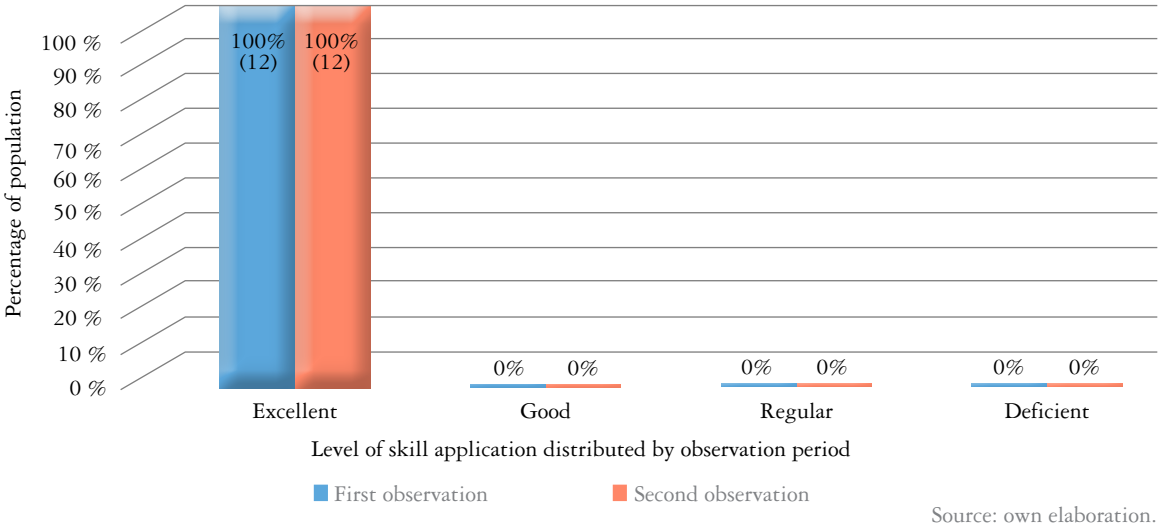
Figure 3. Level of knowledge related to the level of studies



Source: own elaboration.

Regarding the level of instrumental skills, the results obtained during the two observations were grouped into four categories: excellent (when compliance ranges from 91 to 100%), good (from 75 to 90%), fair (from 65 to 74%) and poor (from 0 to 64%). 100% of the nurses showed an excellent level in the application of instrumental skills in both observations (Figure 4).

Figure 4. Level of skill application distributed by observation period



Source: own elaboration.

However, these results do not allow us to identify those evaluated concepts in which these skills need to be reinforced. Therefore, Table 2 presents the percentages obtained in the application of these concepts. As mentioned, each group of skills was made up of a certain number of items, so the table shows the number of criteria fulfilled.

Table 2. Percentage of application of the evaluated concepts

Group of skills evaluated	1st observation				2nd observation			
	Yes		No		Yes		No	
	Frequency	Porcentaje	Frecuencia	Porcentaje	Frecuencia	Porcentaje	Frecuencia	Porcentaje
1. Hemodialysis preparation	82	97.61%	2	2.3%	83	98.089%	1	1.19%
2. Initial patient assessment	87	90.65%	9	9.37%	87	90.65%	9	9.37
3. Vascular access preparation	204	100%	0	0%	204	100%	0	0%
4. Vascular access approach	111	92.5%	1	7.5%	111	92.5%	1	7.5%
5. Connecting the patient to the monitor	96	100%	0	0%	96	100%	0	0%
6. Follow-up of the hemodialysis session and resolution of complications	152	97.43%	4	2.56%	153	98.07%	3	1.92%
7. End of the session	144	100%	0	0%	144	100%	0	0%

Source: own elaboration.

During the first observation, it was found that 97.61% of the nurses performed hemodialysis preparation, while the remaining 2.3% did not; 90.65% performed the initial patient assessment and 100% performed vascular access preparation; 92.5% performed vascular access approach, while 7.5% did not. 100% of the nurses connected the patient to a monitor. Regarding hemodialysis session follow-up and complication resolution, 97.43% did, but the remaining 2.56% did not. And finally, 100% of the participants completed the session.

During the second observation, 98.08% of the nurses performed hemodialysis preparation and 1.19% did not, an improvement over the first observation. On the other hand, 90.65% performed the initial patient assessment, but 9.37% did not, so no variation in the percentage was found. Regarding vascular access preparation, 100% performed it, 92.5% made the approach and 7.5% did not. All the nurses connected the patient to a monitor; 98.07% followed up on the hemodialysis session and the resolution of complications, while 1.92% did not do so. The end of the session was carried out by 100% of those evaluated.

In this sense, once the percentages of both the level of knowledge and the application of instrumental skills were obtained, the level of clinical competence of the participants was determined. For this purpose, the results obtained from both instruments were averaged. The level of instrumental skills was determined by averaging the results obtained in the first and second observations. It was observed that the

lowest level of clinical competence was 65% and the highest was 88%, with an average of 76% (Table 3). According to the established cut-off points, six participants obtained a fair level and the remaining six obtained a good level of competence. It is worth mentioning that none reached an excellent or deficient level of competence.

Table 3. Level of clinical competence

Case	Knowledge level	Skill level	Level of clinical competence	Rating
1	30%	100%	65%	Regular
2	40%	100%	70%	Regular
3	40%	96.5%	68%	Regular
4	40%	96.5%	68%	Regular
5	40%	96.5%	68%	Regular
6	50%	96.5%	73%	Regular
7	60%	96.5%	78%	Good
8	60%	92%	76%	Good
9	70%	98%	84%	Good
10	70%	94.5%	82%	Good
11	80%	94%	87%	Good
12	80%	96.5%	88%	Good

Source: own elaboration.

Discussion

Very few studies have evaluated the clinical competence of nursing staff in the management of arterial hypotension during extracorporeal dialysis treatment, especially those using instruments such as those used here. For this reason, the results found in this study will almost always be evaluated indirectly.

In this study, it was observed that 50% of the nursing personnel showed a deficient level of scientific-technical knowledge, and the other 50% had a regular level. The study conducted by Lazcano *et al.*[11] used the same questionnaire developed by Murillo. Their sample was composed of 13 health professionals (62% with a bachelor's degree in nursing and 38% with a technical career in nursing). Their results showed that 77% of the respondents knew what intervention to perform during an episode of hypotension (modification of the sodium profile). This result contrasts with that shown by item 2 in this study, where only 44.7% of the nurses correctly identified the therapeutic measures to be performed in the event of this type of complication during hemodialysis.

It is difficult to find an explanation for this difference, especially because the personnel in the Lazcano et al. sample showed a lower level of academic preparation and fewer years of work experience. However, if we take into account that the proportion of people who have not received training in the management of hemodialysis complications in the last

year (66%, n=8) is similar to the proportion of people who failed to answer the question related to emergency therapeutic measures for dialytic arterial hypotension (58.3%, n=7), we can infer that the lack of specific preparation in the management of hemodialysis may be a factor that explains this result.

On the other hand, in the study by Quirós and Yance8 the Murillo knowledge test was also applied to a sample of 20 people (65% had a degree in nursing and 35% were nursing assistants), in addition to an observation guide to evaluate the skills and theoretical knowledge necessary for the management of interdialytic hypotensive crises in patients in a hospital in Ecuador. The results showed that 60% of the personnel evaluated placed the patient in the Trendelenburg position during an episode of hypotension. This percentage is lower than that obtained in this study, where in the questionnaire 100% of the nurses stated that this is the recommended position during such episodes. In addition, the data from Quirós and Yance revealed that 60% of the personnel interviewed had received training courses on the management of complications during hemodialysis; in contrast, the CEMENAV nursing personnel only received this type of course in 33% of the cases, which highlights the need for them to acquire training on the management of acute complications in hemodialysis.

Regarding instrumental skills, all the personnel showed an excellent level of application (91 to 100%). In the study by Quirós and Yance8, lower levels of performance were found in the correct management of hypotension at 60%, as reported by the observation guides applied by both researchers. This difference could be explained by the academic level and the experience of more than 10 years accumulated by most of the CEMENAV personnel.

Conclusions

The clinical competence of the nursing staff in the care of intradialytic arterial hypotension in the hemodialysis service of the CEMENAV is mostly good, with an average of 78%. However, this high percentage is generally due to the instrumental skills of the staff, which were rated as excellent in all cases. It is important to reinforce knowledge on the subject since in this aspect the sample tended towards a poor-regular level. In particular, instrumental skills were not found to be dependent on levels of study or years of professional experience.

The present study contributes to the opening of a clinical-therapeutic research field practically unexplored in our country since only literature based on reviews is available, but not on the application of instruments that directly evaluate the performance of the nursing staff in the prevention and control of episodes of arterial hypotension during hemodialysis treatment. Therefore, it is recommended that more studies of this type be conducted, especially focused on the evaluation of nurses' knowledge and instrumental skills.

Considering that one of the limitations of this study was the small sample size (justified by the spatial location of the study), it is suggested to extend the boundaries of the research by considering a larger population of nurses from other health institutions. In this way, a broader picture of their clinical performance can be obtained. A study of this magnitude may also help to identify

important deficiencies or omissions that these health professionals may be committing, and their early detection could contribute to reducing adverse events caused by arterial hypotension.

It is also recommended that other types of studies be designed based on the results and conclusions of this study. For example, among CEMENAV's nursing staff, it was identified that less than half of them are trained, so their training may favor their level of clinical competence. To test this hypothesis, studies could be designed to determine the impact of training programs on the nursing staff and their relationship with the prevalence of complications due to arterial hypotension in hemodialysis. Finally, based on the above, it is recommended to propose a mechanism for continuing education in the area of clinical nursing based on the training of personnel in techniques and methods that improve their performance; for example, in the management of intradialytic arterial hypotension in the hemodialysis service.

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DOI 10.51422/ren.v22i1.400

Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez | Revista de Enfermería Neurológica

Original article

Condiciones de trabajo de los profesionales de enfermería en un hospital de segundo nivel en la Ciudad de México

Working conditions of nursing professionals in a second level hospital in México City

Carmen Lasty Balseiro Almario[1] Wendy Melina Suasto Gómez[2] María Adriana Chaparro Sánchez[3]
Yohyotzin Edgar Tapia Juárez[4] Nayelli Aguilera Padilla[5] Margarita Hernández Zavala[6]

Resumen

Introducción: La visibilización de las condiciones de trabajo de los profesionales de enfermería en México resulta necesaria para mejorar algunos aspectos.
Objetivo: Analizar las condiciones de trabajo de los profesionales de enfermería en un hospital de segundo nivel en la Ciudad de México.
Material y métodos: Estudio de carácter cuantitativo, no experimental, transversal, prolectivo, descriptivo y diagnóstico. La variable medida fueron las condiciones laborales de enfermería. El universo fue de 530 profesionales de enfermería y la muestra de 200.
Resultados: En cuanto a las *"condiciones intralaborales"*, 56.50% del personal sí cuentan con los recursos e insumos necesarios para trabajar, y 57.50% afirman que el sueldo es relativamente bueno; sobre las *"condiciones extralaborales"*, 56% manifiestan tener una buena calidad de vida. Lo que más disgusta al personal es en un 27% el ambiente de trabajo, en un 18% las injusticias y en un 15% la falta de personal.
Discusión: 82% del personal de enfermería mostró desgate físico y mental en el trabajo, lo que es semejante al 80% de los profesionales de enfermería en Colombia que tienen una sobrecarga laboral que afecta su calidad de vida.
Conclusiones: Los profesionales de enfermería tienen condiciones laborales de buenas a excelentes. Sin embargo, es necesario atender la sobrecarga de trabajo y el agotamiento físico y mental con diversas estrategias, como contratar más personal para mejorar el cuidado de los pacientes.

Palabras clave: condiciones de trabajo, enfermería, salud de trabajadores.

Citation: Balseiro Almario L, Suasto Gómez WM, Chaparro Sánchez MA, Tapia Juárez YE, Aguilera Padilla N, Hernández Zavala M. Working conditions of nursing professionals in a second level hospital in México City. Rev Enferm Neurol.2023;22(1): pp. 84-92.

Correspondence: Lasty Balseiro Almario
Email: lastybals@hotmail.com
[1] Facultad de Enfermería y Obstetricia, UNAM
[2-5] Hospital General Dr. Manuel Gea González
[6] Colegio Mexicano de Licenciados de Enfermería

Received: February 13, 2023
Accepted: April 25, 2023

Abstract

Introduction: Making the working conditions of nursing professionals in Mexico more visible is necessary to improve some aspects.

Objetive: To analyze the Working Conditions in Nursing professionals in a second level Hospital, in Mexico City.

Material and Methods: Quantitative, non-experimental, cross-sectional, prolective, descriptive and diagnostic study. The variable measured was nursing working conditions. The universe was 530 nursing professionals and the sample was 200.

Results: Regarding *"intra-work conditions"*, 56.50% of the personnel do have the necessary resources and supplies to work, and 57.50% state that the salary is relatively good; regarding *"extra-labor conditions"*, 56% state that they have a good quality of life. The most disliked aspects are the working environment (27%), injustices (18%), and lack of personnel (15%).

Discussion: 82% of the nursing staff showed physical and mental stress at work, which is similar to the 80% of nursing professionals in Colombia who have a work overload that affects their quality of life.

Conclusions: Nursing professionals have good to excellent working conditions. However, work overload and physical and mental exhaustion need to be addressed with various strategies, such as hiring more staff to improve patient care.

Key words: working conditions, nursing, workers' health.

Introduction

Given that nursing personnel are in charge of caring for users or patients in their health-illness process, it is important to know how they are doing it and whether the working conditions are adequate or inadequate. This applies both to their individual physical and mental health, job satisfaction and work environment, as well as to their self-concept and the expectations generated about these aspects. Similarly, it is also necessary to know the intra-work conditions in terms of ventilation, recognition, work overload, injuries, risks of contagion, protective measures and other relevant aspects during patient care. In addition, it is necessary to identify extra-occupational conditions such as the quality of family life, which includes the suffering of illnesses among its members, in order to have a comprehensive picture of how nurses are performing their functions and to know whether targeted actions are required to improve their work situation.

Theoretical framework

Acevedo *et al.*[1] define work as the interaction with the environment through which goods and services necessary for living and satisfying needs are obtained. For Peiró and Prieto,[2] working conditions are a determining factor in the health-disease processes of the population, since they constitute, in a broad sense, any aspect of the circumstances in which the work activity

is carried out, that is, all those elements that are situated around work.

The health sector is an important area of employment for health professionals in all countries. In this regard, Brito *et al.*[3] estimate that there are currently 35 million employees in this sector globally and 9 million in the Americas region, for whom the main challenge is to provide quality health services with high productivity, reduced costs and broad coverage.

Nursing professionals are an important part of the health sector and represent up to more than 60% of a hospital's staff. Their main function is care, which is why they are called *"care workers"*. According to Pereyra and Micha,[4] nursing is an eminently female profession in which activities that contribute to the health of individuals, the development of cognitive skills and the physical and emotional care of people are performed. Therefore, it is a key and irreplaceable service for the care of patients in hospitals, community centers and various agencies of the health system.

According to Saltos *et al.*[5], despite the importance of nursing professionals in the health sector, research on their working conditions reveals work accidents, occupational diseases, absenteeism, negative organizational environments, etc., which translate into a decrease in the productivity of the institutions and a deterioration in the quality of life of the workers. For example, a study conducted by the National Association of Nurses of Colombia (anec) in 2001 and reported by García Ubaque *et al.*[6] found a deterioration in the living and working conditions of nurses due to the forms of contracting and nonparticipation in the hierarchical organization of the institutions.

Likewise, according to Canales *et al.*[7] nursing professionals play an essential role in hospital and primary care services; however, there are also problems in their working conditions, related to psychosocial risks, work overload, long working hours, rotating shifts, night work without rest, frequent changes of service and stress due to the management of critical situations and deaths. These factors are even more worrisome if we consider that the effects of these work environments on the health of nursing personnel have been scarcely studied. Granero *et al.*[8] analyzed the working conditions of nursing professionals in Spain by means of a survey of 1,760 hospital workers. The results show negative aspects of these conditions: excessive care pressure, overload of tasks, lack of personnel, lack of supplies, stress and emotional exhaustion, and worsening working conditions.

This situation has caused nursing personnel to reflect on their difficult working conditions and the low quantitative perception they receive in salary, which has sometimes led to abandonment of the profession due to the great dissatisfaction produced by the social environment of the work.

Material and methods

A quantitative, non-experimental, cross-sectional, prolective and descriptive study, the purpose of which was to analyze the working conditions of nursing professionals in a second level hospital in Mexico City. The variable measured was working conditions based on three dimensions: *"individual conditions"*, which measures the individual and personal aspects of the nurses with the indicators of health

perception, professional training, motivation and self-concept; *"intra-work conditions"*, which refers to the conditions of the hospital area where the nurses provide their services and which is measured with the indicators of environment, overload, resources and supplies, organization, physical and mental workload, multi-employment, safety and risks, cleanliness of the area, exhaustion and fatigue, conflicts and salary; and that of *"extra-work conditions"*, which is specific to the family environment of nurses outside the hospital and is measured with the indicators of quality of life, home ownership, travel time and disabled family members.

The study was carried out in three stages. In the first stage, an analysis of the state of the art of working conditions was carried out. In the second stage, the instrument was designed, taking as a reference the *"Instrument of working conditions of nursing personnel in highly complex services"*, developed in Bogotá by García Ubaque *et al*.[6] and validated through expert judgment. Based on the three dimensions mentioned (*"individual conditions"* with 4 indicators, *" intra-work conditions"* with 12 indicators and *"extra-work conditions"* with 4 indicators) the instrument was formed with closed and structured Likert-type response items. In addition, the reliability of the instrument was validated with a pilot test and the criteria of five judges. Finally, in the third stage the instrument was applied using Google Forms for the professional nursing personnel.

The universe consisted of 530 nurses and the sample consisted only of professional personnel with sufficient criteria to evaluate working conditions. The sample was 200 nursing professionals, which constituted 37.73% of the universe. The inclusion criteria took into account the hospital's professional nursing staff from all shifts, while the exclusion criteria included non-professional nursing staff and orderlies, and the elimination criteria included professionals who did not want to collaborate in answering the instrument even though they met the inclusion criteria.

This research was conducted from March to July 2022.

Results

Regarding sociodemographic data, 32.50% of the nursing staff is over 41 years old, 60% of the respondents are from the night shift, 79.80% are female and 42% are general nurses A, B or C, who are in various services of the hospital.

In relation to *"individual conditions"*, 51% feel in good health, 31.50% have undergraduate and postgraduate specialty studies, 45% are highly motivated to attend and care for their patients, 57% have a self-concept of security, responsibility, commitment and respect as nursing professionals (Figure 1).

With respect to *"intra-work conditions"*, 56% consider that the work environment is good because they help each other, 59% say that sometimes there is a workload that consumes all their time, 56.50% say that most of the time they have the necessary resources and supplies to work, 65% say that their work is well organized in favor of patients, 62% say that there is physical and mental overload, 59% have only one job and could not attend another, 36% say that there is job security because they have personal protective equipment, 67% consider that their work area is always clean, 44.10% believe that they do have signs of fatigue and exhaustion, 48.50% say that sometimes conflicts arise that they try to solve for the welfare of all, and 57.50% say that the salary they receive is good (Figure 2 and 3).

Figure 1. Motivation of nursing staff in a second level hospital in Mexico City

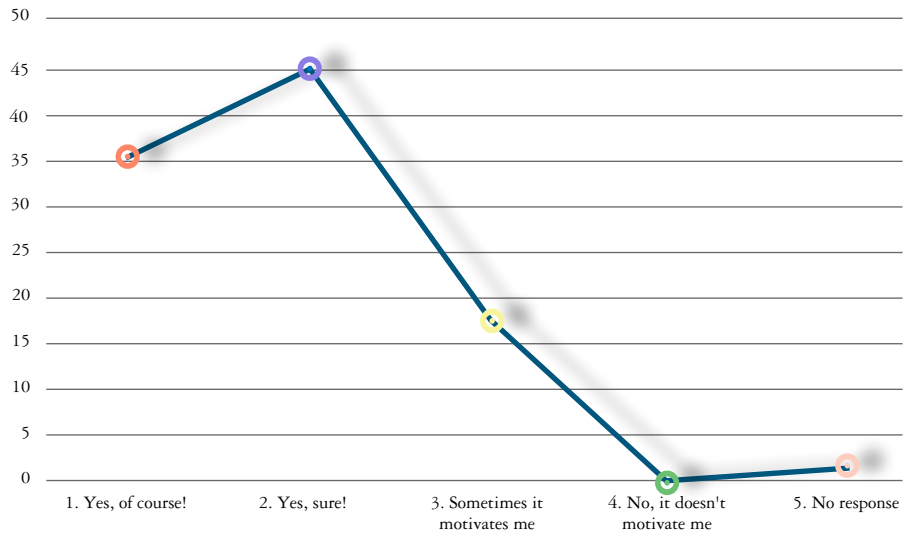


Figure 2. Workload of nursing staff in a second level hospital in Mexico City

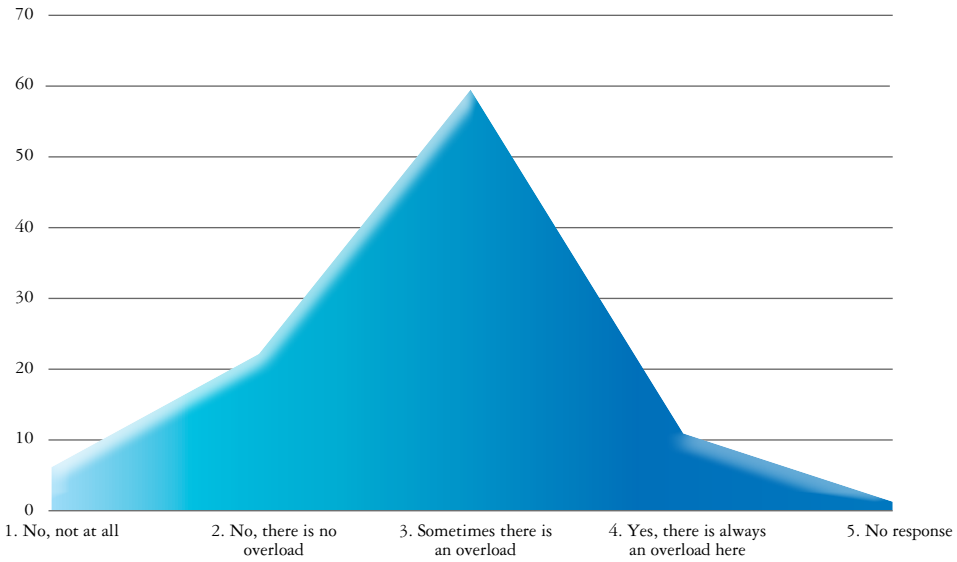
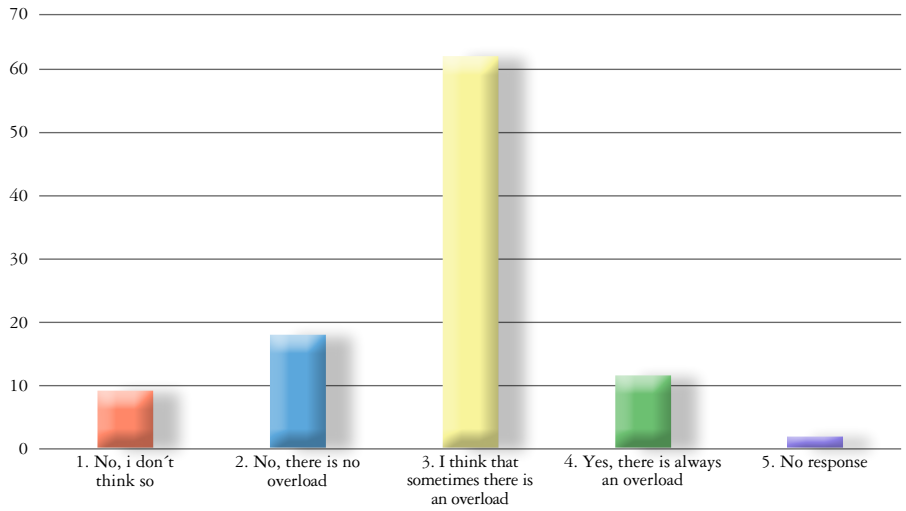


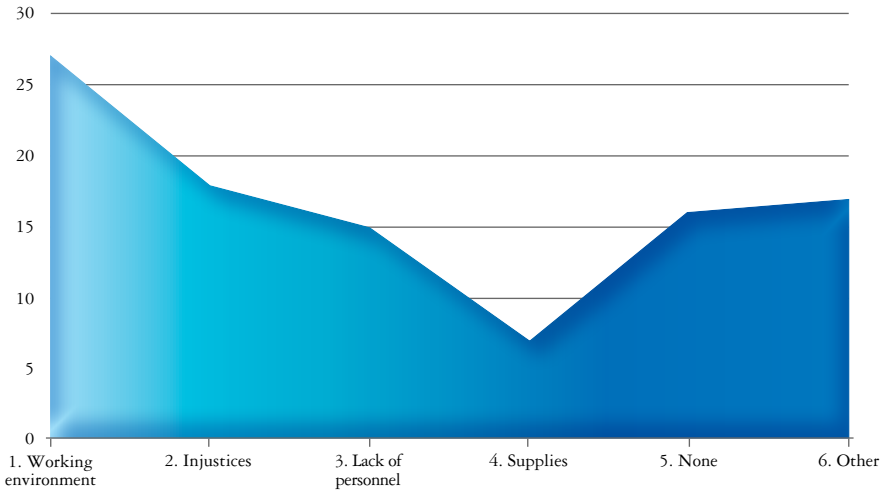
Figure 3. Physical and mental workload of nursing staff in a second level hospital in Mexico City



Likewise, with regard to *"extra-occupational conditions"*, 56% of the nursing professionals consider that they have a good quality of life, 29.50% have their own house or apartment where they live with their family, 39.50% commute one hour to the hospital and another 39.50% commute two hours, and 40% do not have disabled family members, although they do have unemployed family members.

Finally, what nursing staff dislike most about their working conditions is the work environment (27%), injustices (18%) and lack of personnel (15%). For these reasons, 31% of the staff recommend effective communication, 14% the hiring of more staff and 12% the creation of improvement programs. (Figure 4).

Figure 4. What nurses dislike most about working conditions in a second level hospital in Mexico City



Discussion

According to the sociodemographic data, 79.50% of the nursing personnel surveyed were female, which is similar to the study by Campos *et al*.[9] conducted in Lima, which reported 86% females out of 112 nurses. Similarly, 50.50% of the personnel are general nurses, and 31.50% have a bachelor's degree and postgraduate specialty, a level of professional qualification similar to that recorded in the study by Aspiazu[10] conducted in Buenos Aires, which reported 70% of nursing workers with a technical and professional qualification level.

In relation to *"intra-work conditions"*, 56% of the nursing staff said that the work environment is good because they all help each other to perform and finish the tasks, similar to what was found in the research of Orcasita and Ovalle[11] in Colombia, who reported that 94% of 171 nursing professionals have a good working environment with ventilation and lighting, which is not subject to sudden changes in temperature and is comfortable. As for the amount of work in the hospital, 59% of the personnel stated that sometimes there is an overload of work that consumes all their time, which seems to be a common denominator in nursing work in Latin America. Malvárez and Castrillón[12] observed that a characteristic of nurses' work in that region is the overload of work with frequent changes of service, psychological effects and precarious working conditions. Likewise, 62% of the personnel surveyed stated that they also have physical and mental overload at work, in addition to the excessive demands that nurses impose on themselves. This is similar to the data reported by Mesa and Romero,[13] who consider that 80% of nursing professionals in Colombia have a significant burnout caused by the workload that affects their physical and mental health, and consequently their quality of life. On the other hand, 57.50% of the personnel stated that their salary is relatively good, although they sometimes have to find another job. This aspect contrasts with the research of Manrique *et al*.[14] conducted in Colombia, where 14 nursing professionals were surveyed and 35% expressed job dissatisfaction due to the low salaries they receive.

Regarding *"extra-work conditions"*, 56% of the personnel surveyed stated that they have a good quality of life, 29.50% have their own house or apartment and 39.50% travel to the hospital by public transport. These data differ from those presented by the International Council of Nurses (ICN) as pointed out by Mahecha and León,[15] who report more demanding working conditions in clinical services every day, as a result of the financial policies of the health sector that affect the quality of life of workers, with a greater impact on women due to their social status as caregivers.

Conclusions

The nursing professionals of the second level hospital have good to excellent working conditions, due to the positive atmosphere and the motivation they feel for their work, their self-concept, the sufficiency of supplies, the work organization in the shifts, the cleanliness and order in the care of patients, the salary and their good quality of life.

However, there are some aspects that need to be corrected or improved, such as the work overload of the staff and the physical and mental exhaustion they report. This can be achieved with various strategies that allow for increasing the number of contract staff, improving communication among all and making the work

of caring for patients more equitable.

It is also necessary to address the requests and suggestions of the nursing personnel in terms of staffing, creation of various effective communication programs, thus ensuring better working conditions and preventing job dissatisfaction, which will inevitably have an impact on patient care and nurses' overall health.

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DOI 10.51422/ren.v22i1.416

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Clinic case

Sistema de presión negativa como tratamiento de la ventana torácica: informe de un caso

Negative Pressure System as a Thoracic Window Treatment: a Case report

Catalina Santana Romero[1] Nicolás Santiago González[2] Yadira Martínez López[3] Nancy Antonio Francisco[4] Carolina Raquel Tortolero Sánchez[5] Danna Betzabe González Olivares[6] Gabriela Espinosa Jiménez[7]

Resumen

Introducción: Se presenta un caso clínico de sistema de presión negativa como tratamiento de ventana torácica derecha, realizado en la clínica de heridas. Se describe el tiempo y proceso de cicatrización, desde la llegada del paciente hasta la cicatrización total.

Caso: Hombre de 24 años, postoperado de toracotomía, se le colocó terapia de presión negativa inicial a -75mmHg con intensidad media y modalidad continua; se aplicó esponja blanca para proteger el pulmón expuesto y esponja de plata, con tres cambios cada siete días. Posteriormente, se realizaron diez cambios de esponjas cada cuatro días, identificando disminución de las dimensiones de la ventana torácica. En la semana once inició tratamiento con terapia húmeda y fibrina rica en plaquetas, la cual se colocó en el lecho de la herida, aplicándose una vez por semana durante un mes. A partir de la semana quince se realizó curación diaria con aplicación de sulfadiazina de plata. El paciente fue dado de alta en la semana veinte con la herida 100% epitelizada.

Conclusiones: El uso de la terapia de presión negativa acelera el proceso de curación, reduce las complicaciones y la carga bacteriana del tejido, debido a que la esponja de plata actúa como barrera antimicrobiana.

Palabras clave: terapia de heridas con presión negativa; curación de heridas; técnicas de cierre de heridas; cuidado de enfermería; toracotomía; ventana torácica.

Citation: Santana Romero C, Santiago González N, Martínez López Y, Antonio Francisco N, Tortolero Sánchez CR, González Olivares DB et al. Negative pressure system as treatment of thoracic window: a case report. Rev Enferm Neurol.2023;22(1): pp. x-x.

Contact: Nicolás Santiago González
Email: nicosantiago21@hotmail.com
[1-7] Hospital Regional de Alta Especialidad de Ixtapaluca [Ixtapaluca Regional High Specialty Hospital]

Received:
Accepted:

Abstract

Introduction: A clinical case of negative pressure system as a right thoracic window treatment, performed in the wound clinic, is presented. The time and healing process from patient arrival to complete healing is described.

Case: A 24-year-old man, postoperative thoracotomy, was placed on negative pressure therapy at -75mmHg with medium intensity and continuous mode; white sponge was applied to protect the exposed lung and silver sponge, with three changes every seven days. Subsequently, ten sponge changes were performed every four days, identifying a decrease in the dimensions of the thoracic window. In week eleven, the patient started treatment with wet therapy and platelet-rich fibrin, which was placed in the wound bed and applied once a week for a month. From week fifteen onwards, daily healing was performed with silver sulfadiazine application. The patient was discharged at week twenty with the wound 100% epithelialized.

Conclusions: The use of negative pressure therapy accelerates the healing process, reduces complications and tissue bacterial load, due to the silver sponge acting as an antimicrobial barrier.

Keywords: negative pressure wound therapy, wound healing, wound closure techniques, nursing care.

Background

The thoracic window is the opening of the chest wall and is used to drain the accumulation of pus in the space between the lung and the inner surface of the chest wall, also known as pleural or thoracic empyema.[1,2] In most cases it is the result of an unresolved parapneumonic pleural effusion, most often caused by pneumonia.[3] There are two types of thoracotomy, open and closed. Open thoracotomy or thoracic window is used when the empyema is chronic and treatment methods have failed, while in closed thoracotomy the pus can be drained through a tube inserted into the pleural cavity.[4]

In this situation, negative pressure therapy (NPT) is considered, which is defined as the application of controlled subatmospheric pressure to a wound; it consists of an advanced treatment with a non-invasive system that works actively using an electric pump, and is intended to facilitate the healing process.[5,6] It consists of a porous polyurethane sponge that is connected to a vacuum pump and fixed with an adhesive dressing around the wound.[7] This system improves blood flow over the wound area, accelerating the appearance of granulation tissue, filling spaces, or providing an appropriate vascular bed, while at the same time eliminating wound exudate, controlling the possibility of bacterial superinfection.[7,8]

The mechanism of action is based on reducing edema, exudate, cellular detritus and inflammation. It controls the bacterial load, improves blood and lymphatic flow, increases the formation of neovascularization and, therefore, of granulation

tissue, as well as increasing the action of growth factors, which are its main points of intervention.[9,10,11] Because of this, the thoracic window requires specific and specialized nursing care, which has evolved from the use of honey to the use of the latest generation of alginates and the management of NPT, in addition to care in the removal of non-vascularized tissue.[12,13]

In this way, both the patient and family are provided with information about wound care to identify any abnormalities, and the wound care nurse takes care of all system management, examines skin changes, pain, bleeding, odor, infection, system leakage, and wound evolution, as well as sponge changes, pressure intensity, and healing material replacement.[14,8] NPT has been widely used in the area of plastic surgery, abdominal surgery, orthopedics and cardiothoracic surgery.[11]

The present study was performed to improve the process of thoracic window closure, which depends on the patient's clinical conditions, previous complications, and wound characteristics. Therefore, the aim of the research was to evaluate the effect of NPT as a chest window treatment in a post-surgical patient managed in the wound clinic.

Case description

The case of a patient who underwent appendectomy and laparotomy due to the formation of collections is presented. After the surgical event he presented torpid evolution and massive right pleural effusion, for which a right endopleural tube was placed, which was removed after two days due to an abdominal abscess with purulent fluid outflow. The patient was then referred to the institution for thoracotomy and reintervention for residual abdominal abscesses, resulting in two wounds. One week after the thoracotomy, he presented pleural effusion and purulent exudate, so NPT was placed in the thoracic window, which presented a volume of 805 cm3 (Figure 1) and moderate serous exudate. White sponge was placed to protect the exposed lung and silver sponge, with initial pressure at -75mmHg, medium intensity and continuous mode.

Figure 1. Thoracic window.

Anamnesis

Male patient, 24 years old, originally from Oaxaca, resident of the State of Mexico, living in a house made of durable materials and with all services. He has a primary school education, working occupation, marital status in free union, Christian religion, negative zoonosis and unknown vaccination schedule. He also has a surgical history of appendectomy and exploratory laparotomy, and refers a nasal fracture 6 months ago with conservative treatment. Allergies, transfusions, drug addictions and infections are denied.

Medical diagnoses

The patient was found with a series of complications, such as: pulmonary parenchyma with consolidation of the apicoposterior segment of probable infectious etiology (co-rads 2), laminar left pleural effusion with passive atelectasis and ipsilateral sub-segmentations, collection of the loculated right pleural space with reinforcement of its walls and gas inside (empyema) and two loculi of larger size, one anterior and one posterior, producing passive atelectasis of the whole lung, with displacement of the mediastinum to the left of the midline and pleural effusion in conditions classified elsewhere.

Treatment and evolution: continuity of care

From the third week onwards, the patient presented a moderate amount of serous exudate with three sponge changes every 7 days; also, the negative pressure parameters were modified to -25mmHg due to risk of bleeding. The pressure was gradually increased to -75mmHg because the wound did not show bleeding data (Figure 2).

Figure 2. Thoracic window without bleeding data

In the fourth week, granulation tissue was observed in the wound, the stitches were removed and the negative pressure was increased to -100mmHg with instillation of hypochlorous acid-based antiseptic, placing 50 ml every 6 hours. Three days later, five lesions were visualized in perilesional skin suture sites (Figure 3).

Figure 3. Suture site lesions (perilesional skin)

In week five, instillation with 40 ml of hypochlorous acid cleaning solution was applied. From week six onwards, ten sponge changes were performed every 4 days, identifying a decrease in the dimensions of the thoracic window.

After two months of NPT use, the wound presented measurements of 1cm wide, 1cm long, 1cm deep and 5cm of undermining. For the thirteenth sponge change negative pressure was applied at -125mmHg, which was the last NPT placement (Figure 4).

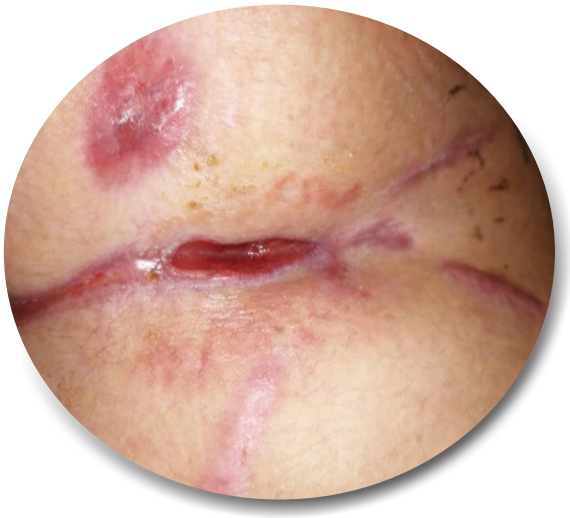
Figure 4. Last placement of the negative pressure system

At week eleven, treatment with wet therapy was performed and the wound presented dimensions of 1.5cm in length, 0.5cm in width and 2cm in depth. It was decided to apply autologous platelet-rich fibrin, so a blood sample was extracted from the patient, centrifuged and fibrin was obtained, which was placed in the wound bed and applied once a week for a month (Figure 5).

Figure 5. Application of platelet-rich fibrin.

From week fifteen onwards the patient was trained to perform daily healing with application of silver sulfadiazine. By week sixteen the wound presented dimensions of 0.5cm long, 2.9cm wide and 0.5cm deep with granulated tissue (Figure 6). Finally, at week twenty the patient was discharged from the wound clinic with the wound 100% epithelialized.

Figure 6. Granular tissue of thoracic window.



Discussion

The case treated with thoracic window and NPT reduced the time to thoracic window closure to 65 days compared to the study by Munguía Canales *et al.*,[15] in which the negative pressure system was used for 92 days.

The negative pressure varied from -25mmHg to -125mmHg, with a continuous pressure of -75mmHg for most of the treatment time due to the risk of bleeding, while Munguía Canales et al.15 described an initial suction pressure of -75mmHg for 2 days and subsequently increased to -125mmHg.

The combination of the thoracic window procedure with negative pressure systems is optimal in the management of patients with empyema that is not resolved by other techniques. This coincides with the studies of Roe Devia[16] and Mouës *et al*.,[17] who mention that there is a greater reduction in chronic wounds treated with NPT than with the conventional method, which in some hospitals consists of removing the remains of exudate and cleaning the cavity with a compress soaked in physiological saline, and then introducing dry compresses without leaving spaces and placing secondary dressings that are subsequently fixed.[4,16,17]

An important aspect was that outpatient follow-up in the wound clinic allowed out-of-hospital management with satisfactory results, since the nursing staff specialized in wounds eliminated non-viable tissue and carried out correct humidity control to achieve granulated tissue, which led to epithelialization without showing signs of infection.

The time of use of the device was less than that reported in another study[15] on a 21-year-old woman, who presented a post-pneumonic left empyema that did not remit with conventional medical treatment, for which reason an open thoracic window was performed. On the sixth day she was sent home with placement of a closed portable suction system.

Conclusion

NPT is a technique that reduces healing time in comparison with conventional methods, since it has favorable results during the healing process until total closure is reached through advanced wound management. In addition, it reduces complications such as the presence of bleeding and infectious process, even when there are variable conditions for each patient, according to the size, change of system and wet healing. Likewise, in this case the modality of NPT instillation in the thoracic window was observed, which was safe and with favorable results for the patient. Finally, it is important to highlight the role of the nursing professional as the main care provider through specialized wound clinic practice.

Ethical aspects

The confidentiality of patient data was always respected, in accordance with Organic Law 3/2018 of December 5 on the protection of personal data and guarantee of rights. The patient's consent was requested for the taking of photographs and their use in research or teaching.

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