

Performance of hospital nurses in the management of the COVID-19 crisis

Atuação do enfermeiro hospitalar no gerenciamento da crise COVID-19

Papel de las enfermeras hospitalarias en la gestión de la crisis del COVID-19

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ABSTRACT

Objective: to understand the perspectives of hospital nurses on their role in crisis management in the face of the COVID-19 pandemic. **Method:** qualitative, descriptive, exploratory study carried out between December 2021 and March 2022 in a public hospital. 22 nurses participated in a guided audio-recorded interview with six open questions. Creswell content analysis aided by Iramuteq[®] software was applied. **Results:** from data analysis, four classes emerged: Nurses' performance reflected in care and management indicators; Difficulties faced by nurses to act during the pandemic; Previous experiences of nurses as a guide for acting in the pandemic; Nurses' performance in strategies for managing the COVID-19 crisis. **Conclusion:** The performance of the nurse was reflected in the indicators to the detriment of the difficulties at work, mainly related to the deficit of human resources. To manage the crisis, they used previous experiences such as H1N1 and strategies inseparable from management/assistance to mitigate impacts and meet demand.

Descriptors: Pandemics; COVID-19; Nursing; Health Management.

RESUMO

Objetivo: compreender as perspectivas de enfermeiros hospitalares sobre a sua atuação no gerenciamento de crise face à pandemia COVID-19. **Método:** estudo qualitativo, descritivo, exploratório, realizado entre dezembro de 2021 a março de 2022 em hospital público. Participaram 22 enfermeiros, por meio de entrevista audiogravada guiada com seis perguntas abertas. Foi aplicado análise de conteúdo de Creswell auxiliado pelo software Iramuteq[®]. **Resultados:** das análises, emergiram quatro classes: Atuação dos enfermeiros refletida nos indicadores assistenciais e gerenciais; Dificuldades enfrentadas pelos enfermeiros para atuar durante a pandemia; Experiências anteriores dos enfermeiros como norte para a atuação na pandemia; Atuação dos enfermeiros em estratégias para o gerenciamento da crise COVID-19. **Conclusão:** a atuação do enfermeiro refletiu nos indicadores em detrimento às dificuldades no trabalho, principalmente, relacionados ao déficit de recursos humanos. Para gerenciar a crise, usaram de experiências anteriores tais como o H1N1 e estratégias indissociáveis à gestão/assistência para mitigar os impactos e atender a demanda.

Descritores: Pandemias; COVID-19; Enfermagem; Gestão em Saúde.

RESUMEN

Objetivo: comprender las perspectivas de los enfermeros hospitalarios sobre su papel en la gestión de crisis frente a la pandemia de COVID-19. **Método:** estudio cualitativo, descriptivo, exploratorio, realizado entre diciembre de 2021 y marzo de 2022 en un hospital público. 22 enfermeros han participado de una entrevista guiada grabada en audio conteniendo seis preguntas abiertas. Se aplicó el análisis de contenido Creswell con ayuda del software Iramuteq[®]. **Resultados:** de los análisis, surgieron cuatro clases: actuación de los enfermeros reflejada en indicadores de atención y gestión; dificultades que enfrentan los enfermeros que trabajan durante la pandemia; experiencias previas de enfermeros como guía para trabajar en la pandemia; actuación de los enfermeros en las estrategias de gestión de la crisis de la COVID-19. **Conclusión:** la actuación del enfermero se reflejó en los indicadores en detrimento de las dificultades en el trabajo, principalmente relacionadas con el déficit de recursos humanos. Para gestionar la crisis, utilizaron experiencias previas como durante la incidencia de H1N1 y estrategias inseparables de la gestión/assistencia para mitigar impactos y atender la demanda.

Descriptorios: Pandemias; COVID-19; Enfermería; Gestión en Salud.

INTRODUCTION

The pandemic of the disease caused by the type 2 coronavirus, COVID-19, has imposed major impacts to the health area since its inception. As the progressive increase in cases, care overload was perceived in hospitals and, consequently, the demand for health professionals, especially nurses¹.

It is common knowledge that nurses are essential for the full functioning of health services, as they work in health care and management. With the pandemic, nurses' role has become fundamental in managing issues inherent to the coronavirus, having to deal, for example, with lack of human resources and personal protective equipment^{1,2}.

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Given the importance of Nursing in the most varied health areas, it is also imperative to make visible its performance in public health emergencies. Crisis management consists in implementing preventive measures aimed at reducing and avoiding the harms resulting from unexpected situations, at an unpredictable time, place and specific situation, which can cause serious consequences and, thus, it acts to solve several possible crises and to improve clinical safety³⁻⁵. The literature shows that one of the most important points in crisis management is planning and implementation of harm containment measures with agility³.

Worldwide, government leaders and health managers adopted emergency measures to deal with the health crisis in the COVID-19 context, adjusting decision-making in real time and seeking to repair the errors that occurred as a result of the scarce time for planning^{6,7}.

Among other measures, the request of teaching hospitals to offer beds for intensive care and specialized wards was the strategy thought up by managers in the national context. They carried out care management and reconfigured their structures to meet a profile of users with a previously unknown disease, hired and trained professionals, updated their service offer, canceled elective procedures, directed financial and human resources, and adapted physical structure and work processes^{6,8}.

With the end of the Public Health Emergency of International Concern (PHEIC) due to COVID-19, declared by the World Health Organization (WHO) in Geneva (Switzerland) in May 2023, the relevance of the literary contribution is also highlighted. This is the case of this study, which seeks to rescue nurses' work from their own perspective in the crisis management context, a topic that has not been much explored.

Given the above, the following question arose: Which was nurses' performance at a public teaching hospital in Paraná in crisis management in the face of the COVID-19 pandemic?

In this context, this study aimed at understanding hospital nurses' perspectives on their role in crisis management in the face of the COVID-19 pandemic.

METHOD

This is a qualitative, descriptive and exploratory study that followed the criteria presented in the *Consolidated Criteria for Reporting Qualitative Research* (COREQ).

The scenario was characterized by a public teaching hospital located in the western region of Paraná. It is a reference hospital for the macro-region, as well as a reference for the care of patients with suspected/diagnosed COVID-19. In all, there are 279 beds and, since March 2020, 70 Intensive Care Unit (ICU) beds have been created exclusively for patients with COVID-19. Currently, it has 60 intensive care beds kept active. At the hospital, the sectors included were those adapted to care for patients with COVID-19: Clinical medical and surgical wards, ICUs and Emergency Room (ER).

The eligibility criteria included the following: coordinating nurses, assistant nurses and Nursing residents who accompanied nurses in management and/or assistance during the COVID-19 pandemic. All should have a minimum of six months working in the hospital. Selection was based on convenience, in addition to the indication of another interested party, using the snowball technique⁸. This choice was made by "key professionals" who were strategically involved with the structure and work process in the study scenario since the first events in the face of the pandemic. And, closed by data saturation criterion⁹.

The data collection period took place between December 2021 and March 2022. Audio-recorded interviews were carried out in the work environment using a personal smartphone device, previously consented by the participants, conducted by a previously trained Nursing student and supervised by a teaching nurse.

A semi-structured script prepared by the authors was used, with a pilot test without any need for adjustments, which included items related to characterization of the participants (age, gender, time of experience and sector), followed by six open questions: *What did you use as support to act in the face of the COVID-19 pandemic?; Can you tell me about your previous experience (if any) with crisis management?; can you tell me about the impact of the pandemic on the care and management indicators?; How did you act to intervene in these indicators?; Which difficulties and potentialities did you see in your routine in the face of the pandemic?; and Which strategies were used to face the pandemic in the hospital?*

The interviews were transcribed into a *Microsoft Office Word*[®] document and analyzed following the Creswell Content Analysis technique, consisting of the following stages: 1) Pre-analysis; 2) Exploration of the material or coding and treatment of the results; and 3) Interpretation¹⁰. Following the logic of the stages, the *Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires* (Iramuteq[®]) software assisted in the analysis because it recognizes the words and phrases that are grouped in the same sense and determines the categories in the form of classes¹¹.

In the first stage, the texts were pre-analyzed through a first rigorous reading.

In the second stage, they were recorded in .txt format and coded, presenting the following symbols at the beginning of each transcribed interview: four asterisks (****) followed by a series of variables introduced with an asterisk (*) and separated by a space^{11,12} (e.g., **** *N1).

We decided to present the data coming from the software in the form of Descending Hierarchical Classification (DHC) and Similarity Analysis^{10,11}.

The first one deals with the text segments that are classified considering their respective vocabularies and their set is divided in relation to the frequency of the reduced forms. Its objective is to obtain the classes of text segments and, through matrices, it is organized in the form of a dendrogram that illustrates the relationship between the classes^{11,12}.

In turn, the similarity analysis is based on the co-occurrence of words in text segments. The results are graphically represented, making it possible to see the relationships between the linguistic forms of a *corpus*, which shows the way in which the discursive content of a topic of interest is structured¹¹.

In the third stage, a new meticulous reading of the *corpus* obtained from the transcripts, dendrogram or DHC and similarity analysis was carried out. From interpretation of the whole, four classes emerged that represent a set of words/subject matters with similar meanings.

This study is part of a larger project approved by the Research Ethics Committee of the institution involved, in compliance with the ethical precepts for research with human beings. Respect for the participants' anonymity was ensured by assigning an initial indicative coding of the profession followed by a numerical order, for example: N1 (Nurse 1), R1 (Resident 1), and so on.

RESULTS

The study participants were 22 management and care nurses: 16 nurses (72.7%) and six Nursing residents (27.3%). Regarding the expertise area, 15 (68,2%) were from the assistance and 7 (31,8%) were part of the sector's management. In addition, it was possible to notice that most of the participants had less time working in the hospital under study, with up to five years 20 (91%).

The interviews lasted a mean of 18 minutes. The results represented a dendrogram or DHC. Thus, the nurses' assertions were grouped into classes that presented a frequency percentage in the text. The text *corpus* analysis generated four classes divided into two *subcorpus*, as shown in Figure 1.

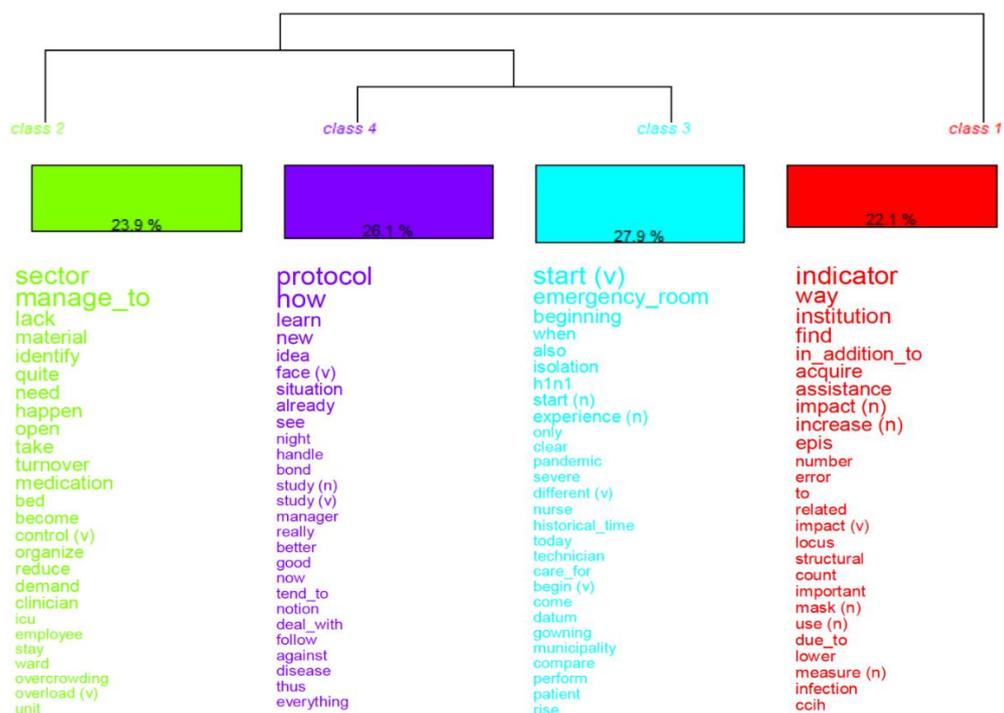


FIGURE 1: Dendrogram. Representation of the classes obtained with the Descending Hierarchical Classification. Cascavel, PR, Brazil, 2022.

From the Similarity Analysis (Figure 2), it was possible to identify three core elements: patient, COVID and very much, which corroborates the objectives proposed for the study, as they portray the conditions that surround the COVID-19 pandemic.

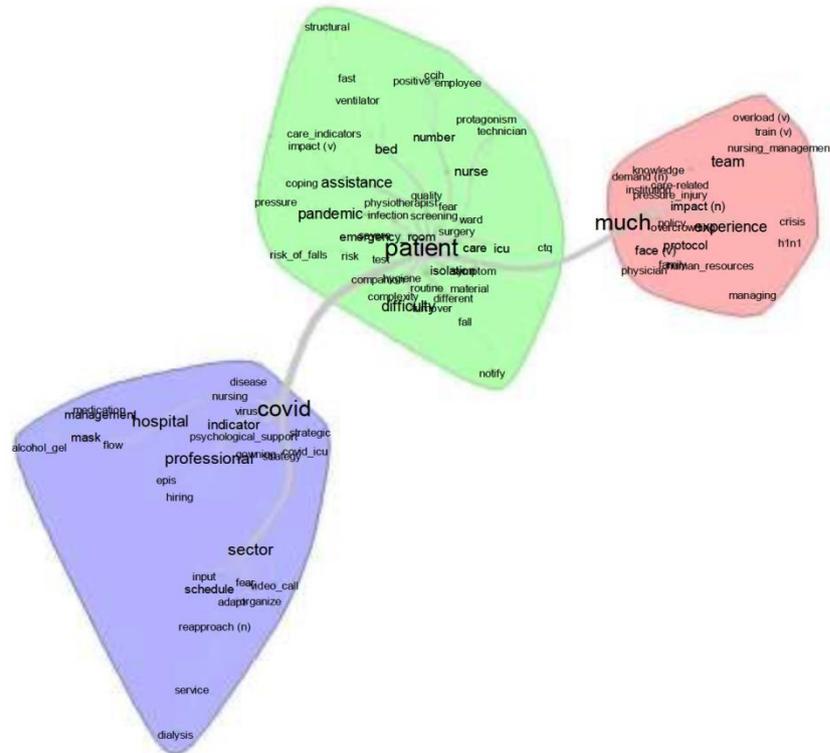


FIGURE 2: Similarity analysis created in the Iramuteq® software. Cascavel, PR, Brazil, 2022.

Although “nurses” are not made evident in a nucleus in particular as a word, it can be noticed that they are mentioned in all (nurse, nursing, team, nursing direction; assistance), suggesting that it constitutes an important actor in the scenario of the pandemic.

Four classes emerged from the analysis, namely: Nurses' performance reflected in the care and management indicators; Difficulties faced by nurses to act during the pandemic; Nurses' previous experiences as a guide for acting in the pandemic; and Nurses' performance in strategies for managing the COVID-19 crisis, all presented below.

Nurses' performance reflected in the care and management indicators

For nurses, their performance was directly or indirectly reflected in key indicators, such as increased infection and pressure injuries, many related to the patients' pronation and the to their hospitalization time. In the face of contagion, the absenteeism rates also became significant, a fact that may have exerted an effect on the provision of weakened care to the patients. The reports exemplify the following:

[...] several people [patients] with long hospitalization times ended up developing pressure injuries, which generates more hospitalization time [...] (R1)

[...] so I could say that this impact on absenteeism was very big. (N4)

“As this care quality dropped, the Nursing direction then hired a nurse for continuing education exclusively for Nursing and her objective is really that, to train the team, to qualify the new team members as for the institution's protocols and, thus, try to improve the indicators”. (R4)

Difficulties faced by nurses to act during the pandemic

The reported difficulties faced were related to resources (the professionals' expertise, lack of materials/inputs and hospital beds).

[...] but I think that such quality was lacking in the service provided, there was lack of more qualified personnel [...] but I believe that the ICU, whether it wants it or not, has to be a place where the professionals that'll work there already need to have some experience (R1).

There was a lot of bed shortages, in the corridor with the others, so by the time the result came out, by the time the exam was out, it had already contaminated the others (N8).

[...] A lot of medications missing, but it wasn't something that only we faced, the world faced it at the same time [...] (N5).

Nurses' previous experiences as a guide for acting in the pandemic

Nurses reported having worked during the H1N1 epidemic in 2009 and that this experience served as a guide for implementing practices to meet the COVID-19 demand, especially in respiratory clinical management and infection control.

[...] I also worked in the H1N1 pandemic. I used my previous experience as support, knowledge about respiratory isolation, it was one of the things I used the most, the issue of managing the number of technicians that we needed for a team of nurses. I also already had a little knowledge, of course, in H1N1 the situation wasn't as critical as it is now [...] (N15)

H1N1 in 2019 was a huge situation, but the patients weren't as serious as this covid one too [...] we used the experience we have with the critically-ill patients who more or less followed a pattern similar to respiratory diseases and SARS [...] (N16)

Nurses' performance in strategies for managing the COVID-19 crisis

One of the strategies cited was changing the hospital structure in order to avoid contact between patients infected by the disease and the rest of the hospital. To this end, the management decided to use an existing structure and, thus, organize service flows. In addition, together with a crisis committee, the nurses articulated externally to obtain new hospital beds in addition to human and material resources. Given the difficulties in the work process, it was necessary to create service protocols and continuous permanent education to train the teams.

He was placed where the burn center was supposed to be, so he was isolated from the rest of the hospital. We managed to organize ourselves very well until then, there were people who stayed outside, not contaminated, helping those who were inside, contaminated, that was very nice, it worked well, it worked out super well for us (N5).

The hospital created a lot of staff, trained their teams to face the pandemic (N8).

Deployment of protocols that came to help. Even the issue of how to admit things, how to proceed with death. [...] (N1).

DISCUSSION

The first category addresses the management and care indicators with reflections on nurses' role in the installed COVID-19 crisis. As an example of this, in relation to the increase in the in-hospital infection rate, a study pointed to an increase in the Healthcare-associated Infection (HAI) rates with the spread of multidrug-resistant bacteria during the COVID-19 infection period¹³. This information may allude to the contagion characteristic of the SARS-CoV-2⁴ virus when comparing, for example, nosocomial infection in pre-pandemic (2018-2019) and pandemic (2020-2021) periods¹³.

The increase in the absenteeism rate as another indicator is in line with the data presented by a Brazilian study where, in a hospital institution from the South of the country, the Nursing absenteeism rate during the pandemic period was higher than in the pre-pandemic period, as there was a need to distance professionals who had symptoms suggestive of COVID-19¹⁴. In this way, the shortage in the health team ends up generating overload on the working professionals, increasing the exhaustion levels even more and with repercussion in the patient safety level¹⁵⁻¹⁷.

The "pressure injury" indicator was highlighted by some nurses who noticed greater involvement in the patients infected with the SARS-CoV-2 virus. Consistently with these findings, a study carried out in an American hospital pointed to an association with a higher risk of pressure injuries in patients with COVID-19, as the disease compromises the cardiovascular system and, consequently, the integumentary system¹⁸. Other factors that explain the appearance of these lesions are related to the procedures performed to improve the COVID-19 condition, such as proning the patients¹⁹.

When faced with altered indicators, interventions are required for their control. In this sense, crisis management actions point to the need for frequent training of teams, addressing various issues, such as proper use of Personal Protective Equipment (PPE), hand hygiene and instruction in new protocols, such as proning the

patients. Training should be associated with the provision of these PPE items to all professionals, due to the need to prevent the occurrence of infections and ensure safety for professionals and patients alike²⁰. During the COVID-19 pandemic, it became evident that part of the contagion among health professionals was related to the moment of gowning and degowning for using these PPE items.

These actions must have the support of the Healthcare-Associated Infection (HAI) Control Sector from each institution, as already shown in research studies that demonstrate the relevance of this service for controlling the crisis caused by the type 2 coronavirus and for the reduction of HAIs^{20,21}. It is suggested that, in the scenario of this study, the leadership position for the operationalization of the work process in front of the Hospital Infection Commission (CCIH)/Hospital Infection Control Sector (SCIH) is attributed to the nurse.

The difficulties faced by nurses during the COVID-19 pandemic were countless. Reasserting the findings of this study, several others indicate the shortage of qualified professionals to work with patients who require more complex care in intensive care units. As it is a new disease, there was lack of knowledge about how to act in care practices for infected patients²²⁻²⁴.

The shortage of qualified professionals to work in this scenario was not a difficulty exclusively faced by Brazil. A number of studies reinforce that, due to the emergency hiring of these employees, in-service training becomes essential so that care is not compromised^{23,25,26}.

Another difficulty portrayed by the nurses is related to the overload experienced by the Nursing team. The literature confirms this assertion by elucidating data on the extensive work overload due to the leaves of employees belonging to the risk group and infected by the disease, to overcrowding of the units and to the increase in the workload. As a result, the working conditions deteriorate because overload generates professional wear out, risk of harms to care quality and an increase in absences due to diseases other than COVID-19²⁷⁻²⁹.

In addition, the lack of beds, supplies and essential devices to support the patients' lives, such as mechanical ventilators, was also one of the difficulties highlighted. This problem was faced throughout the country and shown in many studies that denote the management challenges in dealing with the scarcity of financial and material resources, in the face of a crisis and the need to create resolute alternatives such as the serial production of these devices^{30,31}.

The experiences arising from previous crises in the health sector subsidize coping with future crises. In the meantime, the management actions for the H1N1 pandemic, for example, involved PPE provision to prevent higher absenteeism and cross-infection rates and reinforced the importance of permanent education in these times of crisis. Thus, these intervention modalities are useful to accelerate the process³².

It is considered that, even the H1N1 pandemic, taken as a previous experience by nurses, according to the findings of this study, COVID-19 had a higher proportion. Evidencing these findings, there are studies comparing the epidemiological and clinical effects between COVID-19 and H1N1, showing that the first one has a high transmission rate that surpasses the Influenza virus. In addition, patients infected with the type 2 coronavirus remained hospitalized for longer periods of time, requiring mechanical ventilation, in addition to presenting the most severe cases^{33,34}.

One of the plans carried out by the management of the study locus was restructuring physical facilities so that a specific sector was allocated to care for patients with coronavirus. Thus, this would obey a determined flow in order to avoid contact and cross-contamination, along with the expansion in the number of beds and acquisition of material and human resources. These measures were also taken in other hospital institutions^{35,36}.

The creation of protocols was also a strategy pointed out. A number of studies have shown that using updated protocols on the most diverse subject matters involving management and assistance was essential to guide health professionals on the courses of action to be applied in patients with COVID-19, in addition to the need to provide updates on them in real time^{37,38}.

Added to this, a previously existing reality was opened up in terms of operational capacity. These resources were demanded throughout the country, as shown in research studies, and may come to improve the range of health services offered to the population. However, in some hospital realities, it is empirically perceived that some professionals have already been gradually dismissed due to "stabilization" of the demand for COVID-19³⁹.

Finally, it is important to reinforce nurses' role in their work in crisis management. This role became essential in the managerial and administrative dimension, when working on the (re)organization of health services and on establishing action strategies to solve problems in a timely manner; in the care and assistance dimension, being on the

“front line” with patients requiring such complex care; and in the educational dimension when teaching, involving the necessary training options, from instituted flows to direct care for those infected by COVID-19.

Contrary to this logic, a Danish study revealed that nurses asserted not feeling part of decision-making processes regarding the courses of action in relation to COVID-19, as the management areas did not encourage engagement with Nursing professionals, imposing a sense of lack of recognition. They also pointed out that the absence of formal managerial education demonstrated that some of the managers were not able to deal with the situation as they would like to. It is brought to the spotlight that the permanent education agenda should not only be skills in technical procedures but, concomitantly, the development of managerial skills. In this context, it is suggestive that soft and hard skills need to be (re)seen in Nursing education, in a crisis management context⁴⁰.

Although not mentioned by the participants, it is possible to reflect that some changes that occurred during the crisis remain and/or will remain and can be an innovation for the area, as is the case of technologies. Among other aspects, the diversification of communication and Telecare modalities in Nursing care are future implications pointed out by the literature and considered legacies of the COVID-19 pandemic⁴⁰.

In the capital city of the state of Paraná, a reference hospital considering aspects related to clients' safety established a line of care for users with COVID-19, from admission to post-discharge, in specific outpatient services managed by the Discharge Management service⁶. This is a research gap that encourages new studies.

A line of care for this service profile might be an anchor for additional confrontations in the health sector, such as the growing “delay” of health procedures, resulting from the suspension of elective procedures for users with chronic diseases⁶.

Study limitations

As the main limiting factor of this study, it is acknowledged that it was carried out in a single institution, with an approach only focused on a given reality. On the other hand, the knowledge produced can support improvement strategies, changes and/or improvements for the Nursing work process in its management and care dimensions at the institution in order to foster contingency plans for future crises.

CONCLUSION

Nurses' role during the pandemic period was reflected in care and management indicators, which were influenced by the pandemic and represent the work process of any and all institutions.

Among the care indicators, “pressure injury” and “pronation profile for patients with COVID-19” stand out, which might be related to prolonged hospitalization times. “Absenteeism” was presented as a relevant managerial indicator. In this sense, follow-up studies of indicators involving their analyses aligned with Patient Safety in hospitals as a reflection of the pandemic are suggested.

Some difficulties perceived in nurses' performance during the pandemic were mentioned, directed to missing or weakened human resources, which corroborates with the indicators pointed out: lack of expertise of the professionals hired on an emergency basis; and lack of materials/supplies and hospital beds. In this sense, it is important to establish a contingency plan thinking about the long-term in the services and not merely during the crisis.

As measures for crisis management, some participants reported using the 2009 H1N1 epidemic history as a guide, especially in respiratory clinical management and infection control. In other words, they made use of previous experiences. In addition, optimizing physical resources leveraging existing building structures was a strategy perceived by the nurses. Thus, in a flow (re)organization logistics, they were able to care for patients in line with infection control. Added to this, structured as a service and led by a nurse, Permanent Education was also strengthened in the institution as a powerful crisis management tool, as training human resources prepares them to act in adverse situations.

Although it was not easy to work in this study scenario, like any institution, the potentialities should be recognized, among which nurses stand out as protagonists. Rescuing this performance from the perspective of the actors involved reasserts the importance of their social, ethical and political roles.

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