Revista Brasileira de Enfermagem
REBEn

SUPPLEMENTARY EDITION 1
CORONAVIRUS/COVID-19

ORIGINAL ARTICLE

Changes implemented in the work environment of nurses in the COVID-19 pandemic

Mudanças implementadas no ambiente de trabalho de enfermeiros na pandemia de COVID-19

Cambios implementados en el ambiente laboral de enfermeras en la pandemia de COVID-19

José Luís Guedes dos Santos[I]
ORCID: 0000-0003-3186-8286

Fernando Henrique Antunes Menegon[I]
ORCID: 0000-0002-8840-4653

Gustavo Baade de Andrade[I]
ORCID: 0000-0002-0196-6048

Etiane de Oliveira Freitas[II]
ORCID: 0000-0002-8589-2524

Silviamar Camponogara[II]
ORCID: 0000-0001-9342-3683

Alexandre Pazetto Balsanelli[III]
ORCID: 0000-0003-3757-1061

Alacoque Lorenzini Erdmann[I]
ORCID: 0000-0003-4845-8515

[I] *Universidade Federal de Santa Catarina. Florianópolis, Santa Catarina, Brazil.*
[II] *Universidade Federal de Santa Maria. Santa Maria, Rio Grande do Sul, Brazil.*
[III] *Universidade Federal de São Paulo. São Paulo, São Paulo, Brazil.*

How to cite this article:
Santos JLG, Menegon FHA, Andrade GB, Freitas EO, Camponogara S, Balsanelli AP, et al. Changes implemented in the work environment of nurses in the COVID-19 pandemic. Rev Bras Enferm. 2022;75(Suppl 1):e20201381. https://doi.org/10.1590/0034-7167-2020-1381

Corresponding author:
José Luís Guedes dos Santos
E-mail: santosjlg29@gmail.com

Submissão: 01-21-2021 **Approval:** 06-27-2021

ABSTRACT

Objective: to describe the changes implemented in the work environment of nurses in university hospitals considering the COVID-19 pandemic. **Methods:** this qualitative and descriptive research was developed from an online survey with 75 nurses from three Brazilian university hospitals. Data processing occurred through textual analysis with the aid of software IRAMUTEQ. **Results:** five semantic classes were obtained: Organization of units for exclusive care of patients with COVID-19; Adaptations in the use of personal protective equipment; Physical structure adaptation; Care flow institution; Increased number of beds and training courses. **Final considerations:** the results show the effort of healthcare and nursing professionals/managers in the development of structural adaptations and reorganizations of care processes, in the hospital context, to respond with quality and efficiency to the demands arising from the COVID-19 pandemic.

Descriptors: Coronavirus Infections; Pandemics; Hospital Units; Nurses; Hospitals, University.

RESUMO

Objetivo: descrever as mudanças implementadas no ambiente de trabalho de enfermeiros em hospitais universitários diante da pandemia de COVID-19. **Métodos:** pesquisa qualitativa, do tipo descritiva, desenvolvida a partir de um *survey online* com 75 enfermeiros de três hospitais universitários brasileiros. O processamento dos dados ocorreu por meio de análise textual com auxílio do *software* IRAMUTEQ. **Resultados:** obtiveram-se cinco classes semânticas: Organização de unidades para atendimento exclusivo de pacientes com COVID-19; Adequações no uso de equipamentos de proteção individual; Adaptação da estrutura física; Instituição de fluxos de atendimento; Aumento do número de leitos e realização de capacitações. **Considerações finais**: os resultados evidenciam o esforço dos profissionais/gestores da área da saúde e enfermagem no desenvolvimento de adaptações estruturais e reorganizações dos processos assistenciais, no contexto hospitalar, para responder com qualidade e eficiência às demandas oriundas da pandemia de COVID-19.

Descritores: Infecções por Coronavírus; Pandemias; Ambiente de Trabalho; Enfermeiras e Enfermeiros; Hospitais Universitários.

RESUMEN

Objetivo: describir los cambios implementados en el ambiente laboral de enfermeras en hospitales universitarios ante la pandemia de COVID-19. Métodos: investigación cualitativa, descriptiva, desarrollada a partir de una encuesta en línea a 75 enfermeras de tres hospitales universitarios brasileños. El procesamiento de datos se realizó a través del análisis textual con la ayuda del software IRAMUTEQ. **Resultados:** se obtuvieron cinco clases semánticas: Organización de unidades para la atención exclusiva de pacientes con COVID-19; Adaptaciones en el uso de equipos de protección personal; Adaptación de la estructura física; Institución de flujos de servicios; Aumento del número de camas y cursos de formación. **Consideraciones finales:** los resultados muestran el esfuerzo de los profesionales/gestores del área de salud y enfermería en el desarrollo de adaptaciones estructurales y reorganizaciones de los procesos asistenciales, en el contexto hospitalario, para responder con calidad y eficiencia a las demandas derivadas de la pandemia de COVID-19.

Descriptores: Infecciones por Coronavirus; Pandemias; Ambiente de Trabajo; Enfermeras y Enfermeros; Hospitales Universitarios.

INTRODUCTION

The COVID-19 pandemic has produced significant numbers of infected people and deaths in the world, generating the need to reorganize healthcare services and systems to meet the high demand of cases. The first warning about the existence of a new viral agent that causes a severe respiratory disease, COVID-19 (Coronavirus Disease), occurred in December 2019, in the city of Wuhan (Hubei, China). The disease quickly spread throughout China, spreading to more than 200 countries, which led the World Health Organization (WHO) to issue an international health alert: the Public Health Emergency Declaration of International Concern, January 30, 2020[1-2].

In Latin America, the disease arrived on February 25, 2020, when the Ministry of Health of Brazil confirmed the first case in national territory[3]. In the Brazilian scenario, until November 28, 2020, there were already 7,484,285 confirmed cases of COVID-19 and 191,139 deaths. Worldwide, there are already 80,852,622 infected people and 1,766,336 deaths[4].

As it is a new disease, the COVID-19 pandemic brought with it challenges to the most diverse areas of action, in particular to healthcare systems. This is a growing demand, in some cases, extremely high from critically ill patients, with highly contagious disease without specific treatment and with a complex clinical picture. Without the adoption of adequate control measures, the speed of transmission can generate, for healthcare services, an unbearable demand for patients, especially those of greater complexity[5].

The restructuring of healthcare services proved necessary, requiring interconnection between care management, use of epidemiological indicators, changes in work organization, optimization of human resources, inputs and technologies[6]. In this context, nurses' work has gained relevance and visibility, especially in the composition of committees for the planning and functioning of physical structure, construction of protocols and care flows, in addition to the direct role in care[7-8].

In this sense, professionals who are on the front line of care need to be able to develop new care strategies that are safe for patients, for themselves, for their staff and for the community where they circulate after the end of their work shift[9]. Thus, the adequacy of management and work processes, given the magnitude of the pandemic, is a necessary condition and requires a series of individual and institutional strategies. Thus, this research was designed with the following guiding question: what changes have been implemented in the work environment of nurses in university hospitals considering the COVID-19 pandemic?

It is essential to discuss contemporary issues such as this one, which show trends and challenges for nursing care, as this debate contributes to the strengthening of health and nursing practices. Furthermore, this study is also justified based on the findings of a bibliometric survey on the scientific production that addresses COVID-19, according to which publications are under development internationally, but still with little expression at the national level, mainly in relation to the management and operationalization of strategies to fight the pandemic[10].

OBJECTIVE

To describe the changes implemented in the work environment of nurses in university hospitals considering the COVID-19 pandemic.

METHODS

Ethical aspects

This study is part of a multicenter macro-project on the work environment and the empowerment of nurses in the hospital context. To carry out this research, an amendment to the original project was approved by the Institutional Review Board of the reference institution. The Informed Consent Form was presented online to the participants through a clarification page about the research. Participants needed to click on option "I agree to participate in the survey" to confirm their agreement to the terms of the study and access the next screen with the questionnaire. Thus, Resolutions 466/2012 and 510/2016 of the Brazilian National Health Council (*Conselho Nacional de Saúde*) were complied with.

Study design

This is a descriptive, multicentric research with a qualitative approach. The study was developed using by the Standards for Reporting Qualitative Research (SRQR), which includes a broader range of qualitative studies[11].

Study setting

The research was conducted at three large university hospitals (with 151 to 500 beds), two of which are linked to the Brazilian Hospital Services Company (EBSERH - *Empresa Brasileira de Serviços Hospitalares*). As for geographic location, two hospitals were located in southern and one in southeastern Brazil. Thus, the choice of these locations for the study was made to explore different contexts and coping strategies for the COVID-19 pandemic.

Data source

Study participants were nurses working in different sectors of the institutions. Nurses who were working in care or with the perspective of working in the care of patients suspected of or infected with COVID-19 at the time of the study were included. This inclusion criterion was informed to participants, at the time of invitation, to answer the online questionnaire. Questionnaires with incomplete information were included. The option for an online data source was the most viable strategy to obtain a greater number of participants considering the restrictions on the movement of people and access to hospitals due to the COVID-19 pandemic.

The total number of nurses at the three hospitals was 616 nurses, who received an email invitation to participate in the study, with weekly follow-up reminders. The questionnaire response time was approximately 10 minutes. According to the period for the study, the total number reached was 104 responses, which can

be considered reasonable for online surveys[12], especially given the COVID-19 pandemic.

Data collection and organization

Data collection was carried out from April 27 to June 27, 2020 via Google Forms®. The data presented in this study correspond to two parts of the data collection instrument. The first, with socio-professional characterization data of nurses, such as age, gender, sector, role, work shift and length of professional experience (years). The second part consisted of an open question, in which nurses were asked about the changes perceived in their work environment given the COVID-19 pandemic. Before data collection, a pilot test of the questionnaire was carried out with two clinical nurses and two teaching nurses. Only editorial suggestions were received and there was no need for further changes.

Data analysis

Of the total of 104 nurses, 29 did not answer the second part of the questionnaire. Thus, the number of valid responses for data analysis was 75, with 20 (26.6%) from Hospital A, 21 (28%) from Hospital B and 34 from Hospital C (45.3%). Data were analyzed using software *Interface de R pourles Analyses Multidimensionnelles de Textes et de Questionnaires* (IRAMUTEQ®), which enables the processing and statistical analysis of a textual corpus through the grouping of words, called occurrences by semantic similarity. Thus, it allows five types of analysis: classic textual statistics; research on group specifics and confirmatory factor analysis; Descending Hierarchical Classification (DHC); word similarity analysis; word cloud[13].

IRAMUTEQ has particularities in relation to other qualitative analysis software. The corpus, for example, comprises the total textual grouping used in the analysis, which is composed of a set of texts. Each text is represented by a unit to be analyzed, which, in this study, corresponded to each participant's answer included in the analysis. The texts are further divided by the software into text segments (TS), text fragments of approximately three lines delimited by semantic similarity[13].

The corpus was organized based on the unification of participants' responses in an Open Office® program file. The material was revised to eliminate possible typing errors and standardize acronyms, allowing different terms, but with the same meaning, to be considered as similar. Terms with more than one word were rewritten and identified as a single term, being separated with a subscript, such as "individual_protection_equipment". The categories of words included were adjectives, nouns, verbs, and unrecognized forms. Analyzes were performed by classical textual statistics and DHC.

RESULTS

As for socio-professional characterization, female participants predominated (n=65; 86.7%), with a mean age of 38.07 (±8.19) years and 12.8 (±8.22) in average professional experience. Most worked as clinical nurses (n=59; 78.7%), in the day shift (n=56; 74.7%), mainly in Medical-Surgical Clinical Inpatient Units (n=22; 29.4%) and Intensive Care Unit (n=20;26.7%).

Thus, 75 valid responses were analyzed regarding the changes made in nurses' work environment in the face of the COVID-19 pandemic. The analysis was performed with the aid of IRAMUTEQ®, resulting in five semantic classes related to each other (Figure 1). Among the software's possibilities, the program provides the associative strength of each word that makes up a certain class. This association is calculated by the chi-square test ($\chi 2$), with results greater than 3.84 and $p<0.0001$ representing strong correlations between the words.

By applying the chi-square test, Semantic Class 1 presented the words "separation" (23.23; $p<0.0001$) and "COVID" (22.60; $p<0.0001$), with the highest class-wide correlation indices. Class 2 has the highest number of correlations, with the main words "change" (26.43; $p<0.0001$), "hospitalization" (20.70; $p<0.0001$), and "routine" (15, 21; $p<0.0001$). Unlike the previous classes, Classes 3 and 4 have only one word with strong correlation, being "change" (31.24; $p<0.0001$) to the third and "service" (25.71; $p<0, 0001$) for the fourth. In divergence, only Class 5 did not show any strong correlation between the words of the class itself, justifying the overlap and relationship of this class over the others.

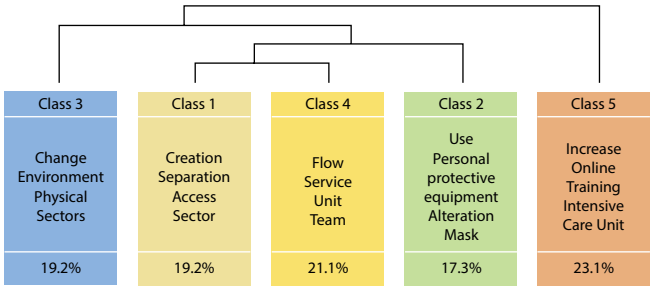

Figure 1 – Semantic classes and their correlations. Florianópolis, Santa Catarina, Brazil, 2020

In the dendrogram, the answers were initially broken down into Classes 1 and 4, which relate to each other and to Class 2 at the same time. This initial set is associated with Class 3, and the generated grouping is linked to Class 5. Thus, it can be interpreted that the separation and creation of new care sectors for patients suspected or confirmed with COVID-19 are associated with care flow institution and adaptations in the use of personal protective equipment (PPE). As a consequence, there is a need for the increase of beds and training for healthcare professionals

Class 1, "Organization of units for the exclusive care of patients with COVID-19", concerns the creation and separation of specific sectors for exclusive care of patients suspected or diagnosed with COVID-19.

Class 2 was given the title "Adaptations in the use of personal protective equipment" due to the prominence given to the correct use of PPE, as well as the use of cloth masks by professionals and companions in common access areas. Class 3 is entitled "Physical structure adaptation", as it highlights the physical structure adaptation of the work environment in hospital sectors. Class 4, "Care flow institution", refers to the establishment of specific flows or reviews of care flows performed by the health team for patient care.

Class 5, "Increased number of beds and training courses", elucidates the increase in beds in Intensive Care Units (ICUs) to meet demand and also to online qualification and training.

Chart 1 presents examples of participants' responses to each class. The bold highlight indicates the most frequent words, as shown in Figure 1.

Chart 1 - Example of participants' responses according to each class. Florianópolis, Santa Catarina, Brazil, 2020

Class	Answers
(1) Organization of units for the exclusive care of patients with COVID-19	Creation of a sector for exclusive care for COVID patients. Separation of sector into clean area and COVID area. Separation of access was performed in specific units for treatment of patients with suspected and/or confirmed COVID. Separation of access from suspicious patients to the sector.
(2) Adaptations in the use of personal protective equipment	The correct use of personal protective equipment. Change in use of mask in common spaces. Adjustments such as use permanent mask and personal protective equipment.
(3) Physical structure adaptation	Change in the physical structure of the units to receive these patients. Change in the physical environment in an attempt to adapt to a new type of patient care. Physical change and structural in sectors. Change in the physical environment for service.
(4) Care flow institution	Institution of a flow in care. Revisions and updates of care flows. In the unit in which work was instituted a flow for care. Team training in the adequacy of care protocols and flows.
(5) Increased number of beds and training courses	Constant training online. Training online and communicated by groups. Increase beds to meet demand. Increase Intensive Care Unit beds.

DISCUSSION

The results obtained give visibility to the changes that have been and are being carried out in the work environment of nurses in university hospitals to face the COVID-19 pandemic. The main changes identified were grouped into five different dimensions, but which are articulated with each other.

In Class 1, the organization and structuring of specific units to care for patients with COVID-19 stood out, mainly due to the high risk of transmissibility of the disease. The organization of units for the exclusive care of patients with COVID-19 was also a strategy developed by a hospital in the countryside of Santa Catarina, Brazil[7]. The search for the isolation of patients infected with SARS-CoV-2 also emerges as a precautionary action given the initial lack of knowledge about the characteristics of this pathogen[14].

In the structuring of these new care sectors, the role of nurses in the organization of the front line of services and in the exercise of care management was evidenced, through forecast and provision of physical, material and human resources necessary to ensure safe care to patients[7-8,14]. Thus, the importance of the managerial dimension of nurses' work is reinforced, even in a scenario marked by crises and adverse situations with the advent of the COVID-19 pandemic.

Class 2 refers to fitness in the use of PPE. The absence of adequate PPE contributes to the occupational exposure of nursing, which was a challenge for professionals, especially at the beginning of the pandemic. Data from the Federal Council of Nursing (COFEN - *Conselho Federal de Enfermagem*) indicate that, to date, 44,308 nursing professionals have been infected, 467 of which died, revealing the high exposure of professionals[15].

It must be considered that the effectiveness of PPEs is related to the provision of equipment with sufficient protection for SARS-CoV-2 and the adequate training of teams of workers for the correct and consistent use[16]. Nursing workers should not be subjected to infection by not providing something that is inherent to their protection during the performance of their work[17].

In this sense, one of the strategies of healthcare institutions, in the context of action against COVID-19, refers to ensuring adequate and sufficient supply of PPE to workers, in addition to maintaining a local strategic reserve that corresponds to the service's needs. In this way, the fundamental role of nursing management is evidenced in terms of its contribution to the creation of control strategies in the correct use of materials and promotion of training of team professionals, aiming at the placement, use and removal of PPE[18].

The focus of Class 3 was physical structure adaptation. The purpose of making changes and adaptations in the physical environment was to provide specialized care to patients with COVID-19. Therefore, the changes aimed at a different area within the hospital, when possible, with controlled access and no traffic to other sectors. In this sense, it is pointed out that, as an element of nurses' work, with regard to care management, these professionals must provide adequate environments for patient care, since lack of an adequate infrastructure can negatively influence patient safety[19].

Physical and organizational structure's conditions directly influence nurses' professional practice, highlighting that the changes made in the environment are intended to provide safe and adequate coverage for professionals in all hospital sectors. A study carried out in Germany indicates that changes in infrastructure were the main suggestion made by nurses to improve care and job satisfaction. Thus, investments to improve these conditions represent an important step to enable professionals' satisfaction at work as well as quality of care in the context of the pandemic[20].

Class 4 concerns care flow institution, which is justified considering the specificities of care for patients with COVID-19. In organizing flow of care, the literature emphasizes the importance of a collective approach aimed at expanding collaborative actions between the medical and nursing staff for professional integration as a single healthcare team focused on specific care for patients infected by the new coronavirus. Therefore, interaction and

effective communication should be the basis for the care team's work, mainly aiming at reducing the risk of contagion within the unit and developing care measures and coordination among healthcare professionals. Cooperation between professionals is an important modifying factor in healthcare actions[6].

Class 5 brought together two main actions: increased number of beds and training courses. These are two ideas that, at first, do not seem to be related to each other. However, it is possible to infer that the increase in the number of beds requires the hiring of new professionals, who must be trained in relation to institutional routines and particularities of care for patients with COVID-19.

The increase in the number of beds in inpatient units and ICUs is essential to address the growing demand for care for patients with COVID-19. Also, it is a strategy to avoid overcrowding and/or patients being treated in inadequate structural conditions, which unfortunately was already a frequent situation in Brazilian public hospitals even before the pandemic. The structural context also directly affects the quality of care provided to patients as well as healthcare professionals' satisfaction[21].

The increase in the number of beds was one of the main organizational changes for hospitals in Europe to deal with the COVID-19 pandemic, mainly through the opening of dedicated wards. In some cases, the number of ICU beds doubled during the pandemic, as well as the number of nursing professionals to provide care[22].

Regarding training, the use of the online modality was highlighted as a way of professional updating for the care of patients with COVID-19 and the correct use of PPE. It is known that donning and doffing increased the risk of contamination of professionals, especially during the second[23]. In this way, such actions contribute to the reduction of stress and insecurity of the nursing team in caring for patients with a clinical condition that was previously unknown.

In this context of continuing education, it is worth emphasizing the importance that managers and team leaders value active listening to the requests of healthcare professionals, seeking to accept their demands and respond to them promptly[7]. Managerial support for safety actions is essential for the incorporation of safe practices in healthcare environments[24].

Study limitations

The limitations refer to the duration of data collection and the use of an online questionnaire, which may have hindered access and adherence by a greater number of participants. In addition to this, the incipient studies on the topic in vogue restricted a broader discussion of the results.

Contributions to nursing

The duration of the COVID-19 pandemic is still uncertain and there are doubts about the best care and management strategies to face it. Thus, this study can provide support for discussions and implementation of changes in nurses' work environment while facing new "waves" of the COVID-19 pandemic or even other pandemics and infectious diseases in the future. Moreover, research also has the function of recording this historical moment and can contribute to improving professional visibility in society as well as to formulating policies aimed at improving working conditions for nursing.

FINAL CONSIDERATIONS

This study identified that the main changes in the work environment of nurses in university hospitals, considering the COVID-19 pandemic, were an increase in the number of beds, training and the institution of new care flows. For caring for patients with the new coronavirus, actions aimed at adapting the physical structure and the use of PPE were also highlighted. The findings show the efforts of healthcare and nursing professionals/managers in the development of structural adaptations and reorganizations of care processes in the hospital context to respond, with quality and efficiency, to the demands arising from the pandemic.

FUNDING

The study was funded by the Brazilian National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*).

REFERENCES

1. Deng SQ, Peng HJ. Characteristics of public health responses to the Coronavirus disease 2019 outbreak in China. J Clin Med. 2020;9(2):e575. https://doi.org/10.3390/jcm9020575
2. Ralph R, Lew J, Zeng T, Francis M, Xue B, Roux M, et al. 2019-nCoV (Wuhan virus), a novel Coronavirus: human-to-human transmission, travel-related cases, and vaccine readiness. J Infect Dev Ctries [Internet]. 2020 [cited 2020 Mar 22];14(1):3-17. Available from: https://jidc.org/index.php/journal/article/view/12425
3. Rodriguez-Morales AJ, Gallego V, Escalera-Antezana JP, Méndez CA, Zambrano LI, Franco-Paredes C, et al. COVID-19 in Latin America: the implications of the first confirmed case in Brazil. Travel Med Infect Dis. 2020;35:101613. https://doi.org/10.1016/j.tmaid.2020.101613
4. Center for Systems Science and Engineering of Johns Hopkins University. Modeling the spread of 2019-nCoV [Internet]. 2020 [cited 2020 Dec 10]. Available from: https://systems.jhu.edu/wp-content/uploads/2020/01/Gardner-JHU_nCoV-Modeling-Report_Jan-26.pdf
5. Travassos C. A investigação em serviços de saúde e a pandemia de COVID-19. Cad Saúde Pública 2020;36(9):e00243920. https://doi.org/10.1590/0102-311x00243920
6. Belarmino AC, Rodrigues MEG, Anjos SJSB, Ferreira JAR. Collaborative practices from health care teams to face the covid-19 pandemic. Rev Bras Enferm. 2020;73(2):e20200470. https://doi.org/10.1590/0034-7167-2020-0470

7. Bitencourt JVOV, Meschial WC, Frizon G, Biffi P, Souza JB, Maestri E. Nurse's protagonism in structuring and managing a specific unit for COVID-19. Texto Contexto Enferm. 2020;29:e20200213. https://doi.org/10.1590/1980-265X-TCE-2020-0213

8. Gastaldo D, Vieira AC. From Discredited to Heroines: COVID-19 and the year that would be Nursing Now. Esc Anna Nery. 2020; 24(spe):e20200409. https://doi.org/10.1590/2177-9465-ean-2020-0409

9. Machado MH, Pereira EJ, Ximenes Neto FRG, Wermelinger MCMW. Enfermagem em tempos de COVID-19 no Brasil: um olhar da gestão do trabalho. Enferm Foco. 2020;11(1):32-39. https://doi.org/10.21675/2357-707X.2020.v11.n1.ESP.3994

10. Pinto CIC, Sampaio RS, Souza FAC, Dias TKC, Costa BHS, Chaves ECL. Scientific production in online journals about the new coronavirus (covid-19): bibliometric research. Texto Contexto Enferm 2020;29:e20200235. https://doi.org/10.1590/1980-265x-tce-2020-0235

11. Peditto K. Reporting Qualitative Research: Standards, Challenges, and Implications for Health Design. Herd 2018;11(2):16-19. https://doi.org/10.1177/1937586718772615

12. Menon V, Muraleedharan A. Internet-based surveys: relevance, methodological considerations and troubleshooting strategies. Gen Psychiatry, 2020;33(5):e100264. https://doi.org/10.1136/gpsych-2020-100264

13. Souza MAR, Wall ML, Thuler ACMC, Lowen IMV, Peres AM. The use of IRAMUTEQ software for data analysis in qualitative research. Rev Esc Enferm USP 2018;52:e03353. https://doi.org/10.1590/S1980-220X2017015003353

14. Silva VGF, Silva BN, Pinto ESG, Menezes RMP. The nurse's work in the context of COVID-19 pandemic. Rev Bras Enferm. 2021;74(Suppl1):e20200594. https://doi.org/10.1590/0034-7167-2020-0594

15. Conselho Federal de Enfermagem (COFEN). Observatório da Enfermagem: profissionais infectados com COVID-19 informado pelo serviço [Internet]. 2020 [cited 2020 Dec 23] Available from: http://observatoriodaenfermagem.cofen.gov.br/

16. Centers for Disease Control and Prevention (CDC). Interim infection prevention and control recommendations for patients with suspected or confirmed Coronavirus Disease 2019 (COVID-19) in healthcare settings [Internet]. 2020 [cited 2020 Dec 23]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/infection-control/control-recommendations.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Finfection-control.html

17. Forte ECN, Pires DEP. Os apelos da enfermagem nos meios de comunicação em tempos de coronavirus. Rev Bras Enferm. 2020;73(supl.2):e20200225. https://doi.org/10.1590/0034-7167-2020-0225

18. Ventura-Silva JMA, Ribeiro OMPL, Santos MR, Faria ACA, Monteiro MAJ, Vandresen L. Planejamento organizacional no contexto de pandemia por COVID-19: implicações para a gestão em enfermagem. J Health NPEPS. 2020;5(1):e4626. https://doi.org/10.30681/252610104626

19. Ammar A, Stock AD, Holland R, Gelfand Y, Altschul D. Managing a specialty service during the COVID-19 Crisis: lessons from a New York City Health System. Acad Med. 2020;95(10):1495-98. https://doi.org/10.1097/ACM.0000000000003440

20. Zerbini G, Ebigbo A, Reicherts P, Kunz M, Messman H. Psychosocial burden of health care professionals in times of COVID-19: a survey conducted at the University Hospital Augsburg. Ger Med Sci. 2020;22(18):05. https://doi.org/10.3205/000281

21. Geremia DS, Vendruscolo C, Celuppilanka C, Adamy EK, Toso BRGO, Souza JB. 200 Anos de Florence e os desafios da gestão das práticas de enfermagem na pandemia COVID-19. Rev Latino-Am Enferm. 2020;28:e3358. https://doi.org/10.1590/1518-8345.4576.3358

22. Danielis M, Palese A, Terzoni S, Destrebecq ALL. Howhospitals, Intensive Care Units and nursing care of critically ill patients have changed during the Covid-19 outbreak? results from an exploratory research in some European countries. Assist Inferm Ric. 2020;39(3):130-8. https://doi.org/10.1702/3454.34430

23. Mendes JJ, Mergulhão P, Froes F, Paiva JA, Gouveia J. Recommendations from the Sociedade Portuguesa de Cuidados Intensivos and Infection & Sepsis Group for intensive care approach to COVID-19. Rev Bras Ter Intensiva. 2020;32(1):2-10. https://doi.org/10.5935/0103-507X.20200002

24. Cunha QB, Camponogara S, Freitas EO, Pinno C, Dias GL, Cesar MP. Fatores que interferem na adesão às precauções padrão por profissionais da saúde: revisão integrativa. Enferm Foco 2017;8(1):72-76. https://doi.org/10.21675/2357-707X.2017.v8.n1.980