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WORKING CONDITIONS OF NURSES IN INTENSIVE CARE AND EMERGENCY SERVICES DURING THE COVID-19 PANDEMIC

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ABSTRACT

As the Coronavirus 2019 (COVID-19) disease pandemic accelerated in the world, there was great psychological pressure on nurses who were on the front line of care. This study evaluated nurses' perceptions of the working conditions experienced in intensive care and emergency units during the COVID-19 pandemic. This was a qualitative study carried out in a capital city of northeastern Brazil from May to September 2020. The collection took place in eight health services directed to the care of COVID-19. Forty-six nurses were interviewed. The results were systematized and analyzed using the Condensation of Meanings interview analysis model as a reference. The results showed that the working conditions were evaluated positively in relation to the availability of individual protection equipment, good quality materials and institutional support, but the overload of work and the need to adapt the structure in hospitals, with the readjustment of locations was seen as a point of difficulty. Overload of work and psychosocial suffering of nurses were observed. The results are expected to contribute to the awareness of managers in the prevention and promotion of occupational health in intensive care units and emergency services.

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INTRODUCTION

As the Coronavirus 2019 (COVID-19) disease pandemic accelerated in the world, healthcare systems were overwhelmed (Dalglish, 2020), leading to great psychological pressure on healthcare professionals, especially nurses who are on the front line of patient care. Contributing to this is the non-availability of definitive treatment. It relied for its control, with preventive measures, social distancing, use of masks and frequent hand washing (Fundação Oswaldo Cruz, 2020). COVID-19 has reached 265,138,247 confirmed cases and 5,248,669 deaths worldwide by December 6, 2021. In Brazil, there were 22,138,247 confirmed cases and 615,570 deaths. In the state of Pernambuco there were 642,242 confirmed cases and 20,275 deaths (Brasil, 2022). Critically ill patients with COVID-19 require ventilatory assistance or advanced life support, such as extracorporeal membrane oxygenation, continuous renal replacement therapy, and prone position ventilation, provided in emergency units and intensive subjected to enormous workloads, long-term fatigue, risk of infection, and frustration at the death of the patients they care for (Shen*et al.*, 2020). In Brazil, nursing is a profession that is present in all health care institutions, and in a daily basis in hospital care, demonstrating its inherence for the functioning of health services. Nursing professionals are exposed to several situations that can cause work stress, once living with the tenuous limit between life and death increases the emotional pressure (Origa, 2019). Counting on the fact that the nurse's work is often multifaceted divided and submitted to a diversity of positions that generate wear and tear, predisposing factors to stress (Furtado & Araújo Júnior, 2010; Santos*et al.*, 2010; Vila & Rossi, 2002). Given the context in which global health is inserted with the advent of the pandemic of COVID-19, as well as the working conditions in which nursing professionals are subjected, this study was conducted with the objective of evaluating the perception of nurses about the working conditions experienced in intensive care and emergency units during the pandemic of COVID-19.

MATERIALS AND METHODS

This is a qualitative study conducted in eight public and private ICU and emergency services with care for patients infected with COVID-19 in Recife, capital of Pernambuco, in northeastern Brazil developed between May and September 2020. The population was composed of nurses working in these services. They were contacted by phone and invited to participate in the research. After acceptance, a day and time was scheduled for the interview. A pre-test was applied to assess the appropriateness of the instrument and adjustment of the duration in the period May and June 2020. Pre-test participants were not included in the survey. The interviews were conducted by telephone due to the difficulty of being conducted in person due to the pandemic moment of the COVID-19, which leads to social distancing. They were recorded electronically for later analysis and occurred after the reading of the Free and Informed Consent Term (FICT) and the participant's authorization, lasting a maximum of one hour.

The participant identification questionnaire contained 15 objective questions regarding socio-demographic data (gender, marital status, age, time since graduation, tenure, number of work bonds, work regimen and total income), and 18 closed questions about work conditions in the ICU and emergency department. It evaluated the quality of the environment for the professional to develop his work; the quantity and quality of equipment and inputs; the number of professionals; the support to services by diagnostic and therapeutic means, the management and organization of the work. The answers used were: excellent, good, fair, bad, or terrible. To ensure the participants' anonymity, identification codes were used, example: nurse N1, N2 and so on, and identification codes of the institutions: PU (Public), P (Private) and PH (Philanthropic); and the sector where they worked: EM (Emergency) or ICU (Intensive Care Unit). The interviews were conducted by three previously trained researchers. The interview recordings were transcribed and typed directly into an application on the Zoho Creator platform [9] for storage and later analysis. For the systematization and analysis of the data related to the open questions in the interviews, the Meaning Condensation model was used (Kvale, 1996). In this model, after systematically reading the answers to each question, the natural units of analysis are defined and then the central themes that dominate each natural unit of analysis are chosen, and finally the essential description of the research question is made from all the themes addressed according to the researcher's interpretation. This research was approved by the Research Ethics Committee of the Oswaldo Cruz University Hospital - HUOC/PROCAPE.

RESULTS

Forty-six nurses were interviewed, 37 female (80.49%) and 9 male (19.57%). Most participants were aged between 30 and 40 years (n=24; 52.17%), 23 were single (50%), and 93.48% lived in the Metropolitan Region of Recife (n=43). The largest proportion graduated between 2010 and 2019 (63.57%; n=32) and 40 have *latosensu* postgraduate degrees, corresponding to 89.96% of the sample. About 27 professionals (60%) work in public health units, and 29 are assigned to the ICU (63.04%). 23 participants have a formal labor contract (50%) and have worked less than two years in the health unit 32.61% (n=15). 33 are on duty (89.96%) and 24 work daytime (52.17%). Most of the interviewees have more than one employment relationship (60.87%) and work in an assistance role (74.20%; n=23). Of the interviewees, 47.83% (n=22) have a monthly income of around one thousand dollars, which is equivalent today to five Brazilian minimum wages. From the answers to the 46 participants' closed questions about working conditions (Table 1), it was possible to see that in relation to the work environment, 47.83% of the interviewees considered that it was comfortable enough to do their jobs. The cleanliness of the environment was evaluated as regular by 26.08%. The meal offered was considered regular by 35.55% and terrible by 24.44%. As for equipment and supplies, 30.43% and 36.95% of the respondents rated the availability of equipment as regular and excellent, respectively, and maintenance was rated as good by 41.30%. The number of physicians and nurses was considered good by more than 50% of the interviewees. As for work management and organization, part of the interviewees (39.13%) rated the organization of the environment as good and 30.43% as regular. When analyzing the number of nurses per patient, 34.78% considered it as good and 28.26% as regular. The number of patients per nursing technician was considered good by half of the interviewees. Finally, the hospital's safety was considered good and regular by 36.95%. The results of the open questions are organized according to the sequence of the script used to conduct the interviews, composed of two questions: his condition as a nurse within the ICU/Emergency sector that is a reference for COVID-19; and the work conditions in which the activities taking into account safety (work environment), support from the institution, management, and related to work material.

Table 1. Nurses' assessment of the variables related to working conditions in Emergency and ICU services during the COVID-19 pandemic. Recife (PE), 2021

Variables	Great		Good		Regular		Bad		Terrible		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Quality of the environment for the professional												
Comfort	6	13.04	22	47.83	11	23.91	5	10.87	2	4.35	46	100
Cleanliness	13	28.26	18	39.13	12	26.08	3	6.52	-		46	100
Resting conditions	7	15.21	20	43.47	14	30.43	2	4.35	3	6.52	46	100
Quality of the meal*	2	4.44	8	17.77	16	35.55	8	17.77	11	24.44	45	100
Equipment and Supplies												
Equipment availability	17	36.95	12	26.08	14	30.43	2	4.35	1	2.17	46	100
Equipment Maintenance	6	13.04	19	41.30	17	36.95	3	6.52	1	2.17	46	100
Number of materials	10	21.73	22	47.82	8	17.39	2	4.35	4	8.69	46	100
Number of professionals												
Number of Doctors	11	23.91	24	52.17	9	19.56	1	2.17	1	2.17	46	100
Number of Nurses	12	26.08	24	52.17	7	15.21	2	4.35	1	2.17	46	100
Diagnostic and therapeutic means												
Laboratory Support	5	10.87	19	41.30	17	36.95	2	4.35	3	6.52	46	100
Pharmacy support	5	10.87	13	28.26	18	39.13	4	8.69	6	13.04	46	100
Image Service Support	6	13.33	24	53.33	11	24.44	3	6.66	1	2.22	45	100
Nutrition service support	7	15.21	12	26.08	20	43.47	4	8.69	3	6.52	46	100
Work management and organization												
Environment Organization	7	15.21	18	39.13	14	30.43	3	6.52	4	8.69	46	100
Number of patients per nurse	13	28.26	16	34.78	13	28.26	2	4.35	2	4.35	46	100
Number of patients per nursing technician	13	28.26	23	50.00	9	19.56	1	2.17	-		46	100
Hospital safety	8	17.39	17	36.95	17	36.95	2	4.35	2	4.35	46	100

*Meal offered to the professional

Among the central themes addressed by the professionals were the ability to adapt throughout the pandemic, the availability of PPE in the services studied, the care and precaution not to get contaminated, and the work overload. In addition to the concern with providing quality care, the concern with providing quality care was also highlighted. Some interviewees reported that the services provided good conditions to perform their functions, as can be seen in the following statement: "I feel more protected inside the COVID ICU, because there I have all the attire, there is no lack of PPE at any time and since the beginning we were well equipped" (N6-ICU-PH).

> [...]it is a new experience in relation to a pandemic that we are living, but, I feel very comfortable working in this area and with these patients, because it is what I like to do, although there is a fear and concern, not only with me, but with other patients and the co-workers, but, at the same time, I feel comfortable (N34-ICU-PU).

The impact of the beginning of the pandemic on health services can be seen in the following account:

> Since the day that was a milestone for me, the March 18th shift, it was a shift that the ICU received, I believe there were four admissions [...] on that day, there was only one nurse on duty. So, on that day we saw the hospital crowded, ambulance crowded [...], because we had never seen ambulance traffic, there was a moment when there were seven stops, one after the other, then eleven [...], so, that day was like this [...] you know what a war scene is? When you see, an extremely serious patient arrives, that you solve, and then suddenly another even more serious one appears, that shift was a terror! [...] Our lives changed. So, after that shift, it was a mixture of many things that passed in my mind, in my mind, [...]. No matter how much care you took with dressing, disrobing, care that you had in assistance, but then you started to see all that dread on top of Covid and you there in the battlefield and then it didn't end, because you returned home, maybe even carrying the virus [...] and the virus was something, like that, very scary. [...] (N20-ICU-PU).

In relation to work overload, the professionals' complaint is observed as a consequence for the quality of care provided:

> [...]there are no conditions to provide integral and good quality care, with one nurse for ten, because they are very unstable and very severe patients. I think that in no other ICU do you have this number of such severe patients (N23-EM-PU).

> The number of patients is very large, the bureaucracy is even greater due to the centralization of beds, and accounting with many spreadsheets [...] it is a very exhausting service, besides the use of PPE that also makes the service even heavier, although I stay more in the bureaucracy, but half the day I enter the ICU and stay with PPE [...] (N25-ICU-PU)

With the emergence of the pandemic and the increase of cases, there was a need for adaptation of the structure in hospitals, or the readjustment of places in the hospital, as can be seen below:

> What makes the work very difficult is that the environment was improvised, that environment was not prepared to receive an ICU, [...] they always try to do the best, but everyone is improvising, because we don't have a guide as to what to do, or what treatment to give, so, to pass this on to the patients is very difficult (N29-ICU-PU).

> [...]we had to adapt to a new environment that a priori was not structured for ICU, and this, I believe, was the greatest difficulty we encountered. Because we set up a new service in an environment that was an emergency unit until then, and it hurt us a lot. With time we adapted to the sector (N30-ICU-PU).

In question 2 of the script, the participants were asked to talk about the working conditions in which the activities are performed related to safety (work environment), support from the institution, management, and work material.

It can be observed through the reports that many professionals were satisfied with the institutional support, both in general and in relation to the management of the unit, however there were reports of professionals demonstrating the incipient support received. It can be observed in the statements:

> There are flaws, but I feel safe in the hospital environment. [...] it does offer a certain safety. The general coordination put me in the ICU without any conversation, without preparation. From this general coordination I have no support. [...] Who really supports is the management, the one that is directly with us, this one listens to us, tries to somehow change something (N1-ICU-PH).

> It is being excellent! The institution is giving a lot of support, and so is the management. Mainly for the people who are on the front line, which is Emergency and ICU. We had many nurses and doctors away, even hospitalized, and they had and are having all the necessary assistance (N3-EM-P).

Safety was also emphasized in relation to training and safety itself, as can be seen below:

> Security exists! The public service unfortunately will never be able to meet all the needs of its employees, but there is always a concern and zeal. The management is always very concerned, and when I say management I don't mean only the hospital [...], but the health secretariat itself. [...] They may not have had the zeal for the financial side, because the salary is still out of phase, but they do have concern for their professionals (N30-ICU-PU).

> In the beginning, it was all very complicated because there was a lack of up-to-date information in relation to dressing. [...] it was strange to see a professional in China covered from head to toe and us here using a super thin gown and surgical mask. Then, they started to evolve and we got a better dressing (N39-EM-P).

DISCUSSION

Eight hospitals were part of the study, six public and two private, three emergency rooms and five ICUs. The nurses who participated in the study were predominantly female, with an academic degree in the last ten years, with hospital experience, with less than five years of work and with more than one employment relationship. Most were satisfied when the conditions of the work environment were objectively evaluated, which was observed in the frequencies of good and excellent answers described in Table 1. It was observed that the speeches of the professionals reinforced the safety they had in attending the patient diagnosed with COVID-19, since they felt contemplated with the necessary attire and the availability of personal protective equipment (PPE). The professionals who work directly on the front line of COVID-19 are more likely to get contaminated, however, a number of factors must be considered, such as: length of the work day, type of activity, number of people who provide care, in addition to the proper use of PPE, including the attire, removal, cleaning (when not disposable) and proper disposal of this equipment (Teixeira *et al.*, 2020). The interviewees demonstrated in some statements great work overload due to the double shift, insufficient number of professionals for the number of critically ill patients, bureaucracy for the control of information and the use of PPE for long hours. It is essential to ensure an adequate number of professionals, pertinent monitoring and working hours, compatible with the psychological and physical demands of the function (Murat *et al.*, 2021; Raudenská *et al.*, 2020; Turale *et al.*, 2020). The installation of ICUs in environments that were not built for this purpose was cited by many as a challenging environment, requiring

from professionals readjustment, innovation, psychological distress and the ability to reinvent themselves. Although the interviewees judged their working conditions to be good and excellent when evaluated by the questionnaire, it is in their statements that one notices the arguments of fear, frustration and psychological compromise due to the workload faced, the fear of the disease and the severity of the patients, besides witnessing many deaths. Most of the interviewees belonged to public hospitals and worked in ICUs. Studies that evaluated the working conditions of nurses in ICU and emergency services pointed out that work exhaustion is related to the number of deaths that occur in the ICU, the lack of personnel and the characteristics of the patients admitted (El-Hage*et al.*, 2020; Furtado & Araújo Júnior, 2010; Murat *et al.*, 2021; Raudenská *et al.*, 2020; Sacadura-Leite *et al.*, 2019; Serafim *et al.*, 2017; Trettene *et al.*, 2016; Turale *et al.*; 2020; Valera *et al.*, 2016).

With the pandemic, health care workers have faced great challenges in dealing with the crisis. In this situation, they are confronted with specific stressors and risks, not only to their physical health, but to their mental health as well (Oliveira *et al.*, 2020). Thus, part of the stressors are related to the organizational aspects, the working conditions, and the relationships with the patients assisted and their finitude process with life. Such a serious pandemic requires a robust hospital structure that enables quick and appropriate decisions by its clinical and administrative management (Miranda & Afonso,2021).
The interviewees showed that being inserted in work environments, sometimes called war environments, made them fear the loss of co-workers, as well as being vectors of transmission at home. Despite all the care they took with the process of dressing, disrobing, and cleaning materials, the little information they had about the virus and its power to act, the uncertainty about the vaccines' effectiveness and when everything would come to an end, caused anguish and sadness. A study that addressed through a literature review the impact of working conditions on the occupational stress of nurses, considered an emergency the impact of working conditions in the context of the pandemic of COVID-19 in the lives of these professionals (Barbosa *et al.*, 2012; Miranda & Afonso, 2021). One of the important points highlighted by the participants that led to insecurity and fear was the difficulty to perform the work in adapted structures, the quality of the materials for individual protection coming from donation, and the dissemination of the cases of COVID-19 among the professionals of the team, besides the death of some professional colleagues. Differently from what the literature has been pointing out(Bitencourt *et al.*, 2020; Furtado & Araújo Júnior, 2010; Miranda & Afonso, 2021; Silva*et al.*, 2015).The interviewees' speeches are divided regarding safety, institutional support, management, and work material. For them the management support in the facing process was paramount to keep them safe and motivated in developing their activities. Despite the surprise on the part of some (N1-ICU-PH) the constant presence of materials to work with created a favorable environment, considered good. However, in some statements it is observed a frustration with the work performed by the management, the quality of the donated materials and the wages not compatible with the risk they were submitting daily. The discrepancies in the statements were between interviewees from the private network and from the public units.

There is a low valuation of nursing professionals in the health scenario in Brazil. In a pandemic, all the implications for the physical and mental health of nurses already discussed in this study tend to worsen without, however, gaining due visibility. However, this problem must be recognized not only in times of pandemics, but for the regular organization of the Unified Health System (UHS). More effective and severe precautionary measures are required for the protection of professionals working in ICUs and emergency services (Teixeira *et al.*, 2019; Umann *et al.*, 2014). It was observed a constant search by the interviewees to understand the action of the virus, its signs and symptoms, as well as the therapeutic possibilities and to avoid the dissemination. It was noted that they took personal responsibility for self-care to control the disease, but they complained about employees who did not follow the care guidelines. They mentioned that all this search for knowledge and personal care is tied to individual education, even when they had managers always training the team and talking about the COVID-19 updates. One study highlights that the health professionals themselves are being challenged to seek knowledge while attending to Covid-19 cases and following up with patients with other problems, which overloads the health services (Ribeiro *et al.*, 2020). Finally, as a limitation of this study, one can point out the interviews by telephone calls, as they may cause fatigue for the answers, do not allow the visualization of facial expressions and may inhibit the interviewee to express what he/she thinks, since they cannot visualize the person interviewing them.

FINAL CONSIDERATIONS

Most of the study participants considered the working conditions in ICUs and emergency services as adequate to perform their functions, due to the availability of PPE, good quality materials and institutional support. However, they reported work overload, especially when it came to reconciling care and bureaucratic activities, especially in private services, where the demand for administrative tasks is even greater. Moreover, the need to adapt the structure in hospitals, with the readjustment of locations was seen as a point of difficulty, since the structure does not always support the implementation of a highly complex service. The working conditions of nurses need a more humanized look, considering that these professionals assume the front line in both care and managerial activities within health services, thus conferring a prominent position at work. The execution of multifaceted activities by nurses needs to be considered, considering that the work overload generates a negative reflection on patient care.

Conflict of Interests: The authors declare that there is no conflict of interest.

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