NURSING CHALLENGES IN A TRANSPLANT UNIT IN THE FACE OF COVID-19

Desafios da enfermagem em uma unidade de transplantes ante a Covid-19

Retos de la enfermería en una unidad de trasplante frente a Covid-19

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ABSTRACT: **Objective:** To understand how nurses who work in a transplant unit perceive the challenges of their role in the face of COVID-19. **Method:** This is an exploratory, descriptive, qualitative study conducted through interviews in the transplant unit of a reference hospital in Ceará, Northeastern Brazil, between March and June 2020. Data were analyzed in the software Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires (IRAMUTEQ). Subsequently, we performed a correspondence factor analysis (CFA) and generated a word cloud, taking into account the evocations with higher frequency. **Results:** Fourteen nurses participated in the study, most of them women. The content analyzed was categorized into three classes: organization of the care flow for suspected cases, personal protection equipment in the COVID-19 pandemic context, emotional state in the face of the pandemic. **Conclusion:** We found that nurses are suffering due to fragilities related to the moment they are experiencing, as they are daily challenged to adapt to changes in their work routines. **Keywords:** Nursing. Coronavirus. Transplantation.

RESUMO: **Objetivo:** Conhecer a percepção dos enfermeiros que atuam em uma unidade de transplantes sobre os desafios de sua atuação ante a COVID-19. **Método:** Estudo descritivo e exploratório, com abordagem qualitativa, desenvolvido em uma unidade de transplantes de um hospital referência do Ceará, entre março e junho de 2020, por meio de entrevista. Os dados foram analisados pelo *software* Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires (IRAMUTEQ). Posteriormente, foi realizada a análise fatorial por correspondência (AFC) e gerada uma nuvem de palavras para a qual foram consideradas as evocações que apareceram com maior frequência. **Resultados:** Participaram do estudo 14 enfermeiros, a maioria do sexo feminino. O conteúdo analisado foi categorizado em três classes: organização do fluxo de atendimento de casos suspeitos, equipamento de proteção individual no contexto da pandemia da COVID-19, o emocional ante a pandemia. **Conclusão:** Constatou-se que os enfermeiros sofrem ante as fragilidades relacionadas ao momento vivenciado, pois estão sendo cotidianamente desafiados a se adaptarem às mudanças em suas rotinas de trabalho. **Palavras-chave:** Enfermagem. Coronavírus. Transplante.

RESUMEN: **Objetivo:** Conocer la percepción de los enfermeros que laboran en una unidad de trasplante sobre los desafíos de su desempeño ante el COVID-19. **Método:** Estudio descriptivo y exploratorio, con abordaje cualitativo, desarrollado en una unidad de trasplante de un hospital de referencia en Ceará, entre marzo y junio de 2020, mediante entrevista. Los datos fueron analizados por el *software* IRAMUTEQ (*Interface de R pour les Analyses Multimensionnelles de Textes et de Questionnaires*). Posteriormente, se realizó el Análisis Factorial por Correspondencia (AFC) y se generó un *Word Cloud* para el que se consideraron las evocaciones que aparecían con mayor frecuencia. **Resultados:** participaron del estudio 14 enfermeras, la mayoría mujeres. El contenido analizado se categorizó en tres clases: Organización del Flujo de Servicios de Casos Sospechosos, Equipo de Protección Personal en el Contexto de la Pandemia de COVID-19, La Emocional Frente a la Pandemia. **Conclusión:** Se encontró que los enfermeros padecen las debilidades relacionadas con el momento vivido, ya que diariamente se enfrentan al desafío de adaptarse a los cambios en sus rutinas laborales. **Palabras clave:** Enfermería. Coronavirus. Trasplante.

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INTRODUCTION

Currently, the coronavirus disease 2019 (COVID-19) is an infection with predominantly respiratory symptomatic characteristics firstly identified in Wuhan, China, in December 2019. This pathology is highly contagious. Despite the efforts to contain its transmission, the then epidemic spread to several other countries, and, on March 11, 2020, the World Health Organization (WHO) declared it a pandemic, when 118 thousand cases had been diagnosed in 114 countries[1].

Brazil was the first country to report a COVID-19 case in Latin America. From then until June 20, 1,067,579 cases were confirmed, and the disease caused 49,976 deaths. At present, Brazil is one of the countries with the highest incidence of COVID-19[2].

The pandemic has become a great challenge for health services due to the number of infected people and the demand for resources needed to face it, considering the diversity of materials and professionals involved. Among these professionals, nurses are at the front line of the care provided in different health scenarios[3].

In this context, nurses represent the largest workforce for health systems and are crucial in the fight against COVID-19, given that these professionals plan, manage, evaluate, and provide care at all complexity levels[3,4]. This fact shows that nurses are the professionals who spend more time in direct patient care.

With respect to the nurse's performance at all complexity levels and in several fields of activity, we highlight that these professionals provide specialized care for transplant patients as to the protection, promotion, and rehabilitation of the health of candidates, recipients, and their families[5].

Nursing has been challenged to adapt and become more flexible in the face of these changes, having to develop new strategies to minimize the impacts caused by the pandemic on the care of transplant patients, who belong to a group at high risk for infection by the novel coronavirus (SARS-CoV-2), given their chronic immunosuppression and associated comorbidities. Thus, the facilities that serve this population needed to reorganize their care practices and try to mitigate the risk of infection among transplant patients[6].

From this perspective, the present study is relevant, given the increasing number of individuals infected by COVID-19 and the limited knowledge regarding the perceived nursing care provided to transplant patients in the current pandemic context, considering that nursing professionals have the most direct contact with patients. Therefore, the investigation will provide support for transplant nursing care in the COVID-19 context.

OBJECTIVE

To understand how nurses who work in a transplant unit perceive the challenges of their role in the face of the COVID-19 pandemic.

METHOD

This is an exploratory, descriptive, qualitative study conducted in the transplant unit of a hospital reference in highly complex procedures; the unit has a postoperative intensive care unit (ICU) with 8 beds and a pre- and postoperative ward with 14 beds. This hospital performs kidney, liver, pancreas, and simultaneous pancreas-kidney transplants and is located in Fortaleza, Ceará State, Northeastern Brazil.

The study subjects were invited to participate in the research according to the following inclusion criteria: being a nurse and working in the transplant unit for over 12 months. We excluded professionals on sick leave or vacation. The sample size was determined by saturation, that is, when the statements had no new information. Thus, 14 nurses participated in the study.

We collected data from March to June 2020 through semi-structured individual interviews, developed and validated by the researchers of this study, comprising four guiding questions:

- "Regarding the transplant patient care flow, how do you perceive the ICU and the ward flow?";
- "What is your impression about the distribution of personal protection equipment (PPE) for the team?";
- "What feelings have you experienced in this pandemic?";
- "Considering the speed of management changes in the pandemic scenario, how have the instructions been given by the management?".

The validation of the instrument used for the interviews followed the guidelines by Souza et al.[7], with qualitative and quantitative approaches as the method for validation with judges. The qualitative approach involved an evaluation by a group of experts composed of six health professionals with

specialist, master's, and Ph.D. degrees, and who had technical knowledge and practical experience in transplantations. The quantitative analysis was based on the calculation of the content validity index (CVI). As a result, we obtained an agreement rate of 0.97 among the judges.

The interviews took place in a private place without interruptions. The statements were exhaustively recorded and transcribed in an attempt to produce qualitative and quantitative indicators. The nurses were identified by the letter E, followed by Arabic numbers in the order of the interviews (E1, E2, E3...) to ensure their anonymity.

Data were analyzed in the software Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires (IRAMUTEQ). Classic lexicographic analyses were performed in IRAMUTEQ to understand the statistical data and quantify the evocations and forms[8]. We obtained the descending hierarchical classification (DHC) to evaluate the dendrogram data according to the generated classes, considering the words with $\chi^2 > 3.84$ (p<0.05).

Subsequently, we conducted a correspondence factor analysis (CFA). CFA is another way to visualize the content and relationships between classes, as it allows showing the proximity of words and classes through graphs based on DHC, taking into account their representations in the Cartesian plane. The interpretation involved distributing the words with greater frequency in the quadrants[8]. Lastly, we generated the word cloud, which unifies the words and distributes them graphically according to their frequency.

The study was submitted to the Research Ethics Committee (REC) of the Hospital Geral de Fortaleza, which evaluated the feasibility of the project and approved it under opinion no. 4,049,919. The study complied with all stages of the guidelines and standards for research involving human beings, according to Resolution no. 466/2012 of the National Health Council[9]. The nurses were asked to read and sign the Informed Consent Form (ICF).

RESULTS

The sample comprised 14 nurses on duty – 11 women and 3 men; all worked in that transplant unit for over a year.

The general *corpus* consisted of 14 texts, divided into 81 text segments (TS), with the utilization of 69 TS (85.19%). A total of 2,808 occurrences (words, forms, or vocables) were identified, with 879 different words, of which 523 had a single occurrence. The content analyzed was categorized into three classes:

- class 1: "organization of the care flow of suspected cases", with 23 TS (33.33%);
- class 2: "PPE in the COVID-19 pandemic context", with 18 TS (26.09%);
- class 3: "the emotional state in the face of the pandemic", with 28 TS (40.58%) (Figure 1).

Aiming at better illustrating the words in their related classes in the textual *corpus*, we organized a class diagram with examples of words from each class assessed using the χ^2 test. This diagram demonstrates evocations that have a similar vocabulary and those with different vocabulary from other classes. Next, each class found in the DHC analysis will be presented, operationalized, and exemplified (Figure 2).

Class 1: "Organization of the care flow of suspected cases"

It comprises 33.33% (*f*=23 TS) of the total *corpus* analyzed. This class consists of words and roots in the interval between $\chi^2 = 5.28$ (fast) and $\chi^2 = 16.59$ (patient). It is composed of words such as "patient" ($\chi^2 = 16.59$), "flow" ($\chi^2 = 16.27$), "clean" ($\chi^2 = 13.84$), "ICU" ($\chi^2 = 9.62$), "correct" ($\chi^2 = 8.49$), "test" ($\chi^2 = 7.39$), "positive" ($\chi^2 = 7.39$), and "contaminate" ($\chi^2 = 6.27$).

This class represents how nurses perceive the internal care flow and the diagnostic and therapeutic management of patients with suspected respiratory infection caused by COVID-19 in the unit context. The lack of action standardization to fight the pandemic is evident. The statements show the disruption of care and work process flows, thus increasing the risks to occupational and patient health: "There is no way to have an effective control to ensure a completely clean unit. We would need to have two types of flows: flow related to the patient [...] and flow related to the professional" (E2); "I see a totally inadequate flow because the patient who arrives at the ICU doesn't always come with a negative test [...], we don't have an adequate, coherent flow to follow, with a beginning, middle, and end" (E5); "Actually, the clinical ICU is not clean, only in theory, because several patients over the days tested positive for COVID, some were transferred there with just a negative rapid test, and, after a tomography, they received a clear and concise diagnosis" (E7).
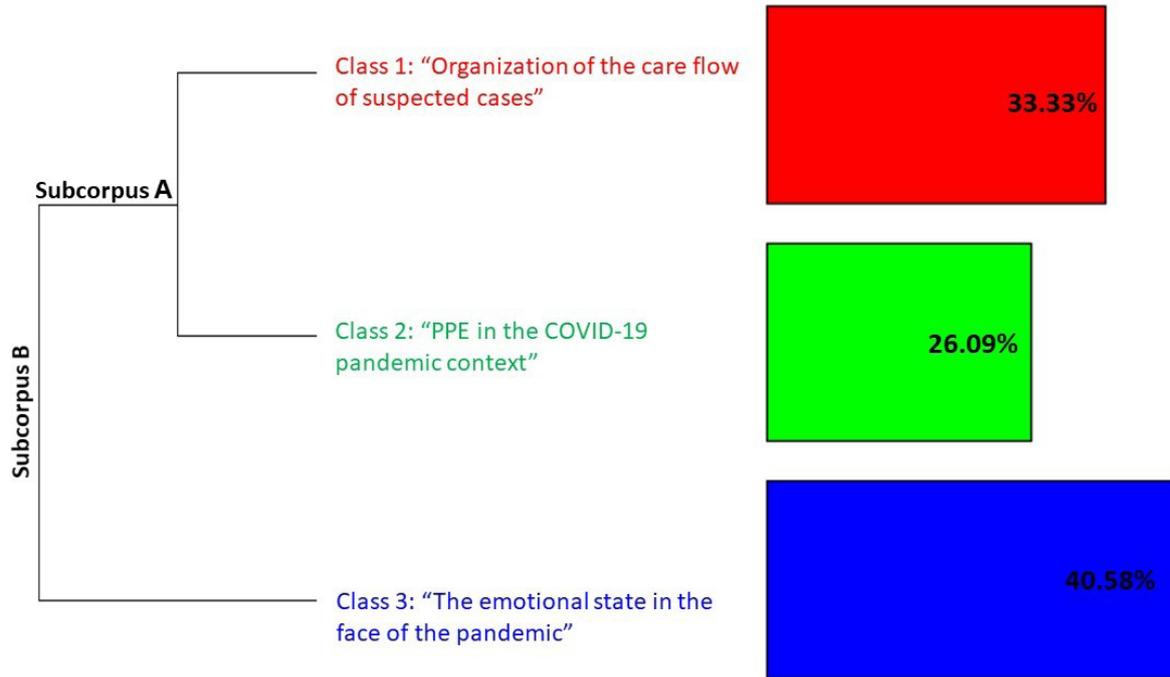
Source: Software IRAMUTEQ, version: 0.7 alpha2.

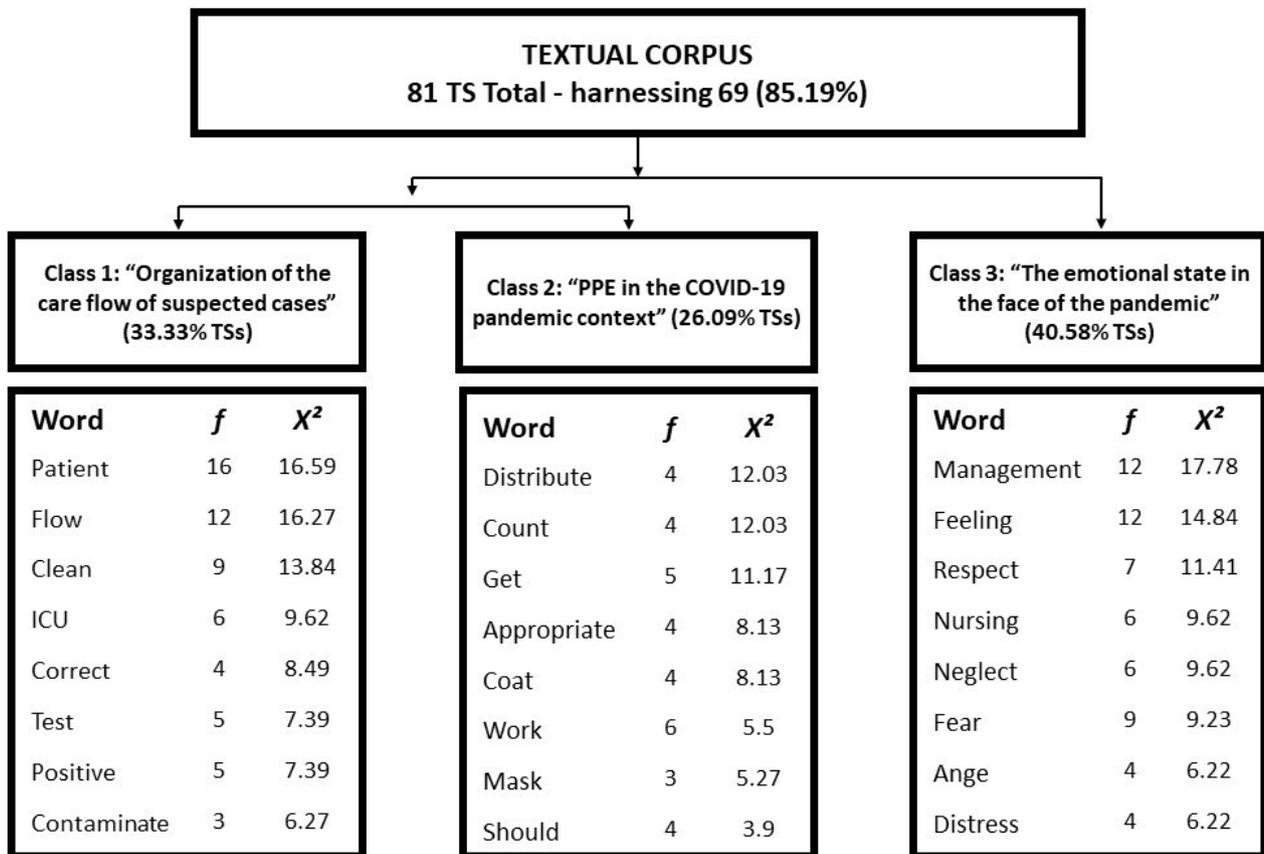**Figure 1.** Dendrogram of descending hierarchical classification (DHC).

TEXTUAL CORPUS
81 TS Total – harnessing 69 (85.19%)

Class 1: "Organization of the care flow of suspected cases" (33.33% TSs)

Word	f	X^2
Patient	16	16.59
Flow	12	16.27
Clean	9	13.84
ICU	6	9.62
Correct	4	8.49
Test	5	7.39
Positive	5	7.39
Contaminate	3	6.27

Class 2: "PPE in the COVID-19 pandemic context" (26.09% TSs)

Word	f	X^2
Distribute	4	12.03
Count	4	12.03
Get	5	11.17
Appropriate	4	8.13
Coat	4	8.13
Work	6	5.5
Mask	3	5.27
Should	4	3.9

Class 3: "The emotional state in the face of the pandemic" (40.58% TSs)

Word	f	X^2
Management	12	17.78
Feeling	12	14.84
Respect	7	11.41
Nursing	6	9.62
Neglect	6	9.62
Fear	9	9.23
Ange	4	6.22
Distress	4	6.22

Figure 2. Organizational chart of classes based on interviews with nurses.

Class 2: "PPE in the COVID-19 pandemic context"

It comprises 26.09% (f=18 TS) of the total *corpus* analyzed. This class consists of words and roots in the interval between χ^2=3.9 (should) and χ^2=12.03 (distribute). It is composed of words such as "distribute" (χ^2=12.03), "count" (χ^2=12.03), "get" (χ^2=11.17), "appropriate" (χ^2=8.13), "coat" (χ^2=8.13), "work" (χ^2=5.5), "mask" (χ^2=5.27), and "should" (χ^2=3.9).

This class shows issues related to the distribution of PPE in the unit, which, in this case, is not considered a care unit for patients affected by COVID-19 by the competent bodies. The statements expose the persistent lack of this equipment, and, when it is supplied, the distribution is uneven, often without guaranteeing its effectiveness, and not always providing enough occupational safety and protection for the team: "PPE should be distributed like in the COVID area [...], but it is only partly provided when there is suspicion or confirmation" (E3); "PPE is only distributed to the COVID sector. Each shift is a struggle to get PPE and ensure a minimum of protection for us and the patients" (E4); "The coats are thin and far from being waterproof, and shoes are not provided by the service. We have to fight to get an N95 mask" (E9).

Class 3: "The emotional state in the face of the pandemic"

It comprises 40.58% (f=28 TS) of the total *corpus* analyzed. This class consists of words and roots in the interval between χ^2=4.2 (pandemic) and χ^2=17.78 (management). It is composed of words such as "management" (χ^2=17.78), "feeling" (χ^2=14.84), "respect" (χ^2=11.41), "nursing" (χ^2=9.62), "neglect" (χ^2=9.62), "fear" (χ^2=9.23), "anger" (χ^2=6.22), and "distress" (χ^2=6.22).

This class covers aspects related to the feelings experienced by the professionals in the pandemic. This situation has given rise to different emotional reactions, including fear, distress, loneliness, or anger, as reported in the statements: "Feelings of lack of respect, neglect, frustration, and fear. I have to keep working to be paid, so I give in" (E11); "Feelings of sadness, neglect, lack of respect, fear, I don't even know how to express my indignation. [...] Working in inadequate conditions" (E13).

We note that, when reporting their working relationship and interaction with the nursing management, most professionals feel unappreciated, as evidenced by their feelings of neglect and dissatisfaction: "In this pandemic, I felt a total neglect, a lack of care for us, zero respect, [...] the management keeps tabs on those who question and take a stand on the events" (E7); "The flow is absurdly inadequate. The sector is totally contaminated. We don't know who proposes such incoherent actions, but we regret that the management accepts them [...]; I feel a lack of respect for the professional" (E14).

Correspondence factor analysis

Based on the CFA, we could make text associations among the words, considering the frequency of incidence of words and classes, representing them on a Cartesian plane (Figure 3). We distributed and organized the words in quadrants based on frequency. This analysis allowed the distribution of textual elements in a two-dimensional space, according to the classes generated by the textual *corpus*[8].

The upper left quadrant highlights "flow", "patient", "clean", and "ICU", referring to class 1. The opposite upper quadrant shows class 3, emphasizing the words "management", "feeling", "neglect", and "respect". In this regard, the predominant discourses relate to feelings and patient care flow. In contrast, the lower quadrants mostly involve class 2, with the words "get", "coat", and "mask" standing out.

Word cloud

Afterward, we analyzed the word cloud obtained through the participants' statements. The cloud shows that the most mentioned words were: "patient" (f=33), "PPE" (f=26), "flow" (f=23), "COVID" (f=21), "ICU" (f=14), "clean" (f=14), "work" (f=13), "distribution" (f=12), "unit" (f=12), and "sector" (f=10) (Figure 4).

DISCUSSION

Among other health professionals, nurses are directly involved in tackling the COVID-19 pandemic. These professionals were abruptly subjected to changes in the health service routine and confronted with overcrowded units and scarce equipment, maximizing the risk of coronavirus infection. In this context, working conditions and organization must be widely discussed[10,11].
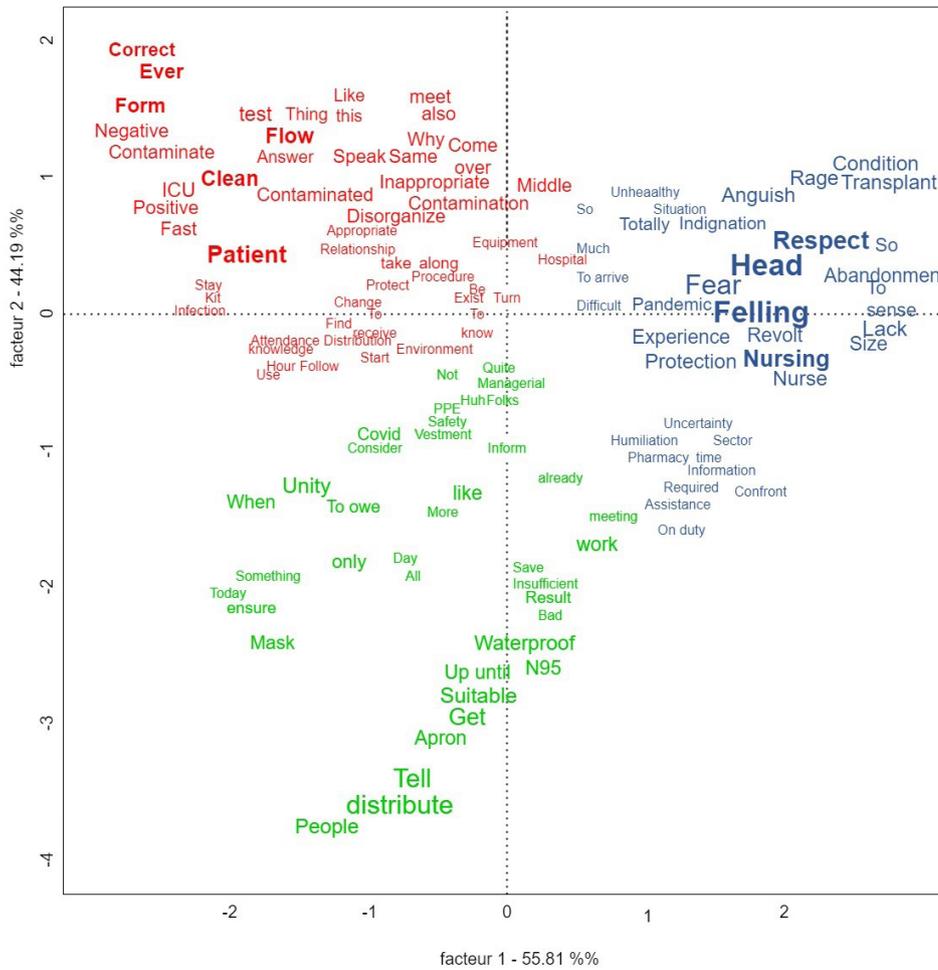
Source: Software IRAMUTEQ, version: 0.7 alpha2.

Figure 3. Correspondence factor analysis.

Source: Software IRAMUTEQ, version: 0.7 alpha2.

Figure 4. Word cloud.

This study revealed the nurses' dissatisfaction with the internal care flow when they reported the disorganization of care and work process flows. Understanding that services must have operational and routine plans that can warn for suspected or confirmed cases of infection by the novel coronavirus is crucial[12].

Organizational measures should be developed in the context of each health service to ensure working conditions that minimize the spread of the virus[10]. Managers of these services have the role of elaborating action plans, with recommendations and construction of protocols that can change over time. Also, management and health professionals must provide technical updates based on scientific evidence[13].

From this perspective, the purpose of PPE becomes critical in the chain of actions to protect health professionals in the current pandemic, preventing or minimizing the risk of COVID-19 infection[13]. However, the statements of the study participants reveal intense workloads dedicated to bedside

care, a shortage of appropriate PPE in health services, and no guarantee of the effectiveness of this equipment when provided[10]. These data differ from the recommendation of the Brazilian labor legislation in the Regulatory Standard for Work Safety and Health in Health Services (NR32), which indicates that employers must provide their employees with sufficient PPE to ensure the safe performance of their activities, in addition to offering continuous training and guaranteeing their protection whenever the exposure conditions change[14].

Given the shortage of PPE, we also note the vulnerability of these professionals concerning emotional issues, evidenced primarily by the feeling of fear reported by nurses in this study. The fragility of professionals who are on the front line becomes inevitable since they deal with several feelings, including: fear of contracting and transmitting the virus, impotence, stress, and uncertainty about the disease and the treatment[15].

Fear is understood as a natural reaction of human beings when confronted with a real and imminent threat. In this context, a rational action is necessary to deal with the issue so that protective measures can be taken. Nonetheless, situations like the current pandemic produce a constant feeling of fear, which may occasionally lead to different levels of anxiety[16].

Another aspect that deserves attention is the lack of appreciation of these professionals by the nursing management, as reported by most interviewees. Nursing management must assume its leadership role, meeting the many demands created by the pandemic with the involvement of other segments of the health service, in addition to promoting the continuous training of the team to ensure the health of these professionals[17].

In this scenario, based on the CFA, the Y-axis, precisely located in the upper quadrants, shows topics about the care flow and feelings experienced during the pandemic. Managers should be responsible for the changes in the care flow of patients, companions, and professionals, as well as for preserving and ensuring the health of these professionals[17]. Yet, studies report that professionals directly exposed to the risk of contamination present anxiety, irritability, and exhaustion, among other negative feelings[18]. The X-axis addresses matters related to access to PPE. This access has become a constant concern, given the PPE shortage in various health facilities in Brazil and worldwide[19].

Considering the many aspects exposed, the strengthening of interdisciplinarity and the effective communication between teams become more important than ever because, besides care and administrative activities, the professionals need to welcome, comfort, and support patients who are already coping with several battles and currently face this terrifying pandemic[17]. The word cloud showed a high frequency of the word patient, emphasizing the importance of providing quality care for them.

As study limitations, we can mention the summarized statements given by the nurses, since the interviews occurred mostly during their work routine, and the participants might have been conscious of the duration of the interview. Moreover, research on the theme is scarce, preventing the comparison of results with similar studies.

CONCLUSION

The development of the current study allowed understanding how nurses who work in a transplant unit perceive the changes in their role during the COVID-19 pandemic. We found that nurses are suffering due to fragilities related to the moment they, just as other health professionals, are experiencing, as they are daily challenged to adapt to changes in their work routines in the care of transplant patients.

We must review this situation and develop strategies to ensure safe nursing care, promoting continuous and dynamic reorganization of flows of patient admission to the unit, with the participation of the team and improvement in working conditions. Then, reducing harmful effects on the health of these professionals and their patients in the current pandemic will be possible.

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