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Working in the COVID-19 pandemic: coping strategies and repercussions among health professionals

Trabalho na pandemia da covid-19: estratégias de enfrentamento e repercussões entre os profissionais da saúde

Anderson da Silva Sousa[1], João Vitor Gomes Guilherme[2], Roberta Letícia Pimentel da Costa[2], José Mateus Bezerra da Graça[1], Nalma Alexandra Rocha de Carvalho Poty[3], Elisângela Franco de Oliveira Cavalcante[1]

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ABSTRACT This study aimed to develop a theoretical model about frontline care work during the COVID-19 pandemic, considering the ways of coping and the repercussions on the health of the professionals involved. This is a qualitative research with a methodological reference of Grounded Theory in the structuralist approach of Strauss and Corbin, carried out in a university hospital. With theoretical sampling of the population and formation of two sample groups, 24 professionals participated, including nurses, physiotherapists, doctors and nursing technicians. Data collection was carried out with in-depth interviews. Data analysis occurred through open, axial and selective coding, using the Atlas Ti 22.0 software. The results achieved made it possible to elucidate the theoretical model with the central category 'Working on the care frontline in the COVID-19 pandemic', supported by five categories, according to the paradigmatic circumstances of the conditions; action/interaction; and the consequences. The theoretical model developed may contribute to the planning and development of institutional strategies for coping with critical periods, characterized by increased demand for health services, the presence of a highly transmissible etiological agent and, mainly, impact on the health of professionals, with suffering and illnesses among those involved in the care front line.

KEYWORDS Coping skills. Health professionals. Coronavirus infections. Pandemics. Professional diseases.

RESUMO *Este estudo objetivou desenvolver um modelo analítico teórico-descritivo sobre o trabalho realizado na linha de frente assistencial durante a pandemia da covid-19, considerando as formas de enfrentamento e as repercussões na saúde dos profissionais envolvidos. Trata-se de uma pesquisa qualitativa com referencial metodológico da Teoria Fundamentada nos Dados na abordagem estruturalista de Strauss e Corbin, realizada em um hospital universitário. Com amostragem da população e formação de dois grupos amostrais, participaram 24 profissionais, entre enfermeiros, fisioterapeutas, médicos e técnicos de enfermagem. Realizou-se a coleta de dados com entrevistas em profundidade. A análise dos dados ocorreu por meio da codificação aberta, axial e seletiva, com uso do software Atlas Ti 22.0. Os resultados alcançados permitiram elucidar o modelo teórico com a categoria central 'Trabalhando em linha de frente assistencial na pandemia da COVID-19', sustentado por cinco categorias, conforme as circunstâncias paradigmáticas das condições de ação/interação e suas consequências. O modelo teórico desenvolvido poderá contribuir para o planejamento e desenvolvimento de estratégias institucionais de enfrentamento a períodos críticos, caracterizados por aumento da demanda por serviços de saúde, presença de agente etiológico de alta transmissibilidade e, principalmente, impacto na saúde dos profissionais, com sofrimentos e adoecimentos nos envolvidos na linha de frente assistencial.*

PALAVRAS-CHAVE *Estratégias de enfrentamento. Profissionais de saúde. Infecções por coronavirus. Pandemias. Doenças profissionais.*

[1] Universidade Federal do Rio Grande do Norte (UFRN), Programa de Pós-Graduação em Saúde Coletiva (PPGSCol) – Natal (RN), Brasil.
elisangela.franco@ufrn.br

[2] Universidade Federal do Rio Grande do Norte (UFRN), Departamento de Enfermagem (Denf) – Natal (RN), Brasil.

[3] Hospital Universitário da Universidade Federal do Maranhão (HU-UFMA), Empresa Brasileira de Serviços Hospitalares (Ebserh) – São Luís (MA), Brasil.

Introduction

Health work is essential for the preservation and maintenance of human life, has special characteristics and happens in a very peculiar way, when compared to other branches of economic activity, in the service sector. This peculiarity stems from the fact that the relationships occur during the act of production of the service, involving the workers of the area and those who are assisted by them[1]. With the arrival of the pandemic due to COVID-19, a disease caused by the Sars-CoV-2 virus (Severe Acuterespiratory Syndromecoronavirus-2), working in the health area has become an even greater challenge, since it is acting against the biggest global public health problem of recent times.

COVID-19 was initially identified in mid-December, in 2019, through an outbreak of pneumonia of unknown cause and etiology in the Chinese city of Wuhan, becoming classified, a priori, as an epidemic outbreak[2].

In March 2020, in view of the high rate of transmissibility of the disease and its spread to other continents, the World Health Organization (WHO) raised the status of COVID-19 epidemic to pandemic. In European countries, where cases of the disease were already present and local transmission was active, the inertia in decision-making, coupled with the expectation of the non-arrival of the virus and the lack of knowledge about the catastrophic dimensions that the disease could cause, contributed to the general population not adopting preventive practices in advance, nor did the government find means of raising awareness to start campaigns[3].

The first case of the disease in Brazil was recorded on February 25, 2020, by the Ministry of Health[4]. Then, in just under 3 months (May 14, 2020), 4,248,389 cases and 292,046 deaths from the disease were confirmed worldwide. In Brazil, on the same date, 177,589 cases and 12,400 deaths were confirmed, according to the WHO daily bulletin[5].

Therefore, it was necessary to adopt combative conducts that would make it possible to reduce the spread of the disease. At first, resorting to non-pharmacological measures, such as social distancing, echoed as a beneficial alternative, since there is a break in the viral transmission chain and, consequently, a decrease in the number of infected individuals[6]. In turn, the Brazilian Government assigned to the States and Municipalities the prerogative to adopt the lockdown, according to their political and social aspirations, without coordinated action by the federation[7].

It is worth noting that health professionals are directly prone to the risk of contagion of the disease, since in all health care environments the generation of aerosols is active, making these places insalubrious, as in the city of Wuhan, where of the first 138 cases, 40 were among health professionals[8].

In the meantime, the strategies for coping with the pandemic carried out by health professionals were still poorly elucidated in the literature, despite the most diverse types of studies that had already been carried out on the subject. Thus, describing and understanding them, in a qualitative perspective and not previously determined, is fundamental and necessary for understanding what occurred, as well as for the survey of preventive and protection strategies for professionals in the face of illness, loss of quality of life and work capacity during the pandemic period, in addition to its short and long term repercussions, also considering the consequences for health services and for the population.

Therefore, the main objective of the study was to develop a theoretical model on frontline care work in the COVID-19 pandemic, considering coping strategies and the repercussions on the health of the professionals involved.

Material and methods

This is a qualitative research, which had as a methodological reference the Grounded

Theory (GT) in the structuralist approach proposed by Strauss and Corbim. When describing the conceptions of GT, the authors refer that with the well-defined study theme, the data obtained systematically and their analysis through a research process, it is possible the emergence of a theory that provides discernment and understanding of actions in a more faithful way to reality[9].

The study was developed during the epidemiological context of the COVID-19 pandemic in a University Hospital in a capital of northeastern Brazil, linked to the Brazilian Company of Hospital Services (EBSERH). The choice of the institution was due to the hospital being a tertiary reference in several specialties and, at the beginning of the pandemic period, it remained as a backup for the entire state, with part of its structure directed to the care of patients affected by COVID-19.

In GT, the number of participants is not defined in advance, since their selection is based on their approximation to the researched theme, as the investigation process progresses[9].

The initial sample was constituted taking into account the illness of health workers, with emphasis on the categories of nurses, physiotherapists, doctors and nursing technicians, from which two sample groups emerged: frontline health professionals who worked directly in the care of patients with COVID-19 within the institution and another group composed of hospital managers, who guided the functioning of the institution during the pandemic period.

The sample of participants was followed by the following inclusion criteria: being a professional nurse, physiotherapist, doctor or nursing technician who provided direct care to patients with COVID-19; and managers assigned for at least one month in the COVID-19 sectors. The exclusion criteria were: professionals who do not work or have not worked in the COVID-19 sectors and professionals in training, academics or residents.

The hospital in question had 2,221 health professionals working throughout the establishment. The number of participants, initially not defined, was counted as the research was developed, especially considering the criterion of data saturation, that is, when the collection of new data does not show new theoretical insights, nor does it show new properties of these central categories[10].

Twenty-four health professionals participated in the study. The mean age was 38.3 years, with 31 years being the youngest and 54 years the two oldest in the sample. As for gender, there were 11 males and 13 females. When asked about the work sector, it should be noted that these professionals already worked in the institution before the pandemic and were relocated from their previous sectors to the COVID-19 sectors during the period of frontline work. As for the level of education, 21 professionals and managers said they had a post-graduate degree in some area. Regarding working time, an average of 13.3 years of experience in the current position/profession was obtained, with an average working time in the hospital under study of 5.6 years, with divergent extremes between actors with less than one year of work in the institution, contrasting with other actors with more than 32 years of experience.

Data collection took place between October 2021 and September 2022. Twenty-four health professionals from the institution participated, nine nurses, four physicians, four nursing technicians, one physiotherapist and six managers.

For data production, the in-depth or intensive interview technique was used. In the interviews, both in the group of care professionals and managers, an initial question was used, asking the professionals to talk about the theme: 'tell how it was for you to work in the care of patients with coronavirus (for nurses, physiotherapists, doctors and nursing technicians)' and 'tell how it was for you to act as manager of the sector where there are hospitalized patients with COVID-19 (for managers)'. The interviews were conducted through a semi-structured script, with an average duration of 30 minutes and recorded

on digital recorders, with storage on pen drives and external HD.

From these leading questions, the concepts that emerged were explored, from the perspective of understanding the coping and illness of these professionals. At the beginning of the interview, characterization data of the participants were collected. Due to the context of the COVID-19 pandemic, the research proposed to carry out the interviews in two different ways, according to the preference of the participant, which could be in person or through the virtual environment, via Google Meet. In conducting the face-to-face interviews, all measures to prevent COVID-19 were respected, according to WHO guidelines.

Simultaneously with the data collection, the interviews, observations and productions of the memos took place. As the interviews happened, they were transcribed, then detailed readings were carried out, according to the methodological assumptions of GT, and the analysis was processed, with the scheduling of the next interviews and writing of the memos and concepts sequentially.

For data analysis, the first information collected was conceptualized, the separation, classification and synthesis of data began through coding. Thus, codes were generated and the ideas derived guided the fields to be investigated during the following data collections.

Open, axial and selective coding procedures were used, allowing the formation of categories and subcategories. These processes show the construction of concepts and dimensions derived from the data, following the approach of Strauss and Corbin[9].

During this analytical process, preliminary notes on the codes were written and comparisons and any other ideas that arose about the collected data were raised. These annotations are known as memos, whose extensive writing on meaningful codes allows the researcher to develop their own ideas[10]. To systematize the analysis procedures, the software for qualitative data analysis Atlas Ti 22.0 was used, allowing the organization and treatment of the data.

During open coding, the concepts, along with their properties and dimensions, were identified from the data. Then, the differences and similarities between the previously coded data from the previous interviews were examined, grouping them to the provisional concepts. This encoding process enabled the transition to the axial encoding step, where the regrouping of the data previously fragmented in the open encoding began. Throughout this reorganization process, the selective coding stage was developed, refining the categories with more abstract concepts and integrating the subcategories originated from the concepts/codes of the interviews. This refinement culminated in the formation of the central category. Thus, the theoretical model emerged with categories/components of actions-interactions, conditions and consequences.

This research followed the guidelines and norms of research involving human beings of the National Health Council (CNS)[11,12], with a favorable opinion by the Research Ethics Committee of HUOL-UFRN, with CAAE No. 49473421.4.0000.5292 and Opinion No. 4,985,240. Likewise, the research complied with Law no. 18.853/2019 – General Data Protection Law[13].

Results

From the analysis of the data and the elucidation of the paradigmatic categories, the theoretical model was elaborated in order to illustratively represent the phenomenon of this study, coming from the central category 'Working in the care front line in the COVID-19 pandemic'. The circumstances or conditions of the phenomenon were represented by the category 'Working in assistance during the pandemic by a high transmissibility agent'. In addition, the actions and interactions of the phenomenon were represented by the categories: 'Facing the adversities of working in care

during the COVID-19 pandemic' and 'Relating to people involved in the care of patients due to COVID-19'. Thus, the consequences of the phenomenon were represented by the categories 'Dealing with the impact of work on one's own health' and 'Achieving teachings and overcoming the adversities of working in the pandemic'. These categories were formed from the refinement of 21 subcategories.

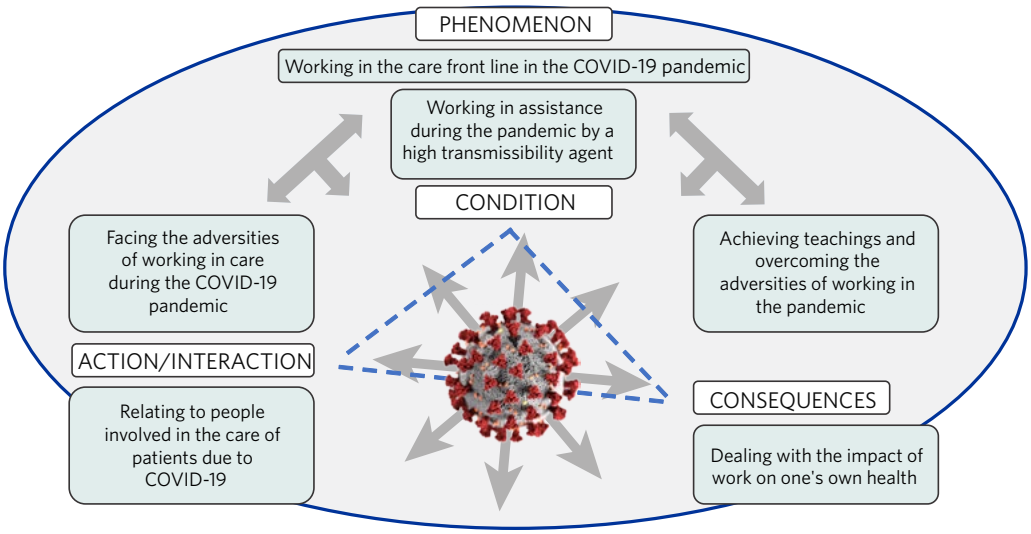
The central category, or phenomenon, encompassed all categories that are related to each other, through direct connections and a direction of coming and going, as well as indirectly, through dotted relationships, both of which represent that throughout the period of preparation of the study, the interactions took place continuously between the situations and experiences of the research participants.

Thus, the illustration elaborated and represented by *figure 1* brings the relationships between the categories of the study, in a didactic and more reliable way possible when materializing the graphic presentation of the integrative theoretical model that is one of the assumptions of GT. Thus, in the first view, the phenomenon is represented by the large circle where the representative categories of the central paradigm are included, with the objective of representing that the work in the care front line developed by health professionals and managers was, for them, a great challenge influenced by several aspects and situations arising from a pandemic period. Within this circle, the categories of conditions, actions/interactions and consequences are represented, which are interconnected by many points (full and dotted arrows) that represent the links between the situations experienced, which were described in the results, especially the timeline, as well as the difference in coping experienced by the research participants during the pandemic.

At the center of the circle, there are two overlapping images, one of which is the chaos sphere, corresponding to a star with several arrows that point to a nonspecific place and refer to the representation of 'Chaos', which means the primordial void in which the elements of the world had no order, pattern or organization[14]. In the second image, located in the center of the star, is the microscopic photo of the Sars-CoV-2 virus, because it was the causative agent of the pandemic, a period that, at many times, was reported as chaotic and of extreme disorder by health professionals, managers and, in general, for the whole society.

The paradigmatic scheme illustrated in *figure 1* represents the pandemic period experienced by the participants, from the most critical moment to the post-vaccination moment and the consequent decrease in severe cases.

Figure 1. Theoretical model of the specifications 'Working on the frontline of care during the COVID-19 pandemic', 2022



Source: Prepared by the author based on field research, 2022.

Exposed to the image, working on the care front line in the COVID-19 pandemic had as a causal and intervening condition the category 'Working in care during the pandemic by a highly transmissible agent', which caused the actions and interactions that were represented by coping with the adversities of working on the frontline, as well as causing changes in the relationships between the actors, between them and the patients and family members, between the actors and the family members themselves and even with the news published in the media. Such conditions and interactions had as consequences a series of learnings that contributed to overcome the adversities caused by work, as well as developing strategies that reduced the impacts on their own health arising from working on the care front line.

Discussion

The phenomenon 'Working on the care front line in the COVID-19 pandemic' brings an immense variety of meanings, experiences and representations that, for the most part, are negative, but also some positive situations, which include care, management and individual aspects that permeate the conditions, actions and interactions and consequences for the authors of the study. In general, the COVID-19 pandemic was the cause of a paradigm shift in people's daily lives (linking a series of physical and mental suffering) and in health systems, the latter in a more serious way, never seen in contemporary society, as well as in the global economy[15].

In advance, the pandemic represented a breach of 'normality' and opened up numerous problems already experienced in Brazilian health institutions, including the lack of adequate structure, the scarcity of materials, equipment, human resources, permanent training and other factors arising from low investment and non-resolving planning and evaluations. Thus, the insufficiency of measures capable of providing occupational safety in health services was highlighted[16].

In this context, training care teams to act on the front line with the knowledge that was generated at each moment was a challenging starting point for managers and professionals, both the study carried out here evidenced this challenge and a study present in the scientific literature[17], where the authors state that this challenge was one of the greatest weaknesses

of the pandemic period. However, in our study, this process was represented by participants in divergent views. On the one hand, some professionals reported that the training met the needs of the moment, while for others they made little difference, not being enough to generate safety during the performance. A study of 200 participants at a large hospital in Pakistan revealed that 144 (72%) reported not having received training on prevention and coping measures for patients with COVID-19[18].

In this perspective, the pandemic was marked by the collapse of health systems in several places around the world. In Brazil, there were also critical situations, such as the crisis in Manaus-AM, with the widespread lack of therapeutic oxygen in health units, causing the government to transfer patients to several health institutions in other regions, and the hospital that is the setting of this research is one of these institutions. However, at the beginning of the pandemic, as portrayed by the participants of this study, within the institution itself, there was a lot of difficulty in relation to the organization of care flows for COVID-19 positive patients, regarding the provision of isolation beds necessary for these patients, as well as the scarcity of intensive care beds when they showed signs of severity, especially at the beginning of the pandemic. This impact on health systems is in line with the ecological study carried out in Ceará, in which, in the first 45 days after the appearance of cases in the state, 58% of patients hospitalized with COVID-19 required an ICU bed, these, in general, had an average occupancy rate of 81%[19].

The severity of the patients and the intense care demand they needed were stressful factors for the front line care professionals interviewed here, since they attended to patients who required differentiated care and, in the majority, intensive care, especially in the respiratory part, with high morbidity and mortality justified by the high number of deaths. In a retrospective study of the first 250,000 hospitalizations due to COVID-19 registered in Brazil, in-hospital mortality was 38%, which represented 87,515 deaths among 232,036 patients in general, of which 79,687 patients were admitted to the ICU, with a mortality rate of around 59%. Nevertheless, the mortality rate among patients who were on invasive mechanical ventilation was 80%[20]. In addition, a research developed in China also met these numbers; in it, lethality was higher in the first wave compared to the second, 7.3% and 2.8%, respectively[21].

Still on care demands, the disorganization of health services also hurt patients affected by other pathologies, such as cancer patients who suffered from delays in carrying out diagnostic tests, monitoring and treatment. Also, with the suspension of surgeries and increased preoperative radio and chemotherapy load, as well as difficulty in accessing treatment, due to the closure of the units of origin and transfers to other health institutions[22].

The frontline professionals participating in the research had divergent opinions about Personal Protective Equipment (PPE). Initially, these generated uncertainties about safety in use, justified by the lack of knowledge about the disease. Regarding the quality of these, some reported that they were of good quality and others that they were not. Furthermore, the distribution of PPE was another divergent factor in the participants' statements, since some were favorable to the amount of materials made available for assistance, while others reported a lack of distribution at certain times, especially in relation to the N-95 mask, in addition to the rationing of their availability, making them use the masks beyond the recommendations of the care protocols.

According to data from a study carried out in China, one of the reasons for emotional stress among health professionals and workers in general was the struggle for PPE in coping with COVID-19[23]. This reality was also experienced by primary care professionals, corroborating that the lack of PPE, as well as the poor quality and even the inadequacy of these were stressors for professionals[17].

At the end of the second year of the pandemic, the first doses of the coronavirus vaccine were introduced in some countries of the world. After many political disagreements between state governments and the federal government, at the beginning of 2021, vaccination began in Brazil. As a priority, some groups were immunized with the first doses, these being health professionals and the elderly, followed by patients with comorbidities that were listed with risk factors for the disease.

At first, some factors were relevant to the good acceptance of the vaccine, such as the history of other campaigns and reflection in the fight against diseases, the level of confidence in science and the fear of contagion or infection by COVID-19. On the other hand, hesitation to adhere to the vaccination scheme against COVID-19 was also present and occurred mainly due to political issues and the dissemination of fake news on social networks, which sought to delegitimize health organizations, the effectiveness of vaccines and the risks of the pandemic[24]. Vaccination, in turn, allowed a reduction in the lethality rate, with a stronger association in countries with governments that were effective in combating the pandemic[25].

Many difficulties were reported by the participants of the present study, representing a very dense subcategory, since they permeate many interrelated aspects (personal, professional, institutional and managerial). In the personal aspect, the speeches represented the difficulty of being a front line professional, of adapting to the pandemic experienced, of taking time off from work because of illness due to the disease directly or indirectly, of staying informed by reliable news about the pandemic and of taking care of one's own health. In the professional aspect, the speeches of these participants represented the difficulties of not being prepared to provide the complex assistance necessary for these patients, as well as to care for patients from different clinics in the same work sector.

The institution, according to the participants of our study, represented a hindering agent for the professionals who were working on the front line, as well as for the managers, because despite physically providing a great structure and installed capacity, at times, these were not used properly. Other aspects were also reported, such as difficulty in maintaining an adequate dimensioning of the nursing and multiprofessional team and in maintaining the supply of PPE with satisfactory quality and quantity. The challenge of being a care professional and manager in the pandemic period was represented by the participants of this study in many ways, because it is a totally different and new situation, with a lot of ignorance about what was being faced, being a 'frontliner' was literally one of the densest challenges described in this conceptual dimension. In addition to this, others such as knowing how to deal with stressful situations, being in a hostile environment, staying firm in front of the team – beeing a reference and a trust link for them – making patients aware of the disease, keeping constantly updated on the evolution of the virus, on care protocols and promoting team training, in order to keep everyone updated and encouraged in the face of every situation experienced.

The conceptual dimension represented by feelings was one of the densest of the study sample, represented by speeches that mixed in this subcategory the most diverse feelings of human understanding. Most of them were negative representations, such as the feeling of experiencing chaos, war, fear, apprehension, anguish, revolt, sadness, impotence and suffering. However, some were positive feelings, such as personal and professional satisfaction, feeling important and with their duty fulfilled towards the patient and society, relief when returning home after a workday, the feeling of empathy towards the patients assisted, as well as with the whole situation caused by the pandemic.

Fear was the feeling represented in a dense way in the participants' speeches, this was

reported to be caused, from the beginning, by the disease itself and everything it was causing in society. Thus, corroborating, in a descriptive study carried out in Alagoas with ten nurses, facets of fear similar to the statements of the study participants were revealed, such as the fear of the unknown, the new, the need to face the pandemic state, both personally and professionally, as well as the fear of being a vehicle for the transmission of COVID-19 to family members[26].

Acting on the care frontline had an impact on the participants of this research, who had to deal with it at all times, as they presented themselves in several ways, with a negative emphasis on the direct and indirect repercussions on physical and/or mental health, triggering several situations that caused withdrawal from work activities.

The illness of professionals by COVID-19 was one of them, potentiated by being in constant contact with the virus through direct assistance to patients, being an increased biological risk factor, both for professionals and their families. Most professionals reported continuing to share their homes with family members, taking precautionary measures such as bathing after shifts in the COVID-19 sector, changing clothes when arriving home, in addition to leaving clothing and shoes in the work sector.

Our study showed that, in addition to the impact caused by the illness itself, non-disease was also a reason for emotional stress, as the fear and dread of being a means of transmitting the disease to colleagues, patients and family members were factors that worried them at all times. A study conducted in the city of Wuhan, epicenter of the pandemic, with 994 front line doctors and nurses, showed that 34.4% of the sample had some mild mental health disorder, 22.4% moderate disorders and 6.2% severe disorders27. Similarly, a study of 801 frontline health workers found that 27.4% of the sample had moderate depression and 25.2% had symptoms of severe depression[15].

Physical and mental exhaustion was one of the repercussions cited by many of the research participants, as emotional stress as a frontliner, adaptation to the intense use of PPE, the intense care demands required in the care of patients hospitalized in the COVID-19 sectors and the high workload in some cases were factors that contributed to the triggering of these exhaustion.

As a consequence of physical and mental exhaustion, some participants reported the diagnosis of Burnout Syndrome, a repercussion also present in many studies[23,28].

The difficulty of taking care of one's own health also represented an important point in the sample of this study, as sedentary lifestyle, weight gain, insomnia and the difficulty of maintaining a healthy eating pattern were persistent in the participants' reports.

Given this scenario, some protective strategies were put into practice during the pandemic by the participants of this research, so that they represented an attempt to reduce the impacts caused by being a frontliner, with them and the people they live with, avoiding illness. In this sense, in a cross-sectional study, developed through digital media, with a sample of 7,027 health professionals, it was found that 98.2% routinely practiced hand hygiene, 94.8% used a continuous mask, 93% used hand sanitizer and 70.7% practiced social isolation as protective strategies during the pandemic. Such practices were present in the statements of the participants of our study, as well as practicing personal hobbies, learning new things, such as playing the instrument, staying with the family during rest hours, reducing the workload, performing physical activities and improving diet care[29].

However, the work on the front line also represented professional learnings, revealed in some highly impactful statements of the care professionals participating in this study, who represented it by descriptions of positive feelings in relation to that entire adverse situation. Corroborating an analytical study of the literature, which applied a scale of suffering and

pleasure in the work environment, revealing that the feeling of professional satisfaction was present satisfactorily in the studied sample[30].

Final considerations

The work on the care front line during the COVID-19 pandemic represented, for health professionals and managers, a challenge in several aspects of professional performance and personal dimension, since they had to adapt to the pandemic situation, facing feelings such as fear, anguish, powerlessness and experiencing situations that positively and negatively impacted patient care and the way they related.

After coping with the worst moments of the pandemic and having suffered direct and indirect repercussions on health, professionals adopted several protective strategies, learning to deal with the public health emergency, re-signifying the situations experienced and achieving professional learning that propels new work perspectives.

Thus, the theoretical model developed may contribute to the planning and development of institutional strategies for coping with critical periods, characterized by the increased demand for health services, the presence of a highly transmissible etiological agent and, mainly, the impact on the health of health professionals, with suffering and illnesses in those involved in the care front line.

Also noteworthy as a limitation of the study is the decrease in the target audience after the dismissal of a large number of frontline professionals who had a temporary contract with the institution; these could have significantly contributed to the research, reporting their experiences of being active in the front line of the COVID-19 pandemic.

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Collaborators

Sousa AS (0000-0003-3818-3247)*, Guilherme JVG (0000-0003-4616-2008)*, Costa RLP (0000-0003-4606-0028)*, Graça JMB (0000-0002-0401-2987)*, Poty NARC (0000-0003-2545-1636)* and Cavalcante EFO (0000-0002-3578-0153)* equally contributed to the preparation of the manuscript. ■

*Orcid (Open Researcher and Contributor ID).

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