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Profile of Healthcare Workers during the COVID-19 Pandemic in Rio de Janeiro: A Web Survey Study

Perfil de profissionais de saúde na pandemia covid-19 no Rio de Janeiro: um estudo web surveys

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ABSTRACT

Objective: To identify the profile of tertiary healthcare workers working at the beginning of the SARS-CoV-2 pandemic. **Method:** This is a quantitative study involving 155 tertiary healthcare professionals who participated in a web survey, and the analysis was performed using descriptive statistics. **Results:** The group consisted mainly of nurses, social workers, doctors, psychologists, and nutritionists. All identified as heterosexual, cisgender, between the ages of 25 and 49, self-identified as white, Catholic, married or in a stable relationship, with a postgraduate education, a legal professional affiliation, more than one school-age child, and living with three to four people in the same household. **Conclusion:** The characterized profile may be useful for engaging in studies on workers' health, occupational risk, paid work, and private activities of health professionals.
Descriptors: COVID-19; Pandemics; Healthcare Workers.

RESUMO

Objetivo: Identificar o perfil dos profissionais de 3º grau da área da saúde que atuaram no início da pandemia causada pelo vírus SARS-CoV-2. **Método:** Trata-se um estudo quantitativo com 155 profissionais de nível superior que participaram de uma *web survey*, cuja análise ocorreu por meio de estatística descritiva. **Resultados:** O grupo foi composto predominantemente por enfermeiras, assistentes sociais, médicos, psicólogos e nutricionistas. Todos tinham orientação heterossexual, identidade cisgênero, idade entre 25 e 49 anos, eram autodeclarados como brancos, adeptos da religião católica, casados ou em união estável, possuindo pós-graduação, com vínculo profissional estatutário, mais de um filho em idade escolar e vivendo com três a quatro pessoas no mesmo domicílio. **Conclusão:** O perfil caracterizado pode ser útil para dialogar com estudos sobre saúde do trabalhador, risco ocupacional, trabalho remunerado e atividades privadas de profissionais da área de saúde.
Descritores: COVID-19; Pandemias; Pessoal de Saúde.

INTRODUCTION

On March 11, 2020, the World Health Organization (WHO) declared a pandemic due to the novel SARS-CoV-2 virus, which is responsible for causing respiratory syndromes. When this virus infects humans, it causes signs and symptoms similar to influenza but can cause severe infections, especially in people in high-risk groups such as older people, pregnant women, and healthcare workers[1-2].

Women predominate in essential services such as health care and social services. Despite epidemiologic data indicating a significant lethality of coronavirus disease 2019 (COVID-19) in men, the causes of which are still unknown, these professionals represent a group with high exposure and risk of contamination[3-5].

It is important to highlight the significant contribution of healthcare workers in this crisis context during the pandemic, especially women, who represent a significant number and are directly exposed while working in healthcare services. We are therefore experiencing a historic period of prominence for all health workers[3-5].

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Despite the devaluation of their salaries, adverse working conditions, and the stigmas and concerns they face, including the contamination of their own families, health workers have become the focus of debate in various discussions and research and are gaining greater visibility in societies worldwide[6-7]. Thus, this pandemic has led to changes in healthcare systems worldwide, increasing the exposure of healthcare workers and vulnerable populations such as the elderly, women, and blacks[1,4,8-9]. In addition, it has influenced individual behaviors and the social dynamics of the disease, leading to increased fear, anxiety, uncertainty, violence, inequalities, and discrimination. For example, in the case of healthcare workers who have remained on the frontlines of the pandemic, there is a risk of self-contamination and contamination of their own families, in addition to the stressful situations they face at work, which can lead to anxiety, stress, and fear, directly affecting their physical and mental health[7].

It is important to recognize that all healthcare workers, including nursing assistants, administrative staff, and cleaners, contributed significantly to disease control during the pandemic. However, the focus of this study was on tertiary-level professionals who were at the forefront of the pandemic response. Understanding the profile of these professionals can provide relevant information to address issues related to work, continuing health education, management, teaching/training, and worker health.

Therefore, the present study aims to identify the profile of tertiary-level health professionals working at the beginning of the COVID-19 pandemic in Rio de Janeiro, Brazil.

METHOD

This web survey research is a viable alternative for obtaining responses in scientific studies, especially during the period of social distancing during the pandemic[10].

The study was conducted throught a targeted and self-administered questionnaire aimed at tertiary-level healthcare professionals who were directly involved in healthcare services and were directly confronted with the COVID-19 pandemic, which had a high prevalence of cases and rapidly affected people's daily lives. Recruitment of participants began with disseminating a link for voluntary participation on social media platforms such as Facebook and WhatsApp groups. The research team, led by the coordinating researcher and nursing academics, used useful reference chains to study the daily life issues of healthcare professionals involved in the pandemic response. Participants were selected through purposive convenience sampling, a non-probabilistic technique known as snowball sampling, which is compatible with online survey research[10-11].

The study was conducted from June 23 to August 23, 2020, and involved the participation of 290 health workers from across Brazil who responded to a questionnaire created on Google Forms (an online form stored on the Google Cloud). Access to the questionnaire for voluntary completion was only possible after reading and agreeing to the informed consent form (ICF). Due to the higher number of completed questionnaires from Rio de Janeiro, the data from these 155 participants were analyzed.

The research questionnaire consisted of 45 questions divided into six sections. The first part contained 13 questions related to characterizing the participants' profiles. The other sections deal with issues related to the COVID-19 pandemic, such as social isolation, work in health institutions, the health of professionals, and other daily activities. The questionnaire was developed based on information from mental health studies and a review of previously published research, including multiple-choice questions and open-ended text responses. Once the form was submitted, participants could not change their answers.

No minimum time was set for the development of responses. Each professional who agreed to participate in the research accepted the ICF as a condition of voluntary participation. Data were analyzed using Microsoft Excel and summarized using simple descriptive statistics.

The research included professionals from 14 tertiary-level healthcare professions, as defined by the *Conselho Nacional de Saúde* (CNS) Resolution No. 287 of October 8, 1998. These professions are social workers, biologists, biomedical professionals, physical therapists, nurses, pharmacists, physiotherapists, speech therapists, physicians, veterinarians, nutritionists, dentists, psychologists, and occupational therapists. Participants had to be over 18 years of age and working in healthcare facilities involved in pandemic preparedness. Healthcare professionals who were unable to access the form digitally, mid-level healthcare workers, and those with a health condition that would limit participation were excluded from the research.

It is important to note that the research followed the guidelines of the Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

In addition, in accordance with CNS Resolution No. 466/12, which deals with research involving human subjects, this research passed all the evaluation stages of the Human Research Ethics Committee and was approved by the National Commission for Ethics in Research on June 3, 2020, under Protocol No. 4.065.685/2020. In addition, the present study has a Certificate of Ethical Appreciation (CAAE) with Protocol No. 31304820.3.0000.5243.

RESULTS

The following sociodemographic variables were used to characterize the profile of healthcare professionals involved in the COVID-19 pandemic response (Table 1).

Table 1 - Distribution of sociodemographic data of health professionals involved in the COVID-19 pandemic response. Rio de Janeiro, RJ, Brazil, 2023 (n=155)

Variables	N (%)
Age	
25 a 29	4 (2,6%)
30 a 39	48(31%)
40 a 49	67 (43,2%)
50 a 59	23 (14,8%)
60 a 69	4 (2,6%)
70 a 74	1 (0,6%)
Not informed	8 (5,2%)
Sex	
Female	145 (93,5%)
Male	10 (6,5%)
Sexual orientation	
Heterosexual	149 (96,1%)
Homosexual	4 (2,6%)
Bisexual	2 (1,3%)
Gender identity	
Cisgender	154 (99,4%)
Non-binary	1 (0,6%)
Race	
White	92 (59,4%)
Brown	46 (29,7%)
Black	15 (9,7%)
Yellow	1 (0,6%)
Not declared	1 (0,6%)
Religion/religious belief	
Catholics	64 (41,3%)
Protestants/Evangelicals	25 (16,1%)
Spiritists	32 (20,7%)
African traditional religions/ Umbanda/Candomblé	3 (1,9%)
Other religions	9 (5,8%)
No religion	22 (14,2%)
Marital status	
Married/civil union/living with partner	115 (74,2%)
Single	22 (14,2%)
Unmarried/Divorced	16 (10,3%)
Widowed	2 (1,3%)
Field of study	
Nursing	81 (52,4%)
Social work	30 (19,4%)
Medicine	14 (9%)
Psychology	7 (4,5%)
Nutrition	6 (3,9%)
Speech therapy	4 (2,6%)
Dental medicine	4 (2,6%)
Physical therapy	3 (1,9%)
Pharmacy	2 (1,3%)
Life sciences	1 (0,6%)
Biomedical sciences	1 (0,6%)
Occupational therapy	1 (0,6%)
Veterinary medicine	1 (0,6%)
Year of completion	
1975 to 1979	1 (0,6%)
1980 to 1989	12 (7,8%)
1990 to 1999	43 (27,7%)
2000 to 2009	73 (47,1%)
2010 to 2019	22 (14,2%)
Not informed	4 (2,6%)
Degree*	
Lato sensu specialization	142 (91,6%)
Master's Degree	53 (34,2%)
Doctoral Degree	16 (10,3%)
Postdoctoral Degree	2 (1,3%)
Place of paid employment*	
Public Hospitals	108 (69,7%)
Private Hospitals	18 (11,6%)
Basic/primary and secondary healthcare units	51 (32,9%)
Employment status	
Statutory employees	106 (68,4%)
CLT regime	37 (23,87%)
Fixed-term contracts	20 (1,3%)
Self-employed	13 (8,4%)
Number of employment links	
One	81 (52,3%)
Two	67 (43,2%)
Three	7 (4,5%)
Work mode	
On-site	113 (72,9%)
Home office	42 (27,1%)
Professional after-hours contact for pandemic response issues	
Yes	142 (91,6%)
No	13 (8,4%)

Household members	
Two	23 (14,8%)
Three	66 (42,6%)
Four	47 (30,3%)
Five	14 (9,1%)
More than five	5 (3,2%)
School-age child	
One	64 (41,3%)
Two	53 (34,2%)
Three	13 (8,4%)
Four	1 (0,6%)
None	24 (15,5%)
School-age child in social isolation	
One	71 (45,8%)
Two	43 (27,8%)
Three	5 (3,2%)
None	36 (23,2%)
School-age child in online class	
One	73 (47,1%)
Two	34 (21,9%)
Three	2 (1,3%)
None	46 (29,7%)
Dependent elderly person in the same household	
1 elderly person	38 (24,5%)
2 elderly persons	8 (5,2%)
More than 2 elderly people	2 (1,3%)
None	107 (69%)

Source: Prepared by the authors, 2022.
*Percentage exceeds 100% because some professionals reported more than one degree, more than one job, and more than one employment relationship.

The study included 155 health professionals from the state of Rio de Janeiro. The following professional groups were predominant: nursing with 81 participants (52.4%), social work with 30 participants (19.4%), and medicine with 14 participants (9%). There were also participants from dentistry, psychology, nutrition, physical therapy, speech therapy, biological sciences, pharmacy, biomedical sciences, occupational therapy, and veterinary medicine.

Regarding the age range of the participants, 4 (2.6%) were between 25 and 29 years of age, 48 (31%) were between 30 and 39 years of age, 23 (14.8%) were between 50 and 59 years of age, 4 (2.6%) were between 60 and 69 years of age, 1 (0.6%) was between 70 and 74 years of age, and the majority, 67 (43.2%), were between 40 and 49 years of age. Another 8 (5.2%) participants did not report their age.

Regarding gender, the majority of participants, 145 (93.5%), were female, while 10 (6.5%) were male. Regarding sexual orientation, 149 (96.1%) identified as heterosexual, 4 (2.6%) as homosexual, and 2 (1.3%) as bisexual. Regarding gender identity, 154 (99.4%) professionals identified as cisgender, and 1 (0.6%) identified as non-binary. Regarding marital status, 115 (74.2%) responded that they were married/in a stable relationship/cohabiting, 22 (14.2%) were single, 16 (10.3%) were separated/divorced, and 2 (1.3%) were widowed. The professions with the highest percentage of married professionals were biological sciences, speech therapy, occupational therapy, biomedical sciences, and veterinary medicine. On the other hand, physical therapy had the highest percentage of single professionals (66.7%).

Regarding religion, 64 (41.3%) of the participants reported being Catholic, 32 (20.7%) were Spiritualists, 25 (16.1%) were Protestants, 3 (1.9%) followed African traditional religions/Umbanda/Candomblé, 9 (5.8%) had other religions, and 22 (14.2%) had no religion. It is important to note that the biomedical profession was composed exclusively of Catholics, while the biological sciences, psychology, occupational therapy, and veterinary professions had no representatives of any particular religion.

Regarding race/ethnicity, 92 (59.4%) of the participants declared themselves as white, 46 (29.7%) as mixed-race (pardos), 15 (9.7%) as Black, 1 (0.6%) as Asian, and 1 (0.6%) did not declare. All professionals in biological sciences, physiotherapy, speech therapy, dentistry, pharmacy, and biomedical sciences identified as white, while veterinary medicine was the only profession with all professionals self-identifying as pardos.

In terms of the year of completion, 1 (0.6%) professional graduated between 1975 and 1979, 12 (7.8%) between 1980 and 1989, 43 (27.7%) between 1990 and 1999, 73 (47.1%) between 2000 and 2009, 22 (14.2%) between 2010 and 2019, and 4 (2.6%) did not disclose their year of graduation.

Regarding further education after graduation, 142 (91.6%) professionals reported completing specialization courses, 53 (34.2%) pursued a master's degree, 16 (10.3%) a doctorate, and 2 (1.3%) pursued post-doctoral studies.

The investigated group is mainly composed of civil servants, representing 108 participants (69.7%). Among them, 81 (52.3%) had one employment relationship, 67 (43.2%) had two, and

7 (4.5%) had three employment relationships. Some professions, such as dentistry, veterinary medicine, occupational therapy, and biomedical sciences, did not have representatives with two or three employment relationships.

Regarding the type of employment relationship, 106 (68.4%) professionals reported being civil servants, 37 (23.8%) were under the Consolidation of Labor Laws (*Consolidação das Leis do Trabalho* [CLT]) regime, 20 (12.9%) had temporary or fixed-term contracts, and 13 (8.4%) worked as self-employed. The professions with the highest percentage of civil servants were biological sciences, nutrition, pharmacy, and veterinary medicine. Concerning the variables of academic degrees, place of paid work, and type of employment relationship, the percentages exceed 100% due to the possibility of some professionals having more than one academic degree, working in more than one paid workplace, and having more than one type of employment relationship.

Regarding their work during the pandemic, 113 (72.9%) professionals reported continuing to work on-site at healthcare institutions, and 42 (27.1%) worked remotely in a home office. Among those who worked on-site, 142 (91.6%) stated that they maintained contact with other healthcare professionals from the same unit after working hours to discuss pandemic response matters using apps or phone communication, while 13 (8.4%) responded that they did not maintain such contact.

Regarding their private life, information was collected about the number of people living in the same household, the number of school-age children, and the number of dependent elderly individuals. Among the participants who declared having children, 64 (41.3%) had only one child, 53 (34.2%) had two, 13 (8.4%) had three, 1 (0.6%) had four, and 24 (15.5%) responded that they did not have school-age children.

Regarding the situation of school-age children during the pandemic, 71 (45.8%) professionals reported that they had only one child in full isolation, 43 (24.8%) had two, 5 (3.2%) had three, and 36 (23.2%) did not have children in isolation. The professions of biological sciences, physiotherapy, pharmacy, psychology, occupational therapy, biomedical sciences, and veterinary medicine reported that all of their children were in social isolation, while dentistry had the lowest percentage, with only 2 (1.3%) children in this situation.

Regarding the number of school-age children attending online classes, among participants with children, 73 (47.1%) stated they had only one child attending online classes, 34 (21.9%) had two, 2 (1.3%) had three, and 46 (29.7%) responded that they did not have children attending online classes. The professions of biological sciences, physiotherapy, occupational therapy, biomedical sciences, and veterinary medicine reported that all of their children were attending online classes, while pharmacy had the lowest percentage, with only 1 (0.6%) child in this situation.

Finally, participants were asked about the number of dependent elderly individuals in their household, with 38 (24.5%) reporting having only one, 8 (5.2%) having two, and 2 (1.3%) having more than two dependent elderly individuals.

DISCUSSION

The pandemic has brought about structural changes in how the world's population thinks and acts. Concerning frontline health professionals, it is important to gather information related to their characterization. These issues are relevant to investigations of productive activities in the public sphere related to working conditions and health risks when directly involved in providing care to individuals affected by COVID-19, and reproductive activities, such as maintaining family care and private life dynamics[12-14].

The group studied in this study includes the 14 health professions listed in CNS Resolution No. 287/1998: nursing, social work, medicine, dentistry, psychology, nutrition, physiotherapy, pharmacy, biological sciences, biomedical sciences, occupational therapy, and veterinary medicine[15]. Among these, nursing, medicine, and dietetics, for example, have national information characterizing them, and their data reinforce the regional findings of this research[6,16-17].

Of the health professionals (n=155) who were at the forefront of the pandemic response in Rio de Janeiro at the beginning of 2020, the majority belonged to the 25-49 age group (76.8%), with more than 61% having graduated between 2000 and 2019. Research conducted in Brazil among nursing, medical, and nutrition professionals indicates a trend toward rejuvenating the healthcare workforce[6,16-17].

The study group's characterization as young may have occurred due to the recommendations during the pandemic that older professionals and/or those with comorbidities be removed from

healthcare activities. See Recommendation No. 020, dated April 7, 2020, of the National Health Council, which guides the work/performance of healthcare workers during the national public health emergency due to COVID-19[18].

Some professions, such as nutrition, social work, occupational therapy, psychology, and speech therapy, had samples of female professionals. This follows the trend of previous studies during the pandemic indicating that women comprise more than 70% of the healthcare workforce[19-20]. The predominance of the female gender reflects the trend of feminization in the health sector observed in Brazil and worldwide. Professions such as nursing, social work, and nutrition, for example, have historically been characterized by the presence of women in the health sector[6,16,21]. More recently, this trend has also been observed in medicine, where men are still in the majority, the workforce is changing and experiencing the same feminization movement that has historically been observed in other health professions[17].

Regarding sexual orientation and gender identity, the predominance of heterosexual and cisgender responses by most participants in all professions is consistent with findings from studies of health professionals, reinforcing the concept of cis--heteronormativity based on theories of gender and sexuality[12,22-23].

In terms of marital status, similar information was found to that of nurses and dieticians, with the majority reporting being married/cohabiting/ in a stable relationship[12,16].

In line with the trend of association with hegemonic norms in Brazilian society, there is a tendency for the group to have more conservative beliefs, as the majority of participants reported having a religion or religious belief. A historical link exists between professions, such as nursing, social work, and religious vocation[24]. However, regardless of religious beliefs, changes in everyday society have broadened this discussion in dialogue with other professions, such as medicine, which considers the use of spirituality in clinical practice or discusses the value of religious practice as a support in interpersonal relationships and coping with stressful situations at work[25].

Regarding self-reported race/ethnicity, research conducted with nursing, medicine, and dietetics has shown that the latter two identify as predominantly white, while nursing identifies as predominantly mixed race/black. However, in research conducted with pharmacy, this variable was not observed[12,16-17].

Ethnic/racial categorization in healthcare research reveals information about social inequalities and highlights epidemiological evidence related to societal issues.

In this study, most participants self-identified as white, reinforcing the link between racial classification and socioeconomic status[26]. However, it is important to note that this predominant profile in Rio de Janeiro may not represent most healthcare workers in Brazil.

This information is consistent with the "Profile of Nursing in Brazil" research data. Among the nursing team, 42.3% identified as white, 41.5% as mixed-race, and 11.5% as black. Together, mixed-race and black individuals comprise 53% of the team, becoming the team's most expressive and dominant racial composition. When analyzing nurses separately, 57.9% identified as white and 37.9% as mixed-race/black, while nursing assistants/technicians showed 37.6% as white and 57.4% as mixed-race/black[12] (according to the nomenclature of the *Instituto Brasileiro de Geografia e Estatística* [IBGE]). These findings reinforce the majority of self-identified white professionals among third-level healthcare workers.

The pandemic has exacerbated existing social inequalities, disproportionately affecting those living in poverty. It has had a more direct impact on women, Black individuals, Afro-descendants, Indigenous peoples, and historically marginalized communities worldwide[27-28]. This highlights how social inequality, expressed through race, affects access to higher education and professions with higher status in Brazil.

The group studied showed a high level of education and qualification, with a significant number of professionals holding both undergraduate and postgraduate degrees. Activities related to human health generally require professionals with higher levels of education compared to other activities in Brazil. In 2020, 49.1% of the workforce in this sector will have completed higher education[29].

The workforce of professionals in public health has proven to be essential for managing the pandemic and maintaining essential health services. Currently, the *Sistema Único de Saúde* (SUS) is the largest public asset in the country, with more than 200,000 health facilities and 3 million workers, many of whom have higher education[7,19]. These workers often need to have multiple employment contracts to secure their livelihoods. Not only the multiple employment arrangements that characterize the health workforce but also

the multiple roles historically associated with women reinforce existing gender inequalities faced by female health workers, especially when considering the total time that they spend working daily[30].

These women are at the forefront of the pandemic while also fulfilling responsibilities in their personal lives. As several studies have shown, in Brazil and worldwide, they have experienced close encounters with the death of patients and colleagues, fear of infecting family members, and increased work-related stress[4,21,28].

During the pandemic, healthcare workers, especially women, took on additional responsibilities in their personal lives in addition to their paid work in hospitals, including caring for their children, caring for elderly family members, performing household tasks, working remotely, and in many cases maintaining professional contacts by phone or messaging apps such as WhatsApp after paid work hours[4,21,30].

This research characterizes the accumulated workload between paid and unpaid activities by caring for school-age children engaged in online education, practicing social isolation, and caring for elderly relatives in the same household. Particularly during the pandemic, this overlap of activities and demands between spheres signals a lack of time and attention for oneself, affecting these professionals' health[30].

Constant exposure to the risk of contamination may also trigger stressors affecting paid work and other aspects of life. This highlights the need for attention and investment in measures to protect the health of those at the forefront of pandemic control[12-14].

Therefore, the characterization of this professional profile may be useful to reflect on how the daily lives of female health workers, historically marked by the COVID-19 pandemic, may be affected by gender inequalities, given the need for their physical presence in health facilities and their ongoing responsibility to care for school-age children or elderly family members in their private lives.

The limitations of the study are related to the small number of participants and its location in the State of Rio de Janeiro, compared to the vast dimensions of Brazil, which prevents generalizations.

Scientific research conducted with healthcare professionals contributes significantly to the advancement of knowledge in the field of occupational health, especially given the peculiarities of this historical period experienced during the pandemic.

CONCLUSION

Due to the high contagiousness of SARS-CoV-2, the initial phase of the pandemic required families to isolate themselves in their homes and led to the suspension of education-related services, such as daycare centers, which serve as institutions that provide continuity between public and private contexts.

The group of health professionals studied consisted mainly of women, including nurses, social workers, doctors, psychologists, and nutritionists, aged between 25 and 49 years, self-identified as white, Catholic, married or in a stable relationship, with postgraduate education, working under a statutory employment contract, and working on-site. They lived with three to four people in the same household, had several school-age children, and were socially isolated. This characteristic profile made it possible to observe that these women, who continued to face pandemic-related challenges in the field, also maintained activities in their private lives. This situation empirically increased the need for task accumulation, increasing women's workload. As a significant number of female health workers were unable to work remotely from home, it can be inferred that they experienced an overwhelming burden in maintaining both their professional responsibilities and family caregiving duties, including supporting school-age children or elderly relatives in the same household.

Understanding the profile of this group of professionals who were active during the early stages of the pandemic, especially when gender-related information is considered, can be valuable when discussing studies on paid work and private activities of healthcare workers. In addition, it can be crucial in highlighting the need for interventions to protect the health of these workers, considering the specific gender inequalities that exist in the daily dynamics of society, which are particularly exacerbated during pandemic periods.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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