

# The vulnerabilities of the Brazilian health workforce during health emergencies: Analysing personal feelings, access to resources and work dynamics during the COVID-19 pandemic

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## Abstract

Public health emergencies are a test of resilience for health systems, which depend on health workforces that are well managed and cared for. The COVID-19 pandemic exposed the weakness of many health systems in preparing their health workforces. The crisis also exacerbated the unequal conditions between different professions, an issue that is still understudied in the workforce literature. This paper analyzes the consequences of the COVID-19 pandemic for different health professionals, considering the ways in which Brazil's the health system does or does not protect them. We also analyse the role of pre-existing inequalities between different professions and social groups within the workforce in shaping their different experiences of the pandemic. We present data comparing the perceptions of different health professionals facing the pandemic in Brazil: physicians, nurses, and community health workers. Data were collected in an *online survey* in Brazil with 1630 health care workers between June 15th and July 1st. Findings suggest that none of the professions felt well prepared to work under emergencies. However, differences relating to professional background were exacerbated during the pandemic, creating unequal conditions for different health workers. These inequalities may pose new challenges for the post-pandemic scenario.

**KEYWORDS**

COVID-19, Brazil, health emergencies, health workforce inequalities, workforce

## 1 | INTRODUCTION

Public health emergencies are a test of resilience for health systems,<sup>1</sup> which depend on health workforces that are well managed and cared for.<sup>2</sup> Similar to the findings of studies that have analysed post-conflict or other pandemic scenarios, the health workforce is a key actor for overcoming the COVID-19 pandemic. This paper analyzes the consequences of the COVID-19 pandemic for different health professionals considering how the health system protects them during the crisis. This is important because this pandemic has presented new risks and challenges for health workers in the public system.<sup>2-4</sup> First, there is the high level of contamination, transmission and death to which workers have been exposed.<sup>3,5</sup> This risky context requires new procedures for interaction, hygiene, and self-care. Second, as COVID-19 is a poorly understood disease, it has created an environment of uncertainty and fear among the population as a whole,<sup>6</sup> but especially among health workers.<sup>2</sup> As a consequence, experimentation and constant adaptation of work procedures, based on new evidence and practical information, are needed.<sup>7</sup> Third, the pandemic has created a scenario in which health workers face the simultaneous pressures of greater work demands and reduced resources, which increases the stress, the anxiety and the risk of burnout.<sup>4,8,9</sup>

Facing a health emergency requires a robust workforce, delivering diverse services by individuals with different backgrounds and skills,<sup>2</sup> which can develop new solutions and ways of working in response to unknown situations.<sup>7</sup> Past research about health workforces during emergencies suggests that, in order to act effectively, workers must: receive political and institutional support; be trained with the new skills required; receive mental health and emotional support; and receive all resources required for their physical protection.<sup>2-4,10</sup>

The health workforce is crucial to health system performance and to population health.<sup>11</sup> Knowledge about concepts and tools for health workforce policy have improved significantly.<sup>12</sup> Several studies have examined what drives changes in the supply, need and demand for health professionals and what strategies can best improve the performance of a people-centred health workforce.<sup>11,13,14</sup>

These findings show how health care systems should take care of their workforce so that they can respond satisfactorily to social demands.<sup>15</sup> During health emergencies, it is even more important to address the working conditions and the needs of the workforce. However, when we observe the high rates of infection and death among health workers around the world during the COVID-19 pandemic, it is evident that some health systems are failing to protect their workers.<sup>16</sup> This is certainly the case in Brazil, where, over eight months, more than 270 thousands health workers were infected by COVID-19 and thousands died.<sup>17</sup>

In this paper we argue that the pandemic exposed the weakness of many health systems to effectively manage, prepare and take care of their health workforces. However, even while leaving the health workforce as a whole in a precarious situation, the pandemic also exposed historical problems in health systems relating to unequal working conditions between different professionals. This question has been understudied by the literature on health workforces during emergencies. This paper aims to analyse the consequences of the COVID-19 pandemic in Brazil for different health professionals, considering the ways in which the health system does or does not protect them. We also analyse the role of pre-existing inequalities between different professions and social groups within the workforce in shaping their different experiences the pandemic. We analyse data from an online survey comparing the perceptions of the different health professionals that are facing the pandemic in Brazil: physicians, nurses, and community health workers (CHWs). We try to understand differences in access to resources, support, training, and mental health conditions. The analyzes address the questions: how do different health professionals experience the COVID-19 pandemic? How does the health system (un)protect them, and which are the consequences of this (un)

protection? How do inequalities of the health workforce play a role in the way these professionals experience the pandemic? The analyses contribute to understanding theoretical issues about the health workforce during the crisis and inequalities in the health workforce.

The paper is structured in four sections. Following this introduction, we present the data on different professions. The following section discusses our findings and the paper ends with the conclusions.

## 2 | METHODS

### 2.1 | Case selection and context

The results discussed in this paper are based on data collected from an online survey of 1630 public health professionals in Brazil between 15 June 2020 and 1 July 2020. Brazil was selected for three reasons. First, because it is one of the main epicentres of the pandemic.<sup>18,19</sup> Second, because it has a public health system with a large health workforce that was heavily affected by the pandemic.<sup>20</sup> Third, because it is a country with high levels of inequality, including within the health workforce,<sup>21</sup> which enables us to understand the impact of the pandemic in such a context.

Regarding the first reason, on 11 March 2020, the World Health Organization officially declared COVID-19 as a worldwide pandemic.<sup>22</sup> On February 26th, Brazil confirmed its first case of COVID-19, thus becoming the first Latin American country to do so. Although the country had several weeks to prepare, based on the earlier impacts in Europe and Asia, the Brazilian Government did not adopt effective preventive actions.<sup>16,21</sup> Political instability added to the disorder in the Health Ministry, which spent three months without a Health Minister. President Jair Bolsonaro's constant denial of the pandemic and the consequent lack of investment in the health response further contributed to the high rates of cases and deaths in the country.<sup>21,23,24</sup> By the end of June 2020 (when data for this paper were collected) Brazil had reached a total of 2 million people infected and more than 75,000 deaths.<sup>25</sup> By mid-November 2020, when this paper was written, these figures had risen to 5.8 million cases and 165,658 deaths.<sup>25</sup>

Regarding the second reason why we selected Brazil as our case study, two factors must be considered. On one hand, this critical and uncertain crisis scenario has been experienced on a daily basis by the health workforce, who are constantly exposed to the virus, and other challenges such as lack of basic resources and of health care infrastructure and low adherence to social distancing the population, among others.<sup>3,5,26,27</sup> On the other hand, Brazil has a national public health system, the Sistema Único de Saúde (SUS), which is responsible for providing free health care to every citizen as a social right, guaranteed in the 1988 democratic Constitution.<sup>28</sup> The system is complex and organized at three levels of care: primary health care (PHC), specialized care and hospital care. The system is also decentralized, which means that all 5557 municipalities, 27 states and the Federal Government share responsibilities but also each have their own specific constitutional duties for making sure the system operates effectively.<sup>29</sup> SUS is the biggest public health system in the world, with more than 190 million users.<sup>30</sup> Recent research has highlighted the reach of the SUS and its capacity to reduce indicators of health inequality in Brazil.<sup>29,31</sup> However, budget cuts and neoliberal oriented policies since 2016 have systematically reduced federal investment in the system—a scenario that some authors have described as critical and severe.<sup>28,32</sup> Therefore, while the SUS represents an achievement in the provision of universal public health, the system has been under attack in recent years.

The health workforce is constantly exposed to the COVID-19 virus and therefore is more likely to be infected than the wider population.<sup>3</sup> Up to October 2020, there had been 41,164 cases and 449 deaths among nurses.<sup>33</sup> Some estimate that this represents about 30% of all deaths of nurses from COVID-19 worldwide.<sup>34</sup> Although the numbers are not yet precise or fully up-to-date, the rates of cases reported are very high, leading these authors to argue that the overloading of the system, under-provision of PPE, and lack of training and investment are the key factors that have contributed to this current situations.<sup>5</sup>

In this critical context, in which various vulnerabilities and inequalities in and outside the Brazilian public health system tend to be reproduced, we decided to analyse different professions within the health workforce: physicians, nurses and CHWs. These three professional categories play essential and distinct roles in the health system and, at the same time, they expose the inequalities within it. Nurses and Physicians may work at different levels of the health system, providing services inside hospitals and health clinics. CHWs are part of PHC teams and have the responsibility for providing health services through visits to patients' homes. In observing these different professions, our analysis covers the health workforce from the PHC services to levels of high complexity in which nurses and doctors take the lead. This choice enables us to comprehend the health system as a whole. Past analyses have compared the distribution of these three professions, finding that inequalities within the Brazilian health workforce are linked to geographical dynamics and inequalities.<sup>35</sup>

Moreover, there is a historical dimension of the structural inequalities found in the Brazilian health system, which intersect with inequalities related to gender, race, social class and territory, among other factors.<sup>35,36</sup> The specialized literature calls attention to the 'imbalances' within the health workforce, in relation to dimensions such as: (i) profession/specialism, (ii) geography, (iii) institutional dynamics, and (iv) gender.<sup>36</sup> Furthermore, the procedures and work routines of these professionals have also, to a greater or lesser degree, undergone changes under the pandemic context and depending on the proximity and centrality of their work in combatting the virus.<sup>26</sup>

## 2.2 | Data collection

We collected data from an online survey in order to investigate the conditions under which frontline health workers were experiencing the pandemic in Brazil. This strategy enabled us to overcome some of the problems of collecting data during the COVID-19 pandemic and the need for physical distancing. The *online survey* also has several advantages: (i) we were able to design mandatory questions, (ii) it is user-friendly and easy to access, (iii) uploading and saving the information is straightforward, (iv) the data can be automatically converted into a database, and (v) respondent privacy is guaranteed.<sup>37,38</sup>

We formulated 47 questions based on previous research about frontline workers and health emergencies.<sup>8,39</sup> Questions were organized into four sections: (1) Resources (access to PPE, training, testing), (2) Support (orientation, political support), (3) Changes in tasks and in interactions, and (4) Impact in Emotions and Mental Health (including mental health support and harassment). Each section contained various questions. Most of them were mandatory, closed and binary (Yes or No) or nominal/categorical. To capture qualitative perceptions we also included opened questions. The constructs and variables were based on the parameters proposed by Lietz,<sup>38</sup> of simplicity, specificity, a guarantee of anonymity and adequacy of language used. All questions were checked by peers and tested with five volunteers (two physicians, two nurses and one CHW). We also developed tests of coherence, flow and content. Overall, 2138 public health workers responded to the survey. For this study, we used the data provided by 870 CHWs, 445 nurses and 315 physicians, producing a sample of 1630 health professionals.

The survey was disseminated on social media—via Whatsapp, Twitter and Facebook—, e-mails and also through trade unions and workers' associations. Data were collected anonymously between 15th June and 1st July 2020. The research was approved by the Ethical Committee. Due to pandemic restrictions, affecting accessibility, data coherence etc., we developed a convenience sample.<sup>37</sup> This is a type of non-probabilistic and non-random sample that identifies members of a population that satisfy criteria such as accessibility, availability and willingness to participate in the research.<sup>40</sup>

During the period of data collection, we developed sample simulations and distributions in order to cover all Brazilian regions. Furthermore, we produced a proportional sample for each profession, while also taking gender and race into account. In both cases, we measured our tests to a 95% confidence interval, giving a margin of error of 5%, out of the population of each profession.<sup>41</sup> This exercise is essential to understand how our sample differs from

or resembles a randomly selected one<sup>40</sup> and how it covers different types of inequality that exist within the health workforce.

This research is not probabilistic and the data cannot be generalized.<sup>37</sup> Again, due to the conditions of the pandemic and the urgency of collecting data at its height in order to understand the impacts, the convenience sample is a reasonable option and has been used by other studies into health workers during the COVID-19 pandemic<sup>8,9</sup> or in previous health emergencies.<sup>39,42</sup> Moreover, considering the limitations of the sample, we do not offer statistical analysis here. Quantitative analysis is offered only for exploratory and descriptive purposes.

## 2.3 | Data analysis

Based on the literature on health workforce conditions, we seek to analyse the experience of public health workers in Brazil in facing the challenges of the COVID-19 pandemic and the role of pre-existing inequalities in shaping this experience. To this end, we separated the information collected in the online survey into three analytical sections:

- (1) Working conditions: In this section we consider the variables linked to positive perceptions about access to personal protective equipment (PPE) and testing equipment, training, support from supervisors and guidance from management.
- (2) Mental health and emotional consequences: In this section we consider the variables related to mental health, and emotional and psychological experiences during the pandemic, such as: feelings of fear, unpreparedness and stress/anxiety, as well as perceptions of impacts on mental health. Our prioritization of such emotions is based on a review of the existing literature on the psychological impacts of the pandemic on health workers.<sup>8,9,26,39,43</sup>
- (3) Perceptions of changes to working procedures during the pandemic: These analyses were carried out using two strategies. In the first, we present indicators in a comparative panel divided according to profession (CHWs, nurses and physicians), based on descriptive statistics. The percentages correspond to the positive perceptions of these professionals to the different dimensions analysed. The questions that comprise these blocks are binary (Yes or No). To guarantee the consistency of the results, we performed chi-square tests between the variables. The information presented in the first two sections of analysis are analysed in this way. The second strategy is qualitative analysis based on open questions about respondents' perceptions of changes to working procedures during the pandemic. Analysis was conducted using content analysis.<sup>44,45</sup> In light of the literature, we categorized responses in two distinct stages in order to identify certain patterns and trends: a first that allocated the responses into broad categories and a second that consolidated them into more specific ones.

We used SPSS and NVivo software to process and analyse our data. The results of these comparative analyses are discussed in detail in the next sections. We present both descriptive statistical analysis and qualitative results. Some excerpts of the open questions are also presented to provide further evidence for our arguments.

## 3 | RESULTS

### 3.1 | Sample characteristics

The profile of the different categories of professionals is diverse and exhibits some structured inequalities in wider Brazilian society that are reproduced within the health workforce. First, most of the 870 CHWs are women (75,5%) and black (70,9%). As we take into account the intersectional aspects of gender and race, we can observe that 53,9% ( $n = 469$ ) identified themselves as black women, 20% white women ( $n = 174$ ), 15,7% black men ( $n = 137$ )

and 10,3% others. Furthermore, most respondents are between 30 and 49 years old (72,2%). This result is similar to the demographic estimates of the CHW population, where the majority are identified as black women.<sup>46-48</sup>

Second, most of the 445 nurses are women (84,4%) and white (52,8%). When we cross-tabulate the data, we can observe that 46% ( $n = 207$ ) are white women, 36% are black women ( $n = 162$ ) and the other 17% are black and white men. 85% are aged between 30 and 59 years old. This profile also closely resembles the available demographic data, as most nurses are women and the racial distribution is slightly unequal.<sup>49</sup>

Third, most of 315 physicians are women (63,8%) and self-declared as white (75%). Overall, 48% are white women ( $n = 151$ ), 27% white men ( $n = 86$ ), 13% black women ( $n = 42$ ) and 6% black men ( $n = 21$ ), the other 5% did not declare either race of gender. In the 2018 National Demography Medical Census the majority of physicians declared themselves as being white, and most were men, but in recent years a process of feminization of the profession has been underway, with an increasing proportion of women in the profession and attending medical schools.<sup>50</sup>

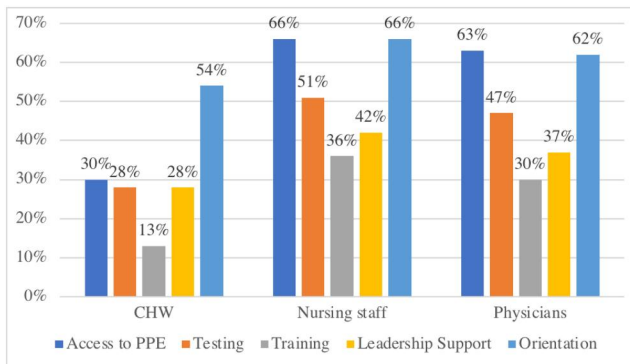
Although the sample data does not perfectly match the demographic profile of these professional categories, we can argue that in each case a representative 'majority' is established. This reflects the ways in which inequalities of gender, race and occupation are reproduced as transversal to and intersecting with the working conditions of these health professionals during the pandemic.

Furthermore, historically, care-related professions have mostly been performed by women, as an extension of the sphere of domestic work and maintenance of community. Thus, the feminization of CHWs and nursing is linked to a gendered division of labour that structures capitalists societies.<sup>51-53</sup> According to the WHO (2019), 75% of health and social workers worldwide are women. The literature on health workforce imbalances draws attention to gender or race as a system of social stratification that is reflected in power relations within health systems.<sup>53,54</sup> Both nursing and community health work is traditionally female-dominated, but in recent years a process of feminization of medicine has been underway not only in Brazil but in diverse middle- and low-income countries.<sup>54</sup> Past studies have reported that gender imbalances within the health workforce are commonly associated with wage gaps, educational opportunities and even unequal access to resources and training.<sup>36,53</sup> The female health workforce, especially CHW and nurses, tend to compensate for disadvantages within health systems with solutions created by their own and not institutionalized.<sup>53</sup>

The impact of COVID-19 pandemic on women's wellbeing and working conditions is also related to the unequal positions that are designated to men and women in contemporary Western societies.<sup>55,56</sup> Hence, women face the difficulties of maintaining their dual responsibilities (of both reproductive/care work and productive work), with lower salaries, work insecurity (part-time jobs) and the need to take care of children, among others.<sup>56</sup> Researchers argue that a gendered perspective must be taken into account in analysing any crisis scenario, including virus outbreaks, since women are the primary agents involved in preparing for and responding to crises.<sup>56</sup> The vulnerable condition of this mostly female workforce can be seen when analysing their working, emotional and mental health conditions, as we discuss in the next sections.

### 3.2 | Working conditions

In Figure 1, we present the perceptions of working conditions with regard to access to resources, comparing physicians, nurses and CHWs. The graph shows how there was a difference in access to resources among the different professions. Even though all suffered from poor conditions, those faced by physicians were superior to those of nurses and CHWs. CHWs faced the worst situation of the three professions. For example, almost 63% of physicians and 65% of nurses declared that they had received PPE, compared to only 30% of CHWs. Similarly, while 43% of physicians and 40% of nurses were tested, less than 28% of CHWs were. The situation is also very unequal when it comes to support received. 48% of physicians declare they had received leadership support, compared to 42% of nurses and just 23% of CHWs.



**FIGURE 1** Perceptions of the material working conditions of public health workers in Brazil (%). Source: Online Survey 'Impacts of COVID-19 on health workers' (2020). Note: Percentage represent only positive responses to the question. The samples are 870 community health workers (CHWs) (100%), 445 nurses (100%) and 315 physicians (100%); PPE, personal protective equipment

The data suggest there are inequalities between health professionals, even beyond the vulnerable working conditions that all faced during the pandemic. However, those who face the worst conditions in normal times—in terms of salary, training and professional development—saw their access to material resources further diminished during the pandemic. This is the case of CHWs, who tend to be black women on low salaries and without higher education.<sup>46–48, 57</sup> Qualitative analysis also draws attention to lack of recognition they received and their poor working conditions during the pandemic:

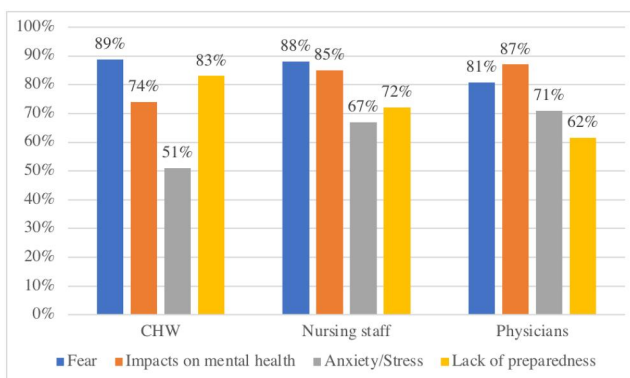
We are all seen as suspects, both citizens and health professionals. We are dealing with an invisible threat, this disease takes five days to start showing symptoms. This is already a cause for concern every time we see a patient who is suspected or a confirmed case, we do not know if we have been contaminated or not (there is a) delay in the results of the swab test, we don't have enough quick test kits for us professionals. We are working twice as much, risking our lives, and we are not valued, we face discrimination on public transport, etc. (N1).

We are working harder. We also did actions on weekdays and also on weekends but without the correct equipment. They only send women to work. We were at risk in every way (CHW1).

### 3.3 | Mental health and emotional consequences

The changes in working conditions and the lack of access to PPE and support have exposed the workforce to stressful situations, which have had emotional and mental health impacts.<sup>8</sup> As such, we analysed how these working conditions are reflected in the mental health and emotional conditions of health workers. Figure 2 presents comparative data on mental health and emotional conditions of the three professional categories. We compare four elements: feeling of fear; feeling of preparedness; anxiety/stress; and perception of impact on mental health.

Data suggest that, despite a general sense of fear and lack of preparedness, the inequalities between professions still remained. While 79% of physicians felt fearful and 56% did not feel prepared to work during the pandemic; 83% of nurses felt fearful and 68% felt unprepared. This situation is more critical among CHWs: 89% of them felt fear and 83% felt unprepared. These data suggest how differences in access to support and material conditions may also impact on the way the workers experience the pandemic emotionally.



**FIGURE 2** Perceptions of the emotional impacts of working conditions of public health workers in Brazil (%). Source: Online Survey 'Impacts of COVID-19 on health workers' (2020). Note: Percentages represent only positive responses to the questions. The samples are 870 community health workers (CHWs) (100%), 445 nurses (100%) and 315 physicians (100%)

Regarding mental health and anxiety/stress, we found a different situation: in these cases, nurses and physicians feel slightly more stressed and anxious than CHWs. This may be explained by the difference in the nature of work, since nurses and physicians also work in intensive and emergency care, which are environments conducive to anxiety and stress.<sup>9,26</sup> Excerpts below show how health workers are dealing with their emotions and mental health.

I had a panic attack, I can't go to work anymore (CHW2)

Difficult, tense, I started handling cases of COVID-19. Hot clothes, masks that leave marks, needing to go to the bathroom, hunger. It's sad to see people suffering, to think that I might also get sick. I feel tense thinking about my daughter and husband getting sick (N2)

### 3.4 | Work changes and challenges during the COVID-19 pandemic

In Table 1, we organize the results of our qualitative analysis, observing the impacts of the pandemic on their work. Data show differences in the kinds of change experienced. CHWs had to develop new procedures, as they were no longer able to make home visits or monitor families in person. They had to assume administrative tasks inside the health clinics. This CHW describes the situation:

We can't have physical contact with patients, we can't go to their homes. We have to work inside the clinics, as we don't have PPE. (CHW3)

In different ways, nurses and physicians also had to adapt their work to the demands of COVID-19. They claimed that these changes created an emergency atmosphere in the health system. Some of them, who were used to working in Primary Health Care, are suffering with the challenges of working in an emergency situation. This quote exemplifies this change:

I work in a PHC clinic that was transformed into an emergency centre during the pandemic. We receive many emergencies for which I am not prepared, this is making me feel unstable (P1)



TABLE 1 Perceptions of changes to work procedures during the pandemic

	Community health workers (CHWs)	Nurses	Physicians
Challenges regarding the changes in tasks and work routine	<p>Different conditions in each municipality:</p> <ol style="list-style-type: none"> <li>1) Unable to realize their normal professional tasks, such as visiting and monitoring families</li> <li>2) Asked to develop new tasks to deliver policies (including administrative tasks)</li> <li>3) Asked to stop performing their tasks (suspension of home visits)</li> <li>4) Need to adapt to new ways of performing their tasks, such as monitoring families/community through WhatsApp and telephone calls</li> </ol>	<p>How to do their original tasks while maintaining physical distance.</p> <p>Cumulative demands regarding non-COVID-19 patients and prioritization of COVID-19 treatments.</p> <p>Emergency atmosphere surrounding all tasks.</p>	<p>How to attend and monitor families and typical patients if almost all appointments concern individuals suspected of having COVID-19.</p> <p>New division of work and relocation to other health units/specialties (usually towards respiratory syndrome and intensive/emergency care)</p> <p>Need to assume tasks of colleagues that have been dismissed or are sick.</p> <p>Emergency atmosphere surrounding all tasks.</p>
Challenges regarding the distance requirement and safety procedures	<p>How to develop their tasks if they cannot carry out house visits</p> <p>How to keep a distance from patients who are their neighbours (or even friends/family).</p>	<p>How to keep a safe distance during appointments and emergency treatments.</p> <p>How to work without being able to take off protective equipment (unable to use the bathroom, eat in the lunch cafeteria, feeling pain due to constant use of personal protective equipment [PPE] etc.)</p> <p>Need to adopt new, strict safety procedures to enter and leave the hospitals and health units.</p>	<p>How to keep a safe distance and, at the same time, empathize with and treat patients, while using masks, face shields and without being able to touch them.</p> <p>How to work without being able to take off protective equipment (unable to use the bathroom, eat in the lunch cafeteria, feeling pain due to constant use of PPE etc.)</p> <p>How to keep up with increasing work demands if more time is needed to maintain hygiene standards.</p>

TABLE 1 (Continued)

	Community health workers (CHWs)	Nurses	Physicians
Challenges regarding in Working relationships	<p>Hierarchies inside teams becoming even worse.</p> <p>Some CHWs suffer from harassment and are obliged to work even under bad or unsafe conditions.</p>	<p>Hierarchies inside teams becoming even worse.</p> <p>Organizations demanding more work (increase in work demand): no vacations or leave.</p> <p>Tensions between co-workers: New procedures for organizing workspaces and contact with colleagues</p>	<p>Organizations demanding more work (increase in work demand): no vacations or leave.</p> <p>Tensions between co-workers: New procedures for organizing workspaces and contact with colleagues</p> <p>Working under pressure: Dealing with stress, exhaustion, feelings of anxiety and fear</p>

Source: Online Survey 'Impacts of COVID-19 on health workers' (2020).

Another significant difference concerned physical distancing and security procedures. CHWs reported the difficulties of not being able to maintain contact with families and the community due to restrictions, and they also regretted and felt depressed by the lack of empathy and closeness with families. Some CHWs said that physical distancing and mandatory use of PPE undermined their everyday work. Nurses and physicians also claimed that distance from patients and constant use of PPE creates a tense and negative work atmosphere. To illustrate that:

Everything changed. I don't feel safe in the environment. I see some workers without PPE when there are no patients around. They stay close together in small rooms. That's why I bought my own PPEs. I don't trust the PPE that the government gave us. I don't take mine off during the entire 9 hours, including lunch hour. I don't eat, and I become anxious and exhausted. (P2)

I have to work more than 12 hours without going to the toilet, drinking water, eating or resting. This is very difficult. (N3)

At work, several care interventions can no longer involve bodily contact, nor even clear communication of facial expressions; there was a need to reduce the number of clients, family members, interns, volunteers and therapists present at the same time to avoid crowds forming. Feelings of fear and constant doubt about the contagion and how the body will react to this contagion. (N4)

Data also evidence hierarchies between the professions and in working relations within health teams. This hierarchy has long been discussed in the literature on health professions,<sup>35</sup> particularly concerning differences between physicians and nurses. However, in the Brazilian case there is also a hierarchy affecting CHWs, who are the least valued members of health teams.<sup>57,58</sup> CHWs were less likely to be trained, less listened to, and were also the last to receive PPE. Likewise, the work they carry out was also questioned. Some examples:

Work is overloaded because there are too few staff and everything that is left over is thrown on the backs of professionals, even tasks that should not be their job. Then the specialists "take over" our functions and make us to carry out the tasks they don't like. (N5)

The doctor always humiliates me, disrespects me and thinks he's the boss. Other health workers don't understand my anxiety and depression, they say I am overreacting. (CHW4)

I have been a CHW for 20 years, I have always honoured my work and especially the community I am responsible for. I have always been available for service (...) always with the intention of serving the community. We were surprised by the arrival of COVID-19 and there was no support from the municipality, such as access to PPE, training or emotional support for workers! I am 62 years old, I am a smoker and I have hypertension. Just for being considered elderly I should already be categorized as at risk! Unfortunately, we were forced to sign a self-declaration of responsibility to work under these conditions. (CHW8)

## 4 | DISCUSSION

At a time when the population has needed the health workforce more than ever, the government and health system have not supported them enough.<sup>16</sup> This may be one of the explanations for the tragic management of Brazil's response to the pandemic. Even with one of the biggest and most well-structured public health systems in the

world,<sup>59</sup> Brazil has not been able to respond well enough to the pandemic and has been one of the worst hit countries in the world, especially for health workers.<sup>24</sup>

When analysing the data gathered from the Brazilian health workforce it becomes clear that the system left them in a very vulnerable situation. Health workers are not receiving sufficient resources, support or training. They are suffering, their mental health has been impacted, they lack support and feel anxious, stressed and unprepared. At the same time, their tasks changed considerably, imposing new challenges which they have had to respond to themselves. The pandemic has exposed a very critical problems experienced by the Brazilian health workforce.

This situation shows how the proper functioning of the health system depends on providing effective support to the workforce. The governance of the health workforce is important for understanding the workforce's role within the health system.<sup>11</sup> In this way, governance seems to be an essential component in crises, when the health workforce has to be managed and cared for.<sup>2</sup> Having enough workers, clinics and health equipment is not enough for the system to be resilient. If the government does not equip and prepare the workforce for crises, the system is not able to respond to them properly when they occur.

In this way, the data also show that managing the workforce requires addressing inequalities that may become more critical during health emergencies. It is important to consider the inequalities and hierarchies within health teams to understand the problems that have affected the health workforce in the context of the COVID-19 pandemic.<sup>60</sup> Looking at the data, it is clear that the most vulnerable profession (CHWs) were more left exposed during the crisis. They received less support, less training and fewer resources. At the same time, their normal activities became unviable, putting their profession itself at risk. By comparison, nurses and physicians also faced serious difficulties, but were left less vulnerable than CHWs. The case of CHWs, compared with physicians and nurses, in Brazil during the pandemic, provides an example of how these factors structure the health workforce responds to emergency scenario.

These findings suggest how governance of the health workforce needs to pay attention to pre-existing inequalities in order to protect more vulnerable professions and social groups during health emergencies, as inequalities seem to be exacerbated during such periods.<sup>60</sup> In addition to looking at professional categories, it is essential to observe these inequalities based on the demographic characteristics of the workforce. In this case, for example, female and black health workers have faced more precarious conditions during the pandemic. Furthermore, female CHWs have historically also struggled to be recognized as skilled workers.<sup>53</sup>

With regard to regional inequalities in Brazil, CHWs are more concentrated in the North and Northeast regions, where there is a shortage of physicians; unlike in the South and Southeast.<sup>35</sup> Therefore, the analyses, such as the health system responses, must consider the complexities and intersectionality of gender, professional, geographic and racial health inequalities in the workforce. Imbalances in the health workforce directly affect the functioning of the health system.<sup>56</sup> Professional, gender, racial and geographic differences intersect and create different experiences of frontline work.<sup>36</sup>

## 5 | CONCLUSION

This paper has analysed the impacts of the COVID-19 pandemic on the Brazilian health workforce, comparing three professions: CHWs, nurses, and physicians. Our findings show that the Brazilian health system was not able to manage and protect health workers. A lack of material and institutional support created a critical scenario in which workers suffered from fear and anxiety, felt unprepared and reported an increase in mental health issues. The pandemic also imposed new tasks and practices in response to the challenges experienced by health workers. However, the data also suggest that these impacts were different for each profession. The inequalities and vulnerabilities of the health workforce have been exacerbated during the crisis. If the government fails to manage these inequalities, they may have greater impact on vulnerable social groups, such as women and black people.

These findings emphasize the importance of analysing the governance of the health workforce during the pandemic as a critical situation in which pre-existing vulnerabilities become aggravated.

This paper makes two theoretical contributions to the health workforce literature. The first relates to inequalities within the health workforce that may also reproduce structural inequalities. The crisis exacerbated these inequalities and made the importance of gender, race and profession in health workers' experience of the pandemic more evident.<sup>36,56,60</sup> Health workforce policies should pay special attention to how vulnerable professions and social groups are affected in their work and how these inequalities should be managed. Therefore, the literature should also seek to better understand how these inequalities work, their intersectionalities and their impact on health workforce dynamics.

The second contribution is about the importance of health workforce management especially at moments of crisis. Even strong health systems become fragile during health emergencies and it should not be expected that health workers themselves take sole responsibility for adapting to such situations. Analysing how the health workforce should be managed during emergencies is an essential research agenda. In this way, besides examining how the health workforce is supported,<sup>2</sup> it is also important to identify the impacts on their mental health and how they manage their emotions during crises.<sup>8</sup> The literature should also explore the primary changes to health workforce activities during the pandemic and the kinds of skills that are required for moments like this.<sup>2</sup> These elements are essential for understanding how the health workforce can become more resilient during crises and how the system can support them.

A limitation of this paper is that it does not analyse randomized data. As such, the findings cannot be generalized to Brazil as a whole. At the same time, the analysis only draws on the Brazilian case, which can be considered an extreme case and cannot be compared to all cases. Future research should analyse similar systems but in other countries where governance of the health workforce was more organized than in Brazil. This comparison would enable us to understand the impacts of governance on the way workers experience health emergencies.

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## CONFLICT OF INTEREST

Authors have no conflict of interest to declare

## ETHICS STATEMENT

The research was approved by the Ethical Committee of Getulio Vargas Foundation and followed all procedures to assure ethical procedures.

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## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available at <https://nebuocracia.wordpress.com/publicacoes/>

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