

The health of healthcare professionals coping with the Covid-19 pandemic

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Abstract *This work aims to systematize a set of scientific evidence presented in international papers that identify the main problems affecting health professionals directly involved in coping with the COVID-19 pandemic and point out actions and strategies for the protection and healthcare of these professionals. The risk of infection is the main issue and has led to absence from work, illness, death, and intense psychological distress, expressed in generalized anxiety and sleep disorders, fear of becoming ill and infecting colleagues and relatives. In the Brazilian reality, this work revives the analysis of the chronic problems affecting health workers, resulting from the underfinancing of the Brazilian Unified Health System (SUS), the sector's spending freeze, the deterioration of services and workforce's insecurity, and points out the acute challenges of work management and staff training, given the expanded hospital bed infrastructure and reorganization of the work process in primary care to face the pandemic, emphasizing the necessary measures for the protection and promotion of the physical and mental health of health professionals and workers.*

Key words *Coronavirus, Pandemic, Health professionals, Health work management*

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Introduction

The COVID-19 pandemic has produced significant numbers of infected people and deaths worldwide. As of June 3, 2020, the World Health Organization reported 6,287,771 confirmed cases and 379,941 deaths from the new Coronavirus, mainly affecting the American and European continents¹. The speed with which COVID-19 has spread across countries and within each country has influenced the daily lives of billions of people on the planet.

In the absence of vaccines and proven effective treatment, social distancing strategies have been identified as the most critical intervention for the control of COVID-19. However, the recommendation to remain at home does not apply to health care teams, especially those professionals who are in the direct care of patients with suspected or confirmed COVID-19 diagnosis in primary care services, emergency care units, and hospitals.

Health professionals are a risk group for COVID-19 because they are directly exposed to infected patients, which causes them to receive a high viral load (millions of virus particles). Moreover, they are subjected to enormous stress when attending to these patients, many of whom are in severe condition, often in inadequate working conditions.

It is also noteworthy that the health workforce is not homogeneous because it shows differences in gender, ethnicity, and social class, structuring access to different levels and professional training courses, and opportunities for inclusion in the labor market, reproducing itself in the daily life of work relationships within health services²⁻⁴.

Health professionals and workers directly and indirectly involved in coping with the pandemic are daily exposed to the risk of becoming ill with the Coronavirus, and the heterogeneity that characterizes this contingent of the workforce determines different types of exposure, both to the risk of infection and factors associated with working conditions. Problems such as physical fatigue and psychological stress, insufficiency or negligence concerning the protection and health care measures of these professionals, also affect the various categories differently, and it is necessary to pay attention to the specificities of each category to avoid the declining work capacity and quality of care provided to patients.

Therefore, the health protection of health professionals is essential to avoid transmission of COVID-19 in health establishments and their homes, and it is necessary to adopt infection control protocols (standard, contact, airway) and make PPE available, including N95 masks, aprons, goggles, face shields, and gloves. Furthermore, the mental health of health professionals and workers must be protected due to the stress they are subjected to.

The health and working conditions of health professionals has been the subject of an accelerated bibliographic review by a working group of the CoVida Network – Science, Information and Solidarity (<http://covid19br.org/>), through the review of papers published in international and national journals using the descriptor “COVID” and its variations. To date, approximately 160 works have been identified in the PubMed database, including editorials, letters to the editor and scientific papers, with about 120 selected studies, from which information was extracted and contributed to the identification of the leading health problems related to the COVID-19 pandemic among health professionals and workers, in order to identify studies that consider the specificities of different professional categories and social markers, such as ethnicity, gender, and class, and also to identify the proposals, actions, and strategies adopted for the promotion, protection, and healthcare of health professionals working on the “frontline” of combating the pandemic. The adoption or adaptation of these proposals to the Brazilian reality is discussed based on these facts, indicating measures that can be included in health service protocols, to protect and promote the physical and mental health of health workers.

Health professionals’ health problems

Health professionals’ infection

The primary health problem that affects health professionals directly involved in the care of symptomatic patients or those diagnosed with the infection caused by COVID-19 is the risk of infection by the disease. Much evidence points to the high level of exposure and infection of health professionals by COVID-19. In China, some 3,300 health professionals may have been infected, and 22 lost their lives⁵. A study carried

out in a reference hospital with 3,300 beds with a retrospective cohort of health professionals, especially clinical doctors and nurses, evidenced the existence of 72 professionals who worked at the frontline infected with COVID-19, identifying an association between the increased working hours, inadequate hand hygiene and the risk of contracting the infection⁶.

A study carried out at the Tongji Hospital⁷ to identify COVID-19 infection in medical teams found 54 people affected by it. Of this total, 72.2% worked in clinical wards, 18.5% in the medical technology area, and only 3.7% were in the emergency ward. One possible explanation is that patients can go to different wards, given COVID-19's many atypical clinical manifestations. Regarding the infection's severity, it was observed that 11 were typical, 40 were severe, and three were critical. The age distribution is noteworthy, which showed a significant difference between the non-severe and severe cases (mean age of 47 years x 38 years; $P = 0.0015$), and older professionals were in the group with a lower severity infection. There was no statistical difference concerning gender.

In a regional hospital in China that treated more than 35 confirmed cases and more than 260 suspected cases of COVID-19, Huang et al.⁸ found that it is not uncommon for nurses to neglect exposure while caring for patients even with intense training, especially when they feel stressed or exhausted, a situation that occurs especially after long working hours, which can increase the risk of infection. Most of the nurses' work involves direct contact with patients, so these professionals are highly vulnerable to COVID-19, and it is necessary to establish specific hospital protocols to reduce their risk of infection in interactions with patients with COVID-19.

In Italy, as of March 22, 4,824 health professionals were infected with COVID-19 (9% of the total cases), with 24 doctors deaths – worse than those observed in China (3,300 infected health professionals and 22 doctors deaths), which led the Italian Federation of Health Professionals to consider that *A hospital-centered model was inadequate in addressing with the coronavirus outbreak. Epidemics should be neutralized through well-planned local community surveillance, identifying and isolating at home suspected or symptomatic cases. This became evident as a whole. Italian hospitals have closed because of the infection that circulates between doctors and nurses*⁹.

Noteworthy is a reported case of ICU admission at a Singapore hospital, diagnosed with COVID-19, showing that 85% of health professionals were exposed, all wore N95 masks, and no professional was infected during the treatment of this patient, which corroborates the importance of using personal protective equipment¹⁰. The lack of Personal Protective Equipment (PPE) was mentioned in a paper that reports the escalating PPE demand in various parts of China, which has increased the risk of infection by health professionals due to the lack of sufficient PPE¹¹.

Worth highlighting is also an ongoing debate within international organizations regarding the use of PPE by health professionals. The WHO recommends using traditional masks for professionals responsible for routine procedures and respirators for the care of patients with procedures that generate aerosols. In another direction, the CDC in the U.S. and ECDC in Europe advocate the use of respirators in both routine and high-risk procedures. While they highlight the importance of the principle of precaution, these recommendations come up against the objective conditions for the availability of these PPE to protect health professionals working on the frontline¹².

It is essential to highlight the adverse effects of using PPE necessary to avoid or minimize the risks of infection by COVID-19. A study by Koh¹³ points out the high incidence of cutaneous complications related to preventive measures among health professionals who treat patients with COVID-19 epidemic infection, which can lead professionals to discontinue the use of protective equipment due to skin ulceration. According to this study, the prevalence of PPE-related skin lesions was 97.0% (526/542) among frontline health professionals and included skin lesions that affected the nasal bridge, hands, cheeks, and forehead. Moreover, frequent hand hygiene has been associated with a higher incidence of dermatitis in this region. Another study carried out in China points to the propensity of skin and mucosa lesions due to the inappropriate use of PPE in the prevention and control of COVID-19, drawing attention to the fact that health professionals can develop acute or chronic dermatitis, secondary infections, and other skin diseases. In this case, Chinese experts recommend that health professionals strictly follow the PPE use standards and sterilization and cleaning specifications to avoid adverse effects¹⁴.

Mental health problems

The pandemic context requires more considerable attention to health workers, also concerning aspects that concern their mental health. Increased symptoms of anxiety, depression, loss of sleep quality, increased use of drugs, psychosomatic symptoms, and fear of becoming infected or transmitting the infection to relatives¹⁵ have been recurrently reported. One of the works done with Wuhan¹⁶ doctors reveals that they faced enormous pressure, including a high risk of infection and inadequate protection against infection, overwork, frustration, discrimination, isolation, patient care provided with negative emotions, lack of contact with family and exhaustion. This situation has caused mental health problems, such as stress, anxiety, depressive symptoms, insomnia, denial, anger, and fear, problems that affect not only doctors' attention, understanding, and decision-making ability but may also have a lasting effect on their general well-being.

The fear of being infected, the proximity to the suffering of patients or their death, and the anguish of relatives associated with the lack of medical supplies, questionable information about various resources, loneliness and concerns about loved ones were also reported in another work which addressed the psychological distress and mental illness of health professionals, leading, in some cases, to a reluctance to work⁸.

A cross-sectional study¹⁷ with 1,257 health professionals in 34 hospitals equipped with clinics or wards for COVID-19 patients in various regions of China found a considerable proportion of health professionals with depression, anxiety, insomnia, and distress. Among the group that suffered the most were women, nurses, people who lived in Wuhan and health professionals involved in the diagnosis, treatment, or provision of nursing care to patients with suspected or confirmed COVID-19.

Besides a generalized anxiety disorder, workers suffered chronic stress, exhaustion, or burn-out in the face of intense workload. This trend tends to deteriorate in the context of labor shortages if health professionals have to isolate because they contracted COVID-19. Moreover, some studies draw attention to the helplessness in the face of severe and complicated cases due to the lack of beds or life support equipment.

Avanian¹⁸ summarizes the factors contributing to the psychological suffering of nurses, doctors, respiratory therapists, assistants, and other health professionals who provide direct care to patients with COVID-19 as follows:

- Emotional effort and physical exhaustion in caring for an increasing number of patients with acute illnesses of all ages who may deteriorate rapidly;

- Caring for co-workers who can become seriously ill and sometimes die of COVID-19;

- Shortage of personal protective equipment that escalates the fear of exposure to Coronavirus at work, causing severe illnesses;

- Concerns about infecting relatives, especially older relatives, who are immunocompromised or with chronic illnesses;

- Shortage of ventilators and other crucial medical equipment for the care of critically ill patients;

- Anxiety to assume new or unknown clinical roles and expanded workloads in the care of patients with COVID-19;

- Limited access to mental health services to manage depression, anxiety, and psychological distress.

Limitations and contributions of the analyzed literature

The analysis of the selected papers gives rise to some comments about their theoretical and methodological limitations, despite their contributions to the understanding of the issues that affect health professionals and workers in coping with the pandemic of COVID-19.

Firstly, a debate should be established on the use of the "health professionals" category, generically, without specifying the heterogeneity covered by this term, not only concerning the diversity of professional categories working in the area but, above all, due to the lack of a critical view of the differences and specificities of the working conditions of the different professional categories, especially the hierarchy that marks the technical and social relationships between professionals and workers in the different categories. Most of the works take doctors and nurses as subjects of the study but do not mention the power and domination relationships between these professional categories, derived from the position held by each in the technical and social

division of work to which gender and class relationships overlap.

Thus, the issue of the feminization of the health workforce is not addressed, especially the fact that the largest contingent of professionals and workers in the sector consists of women who accumulate long working hours and are subject to conditions of greater exposure to the risk of COVID-19 infection, due to the very nature of the work they perform with patients admitted to hospitals and ICUs.

Thus, the analyzed works do not include the analysis of inequalities and hierarchies specific to the health team, not only in the relationships between doctors and nurses, doctors, nursing technicians, but also concerning other professionals involved in COVID-19 patient care, such as physiotherapists, nutritionists, psychologists, among others. It is worth noting that no study investigated the heterogeneous group of workers involved in transporting patients, such as drivers, stretcher-bearers, or the workforce responsible for hygiene and cleaning services at hospitals and other health services, gravediggers and other workers who are also exposed to the risk of infection by COVID-19.

It is also necessary to point out a limitation regarding the institutional locus in which the research was carried out. Almost all works focused on the study of the problems that affect health professionals and workers at the hospital level, neglecting the importance of primary care services, as patients' "gateway" to the health system, a situation in which health professionals and workers of these units are also exposed to the risk of infection by COVID-19. While hospital services have acquired greater visibility at the first moment of the pandemic, as they serve critically ill patients who need hospitalization and specialized care in ICUs, one cannot fail to consider the importance of outpatient and primary care services, not even home care and care provided in long-term institutions, such as nursing homes, retirement homes and other forms of care to specific groups of the population.

Another limitation in the reviewed studies is the lack of mention of one group of workers of the health workforce. They do not have specific training in this sector's professions, they are workers responsible for the so-called "general services", such as stretcher-bearers, ambulance drivers, cleaning staff, food service personnel and

equipment maintenance, including the contingent of workers involved in the burial or cremation of the deceased patients. All of these workers are directly involved in coping with the pandemic and exposed to the risk of infection, and studies on the effects of COVID-19 on the health of health workers should, therefore, be considered.

Health Work Management in Brazil: chronic problems and acute challenges in the face of the COVID-19 pandemic

The analysis of the health workforce situation in Brazil has been carried out in several studies^{19,20} that point out the main problems, both concerning the availability and distribution of the various professional categories to meet the needs of the proper functioning of the services, at the various levels of care, regarding work management-related problems, that is, the mechanisms for recruiting, qualifying and valuing the workforce in the sector.

Seeking to systematize the set of these problems, ABRASCO's work management and health education commission promoted studies²¹ that point out the trends over the years and draw attention to the need for a human resources development policy in health that values planning, the regulation of labor relationships and the permanent education of professionals and workers in the sector, contrary to what has been observed in the daily routine of SUS management at the federal, state and municipal levels.

While pointing out the problems arising from SUS under-financing, sectoral spending freeze, deteriorating services, and workforce insecurity, these studies denounce the adverse effects of such problems on the provision of care services, particularly in primary care, severely affected by the changes in the logic of financing in recent years. A permanent crisis in the health system is observed, strongly affected by the reorientation of health policies adopted from the economic crisis and the "capital blow"²² in health, marked by health financialization, fiscal adjustment (EC 95), restoration of neoliberalism, privatization "within" the public system and dismantling of the Unified Health System (SUS) as proposed and legitimized in the 1988 Federal Constitution.

The "real SUS", with its chronic problems, is the scenario in which the challenge of facing and

controlling the pandemic of the COVID-19 in Brazil is set, not least because the private, supplementary medical care system covers only about one-fourth of the Brazilian population, basically with medical-hospital care, which brings an additional problem to the treatment of cases, as this system has more than two-thirds of hospital beds in the country.

Thus, in a context of extreme social inequality, which increases the risks of spreading and infecting low-income populations, who live in poor conditions in the suburban areas of large Brazilian cities, whose effects on morbidity and lethality rates are already being announced by several researchers who point to the announced tragedy of the COVID-19 pandemic in the country, the SUS, and especially the approximately 3.5 million of health professionals and workers who continue to work in about 5,000 hospitals and hundreds of thousands of PHC units spread across the 5,570 municipalities, are the so-called “frontline” of the pandemic.

The implementation of “field hospitals” has stepped up given the insufficient infrastructure, mainly of hospital beds, ICU and mechanical breathing equipment (respirators) in the SUS. It is a strategy that carries the immediate need to hire staff, which occurs through the large-scale reproduction of fragile links, “outsourced” without labor guarantees, representing what has been called health workforce “uberization”. Besides the accelerated recruitment of professionals who were unemployed (especially nursing staff) or acting as “freelancers”, the completion of courses and provision of diplomas to medical students and other health professions was accelerated to fill the new vacancies created by the expanded services.

While necessary, such emergency measures generate new problems resulting from the lack of knowledge of the institutional rules and the inexperience of the contracted professionals about the procedures to be adopted in coping with the pandemic, which demands an increased commitment concerning training and continuing education of these professionals. Exposed daily to the risk of infection, subjected to insecure working conditions, and stressed in the face of work overload and the dramatic suffering and death of patients and the anguish of their families, the massive contingent of health professionals and

workers involved in combating COVID-19, including general service personnel, stretcher-bearers, cleaning, transportation, and food personnel are, in our view, the “critical knot” to be untied to ensure a minimum of efficiency and effectiveness in facing the pandemic in our country.

Surveys carried out by professional associations, news published by the media, and reports made with health professionals working directly in hospital units and providing care to COVID-19 patients account for the seriousness of the situation experienced in health services. The risk of infection due to the lack of personal protective equipment (PPE) and the anxiety caused by the use of this equipment, in shifts of up to 6 uninterrupted hours in ICUs, with the use of diapers, and the anxiety experienced at the time of removing this equipment, has caused intense suffering in these professionals, even leading to a removal from work, which further compromises the quality of care provided to the population.

According to a report by the Federal Nursing Council (COFEN) and the Oswaldo Cruz Foundation, published on April 27, 4,602 nursing professionals had already been dismissed with suspected COVID-19, and 57 died from the disease or in suspected, not yet confirmed cases. Altogether, to date, 73 Brazilian health workers lost their lives while fighting against the new Coronavirus pandemic, and this figure is higher than that of Italy, and Spain combined, countries that accumulate more than 50,000 deaths, against the 8,536 officially registered in Brazil. Of these deaths, 32 (or 56%) are of women, who, as is known, make up more than 85% of the workforce in the sector.

Given this situation, we reviewed proposals and suggestions contained in the revised studies to systematize recommendations to the managers of health institutions and services, especially those who deal daily with the organization and management of the work of health professionals who are on the frontlines combating the pandemic. The product of this work was published as Bulletin No. 5 of the CoVida Network - Science, Information, and Solidarity (<https://covid-19br.org/>), a means of dissemination adopted to subsidize the adoption of protective measures and care for health professionals and workers, in health services at the various levels of care.

Proposals and recommendations

The studies addressing the control of COVID-19 infection in health professionals who work to address the pandemic reinforce the importance of preventive measures to reduce the risk of infection among workers who operate both at the hospital level and in primary care, highlighting the importance of hand hygiene, use of PPE (cap, N95 masks, inner gloves, goggles, protective clothing, disposable waterproof shoe covers, disposable isolation aprons, outer gloves, and facial shield) by these professionals. Moreover, individual care with health professionals is emphasized, including the control of symptoms such as fever, cough, and routine examinations (blood count, chest tomography, and self-examination of respiratory symptoms and body temperature) as a means of screening these professionals.

Several studies highlight the need for disinfection of the ward at all times and management of occupational exposure, through real-time observation and instant correction of any missing or inappropriate procedure. Transformations in the ambiance are also emphasized, such as the inclusion of daily routine measures such as cleaning anesthetic machines and respirators, air purifiers for the designated areas, placing and removing PPE, covering medical equipment with film paper, instructions for insertion and removal clothes, restriction of the circulation area and even procedures on the patient that would involve intervention and recovery, in the same place. They also suggest replacing all paper documents with digital information, including prescriptions, sheets, medical records, consent information, and test results to avoid exchanging materials between professionals.

Concerning the reorganization of the work process, the adoption of 6-hour shifts by nurses, with an overlap of one hour, and the implementation of online or face-to-face monitoring of the work of these professionals, and the need for a team split into COVID-19 and non-COVID-19 caregivers, to reduce the risk of transmission, highlighting the need for training professionals to homogenize the work processes of health teams, also emphasizing the use of digital technologies, such as sending video about placing and removing PPE.

It is worth mentioning the creation of collaborative networks aimed at providing technical support to personnel training through instructional material (leaflets and brochures), workshops, dissemination of guidelines, regular sharing of technical updates, and development of case studies as a pedagogical strategy to train the professionals. Several papers describe actions to promote and protect the mental health of health professionals and point out the need to address this area better, highlighting the creation of psychological support teams for health professionals, offering online courses, and other strategies that include micro-practices performed in hospital services.

In the Brazilian case, mental health care for health professionals is still being structured through the municipal and state health secretariats with support from public universities and research centers that have provided theoretical support based on scientific evidence produced in other countries. In this perspective, contingency plans have been proposed for psychosocial care and promotion of mental health for health workers in various states, and initiatives by professional associations in the mental health area.

The actions developed include addressing and attending to the crisis, with rapid psychosocial intervention, but also ensuring a set of preventive actions, in order to reduce the likelihood of professionals suffering psychosocial damage in the medium term, and primarily actions that promote protected environments conducive to the mental health of health workers. As a support strategy for workers on the frontline, Primary Psychological Care (PPC) actions have been proposed through face-to-face or online psychological support services for first listening to psychological attention needs.

Much of the necessary mental health care can be provided through telemedicine services, including a video with mental health professionals, mobile apps, online resources, and virtual peer support. Such services require the training of psychologists, psychiatrists, and other professionals to provide care and the provision of infrastructure with phones and devices for interaction. The Psychosocial Care network can also be used to respond to crises, whether for the population, relatives and companions, and health professionals.

Final comments

The detailed analysis of the proposals and the systematization of the recommendations to health managers and professionals, is, as mentioned above, available in Bulletin 5 of the CoVida network. However, it is necessary to emphasize, in conclusion, the importance of wide dissemination through the media and social networks of the effort being made by health professionals and workers to contain the advance of the pandemic and care for infected patients, even in the poor conditions in which most of them have been working.

We believe that it is essential to also develop social communication strategies that contribute to the valorization of the SUS and the profession-

als and workers who struggle daily for this system to work, so that the population, as in European countries with universal systems, will recognize the importance of the SUS, curbing attitudes and expressions of hostility towards health professionals.

We conclude by reiterating the WHO recommendation regarding the general population's support to health professionals and workers. For health professionals who are at the forefront of fighting the pandemic, a necessary stimulus is recognizing the effort and even the sacrifice that many are making to continue working in such conditions. Knowing that the family is safe, friends and society value their work is essential for them to be able to face with courage and hope the difficult task in which they are engaged.

Collaborations

CFS Teixeira, CM Soares, EA Souza, ES Lisboa, ICM Pinto, L Andrade and M Esperidião collaborated in the preparation and review of the paper.

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