



RESEARCH ARTICLE

Covid-19 Contamination, Changes in Work Routine, and the Impacts on the Mental Health of Primary Care Professionals in Salvador-Ba, Brazil, 2022

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ABSTRACT

The COVID-19 pandemic was a public health emergency between 2020 and 2022, with a direct impact on the lives of health professionals. The study's objective was to identify the prevalence of contamination of the disease in primary care professionals in Salvador-Ba, Brazil, work activities changed by the pandemic, and the impacts on the mental health of these professionals. A cross-sectional study was carried out, and the reference population was the universe of professionals with higher and secondary education (N=1 675) who worked in the network. An electronic form was applied from December 2021 to April 2022, including socioeconomic and demographic issues, health history and comorbidities, routine and working hours, contamination by COVID-19, and evaluation of the emotional aspects of these professionals through the application of the General Anxiety Disorder- 7 Scale (GAD-7-) and Burnout Syndrome (Maslach Burnout Inventory) questionnaire. A descriptive analysis of the variables of interest was performed using central tendency and dispersion measures as well as absolute and relative frequencies. 321 workers participated in the study, 97.20% with a workload of 40 hours per week. The female gender was the majority, 83.18%, married marital status with 57.94%, and having a postgraduate degree was the most present level of education (48.50%). Among the comorbidities, hypertension had the highest occurrence (10.59%). Most of the health professionals participated in the screening team (reception) of patients with or suspected of COVID-19 and in the organization of vaccination (>80%). Contamination by COVID-19 was 64.79%, and 41.83% attributed it to work activity. Of the total, 67.28% of workers had some type of anxiety intensity. Regarding the Burnout indices, it was observed that 47.06% had a high level of emotional exhaustion, 68.84% had a high level of depersonalization, and 99.06% considered their professional fulfillment low.

Keywords: COVID-19, workers' health, occupational risk

Introduction

On January 30, 2020, the World Health Organization (WHO) declared the outbreak of the novel Coronavirus (SARS-CoV-2), originating in Wuhan, China, as a Public Health Emergency of International Concern (PHEIC). This was followed by the declaration of COVID-19 as a pandemic on March 11, 2020, as the disease spread globally. There was a high risk of contamination faced by healthcare professionals, particularly those in emergency and hospital settings. However, that was a limitation of international pandemic responses focused solely on individual hospital care underscored the fundamental role of Primary Health Care (APS) due to its broad scope, including epidemiological surveillance, territorial outreach, and community engagement.¹⁻³

Primary Health Care is the gateway to the Brazilian health system and represents an important pillar in emergency health situations, such as COVID-19, directly contributing to the reduction of morbidity.^{1,2} It is worth reinforcing that, among its principles and guidelines, the territorial and community approach would allow actions to reduce the spread of the disease through health promotion and prevention, primary support for the diagnosis of suspected cases, care for mild and moderate cases of the disease, thus mitigating the collapse of health systems. In addition, it is capable of monitoring cases in isolation at home, supporting communities during social distancing, identifying and managing situations of individual or collective vulnerability, and contributing to access to health care and the necessary referral to specialized services³⁻⁶.

However, despite the availability of prevention guidelines and recommendations on the control of infection in the pandemic^{7,8}, studies on the knowledge, attitudes, and occupational risks of health professionals point to a high risk of contamination, either by caring for symptomatic patients, as well as inadequate use of personal protective equipment (PPE) and insufficient supply^{9,10}; long hours of work and negligence in washing hands after contact with suspected patients, in addition to the parameters of community or family transmission¹¹. Contamination of primary care professionals in Brazil described so far ranged from 25%¹² % to 41.9%¹³, the latter analyzing only nursing professionals.

All these changes in the work routine can have effects that go beyond the physical and physiological spheres and negatively impact the psycho-emotional conditions of workers, compromising their well-being, quality of life, and work performance.^{14,15} Direct consequences are psychic stress, which is expressed in generalized anxiety disorder, sleep disorders, depression, chronic fatigue and lack of energy, Burnout Syndrome, with a decrease in alertness, coordination, and efficiency; increased reaction time; impaired cognition, emotional dullness or mood swings, fear of getting sick and dying and fear of contaminating colleagues and family^{9,16,17}. Boucher et al¹⁴, in a meta-analysis, pointed out that 20% of post-traumatic symptoms and 40% of health professionals manifested burnout symptoms.

Beyond anxiety, the literature also explored depression, insomnia, phobias, obsessive-compulsive symptoms,

somatization symptoms, and post-traumatic stress symptoms among healthcare Workers⁹. International studies from the US, Australia, and Spain corroborated these findings, revealing substantial rates of anxiety, depression, and stress¹⁰. Meta-analyses further supported these elevated levels of mental health issues across different countries¹². Notably, some research suggested higher anxiety levels among primary care professionals compared to those in hospital settings.^{16,17}

In this sense, this study aimed to identify the prevalence of contamination of the disease in primary care professionals in Salvador-Ba, Brazil, work activities changed by the pandemic, and the impacts on the mental health of these professionals.

Methodology

A cross-sectional study was carried out, from December 2021 to April 2022, with the reference population of health professionals (Doctors, Nurses, Nursing Technicians, Dentists, Assistants, and Oral Health Technicians) from the Family Health Units of primary care from Salvador-BA (N= 1675). All professionals who were active during the pandemic period were invited to participate in the study.

A link to an electronic form with a questionnaire was sent electronically (message via cell phone, email) involving 9 blocks of questions: I- socioeconomic-demographic (gender, age, education, income, professional category, household size, household density); II- health history and reported comorbidities; III- work routine (activities performed) and working hours; IV- use of personal protective equipment; V- SARS-CoV-2 contamination; VI- contact tracing, isolation and signs and symptoms of COVID-19; VII- COVID-19 testing and vaccination; VIII- Assessment of Generalized Anxiety Disorder by the GAD-7 Scale; IX- Evaluation of the Burnout Syndrome by the Maslach Burnout Inventory (MBI) scale.

The GAD-7 scale is an instrument with the objective of tracking "Generalized Anxiety Disorder". This instrument has seven items related to anxiety symptoms that have occurred in the last week, with four response options: 0- not at all, 1- several days, 2- more than half the days, and 3- almost every day, which correspond to the scores of 0, 1, 2 and 3, respectively. Thus, the score can vary from 0 to 21, with values corresponding to no anxiety: 0 to 4 points; mild anxiety: 5 to 9 points, moderate: 10 to 14 points, and severe: 15 to 21 points.¹⁶

The Maslach Burnout Inventory (MBI) Scale is aimed at assessing Burnout Syndrome. This instrument assesses how workers experience their work according to the three established dimensions: Emotional Exhaustion (9 items), Professional Fulfillment (8 items), and Depersonalization (5 items), totaling 22 items.¹⁹ The following cutoff points are used: emotional exhaustion (low: zero to 15; medium: 16 to 25; and high: 26 to 54), depersonalization (low: zero to 2; medium: 3 to 8; and high: 9 to 30) and professional achievement (low: zero to 33; medium: 34 to 42; and high: 43 to 48).

The data were exported to an electronic spreadsheet, and the descriptive statistics of the variables were analyzed based on measures of central tendency and

dispersion, absolute and relative frequencies. The research was approved by the Research Ethics Committee of the Federal University of Bahia.

Results

The study population consisted of 321 health professionals. Most were female (83.18%), aged

between 22 and 65 years, 57.94% were married, and brown - 53.89%. Dentists had a greater participation in the research at 33.64%. Of the total, 66.04% of professionals had a family income greater than 5 minimum wages, and 35.83% of health professionals lived alone or with just one person (Table 1).

Table 1- Socio-economic-demographic characterization of primary care health professionals in Salvador-BA, Brazil, 2022 (n=321).

Variables	n	%
Gender		
Female	267	83.18
Male	54	16.82
Marital Status		
Single	108	33.64
Married (formal or informal)	186	57.94
Divorced/ widowed	27	8.41
Race/ Colour of the skin		
Black	81	25.23
Brown	173	53.89
White and others	67	20.87
Profession		
Doctor	36	11.22
Dentist	108	33.64
Nurse	69	21.50
Technician	108	33.64
Higher level education		
Pos Graduation	156	48.50
Graduation	116	36.14
Technician	49	15.26
House ownership		
Own or form somebody in the family	245	76.32
Rent	76	23.68
Residence footage		
More than 100 m2	141	33.62
Between 50-100 m2	146	45.48
Lower 50 m2	35	10.90
Family income (in minimum wage- SM)		
Until 2 SM	34	10.59
Between 2,1 - 4 SM	75	25.37
More than 5 SM	212	66.04
Number of people residing with the professional		
0- 1	105	35.83
2	94	29.28
3 or more	102	34.89

*The minimum wage in Brazil was about 200 dollars

On the subject of the history of comorbidities and general health status, hypertension was more frequent (n=34; 10.59%), and 8 of them also had associated diabetes. In total, 12 professionals had diabetes (3.74%). 20.2% made continuous use of medication due to some comorbidity. The use of antidepressants and anxiolytics before the pandemic represented 7.8% and 5%, respectively. During the pandemic, the use of these drugs increased to 8.7% and 10.9%.

As for working hours during the pandemic, the majority (97.20%) worked full-time (40 hours a week). Regarding employment, 76.01% reported being civil servants, while the rest were hired temporarily.

Regarding contamination by COVID-19, 64.79% declared having already been contaminated in one way. As for the signs and symptoms presented, 42.8% reported fever, 62.5% reported sore throat, 33.7% loss of taste, 36.5% loss of smell, 19.7% intestinal problems, 17.8% reported air, and 60.1% reported body aches. Only 4% required hospital care. Regarding vaccination, 77.9% of professionals received the Coronavac vaccine as the first dose (late 2020 and early 2021), and 95.6% already had the third dose administered when the questionnaire was applied.

Regarding the work routine, the results are shown in Table 2 - 80.7% participated in the screening and reception team for patients with or suspected of COVID-19, and

52.3% took rapid tests. However, only 28.7% stated that they received training to manage these patients. The continuity of routine care during the pandemic was

maintained by 63.2% of professionals, and 70.4% indicated that new assignments were requested. Home visits were carried out by 29.3% of health professionals.

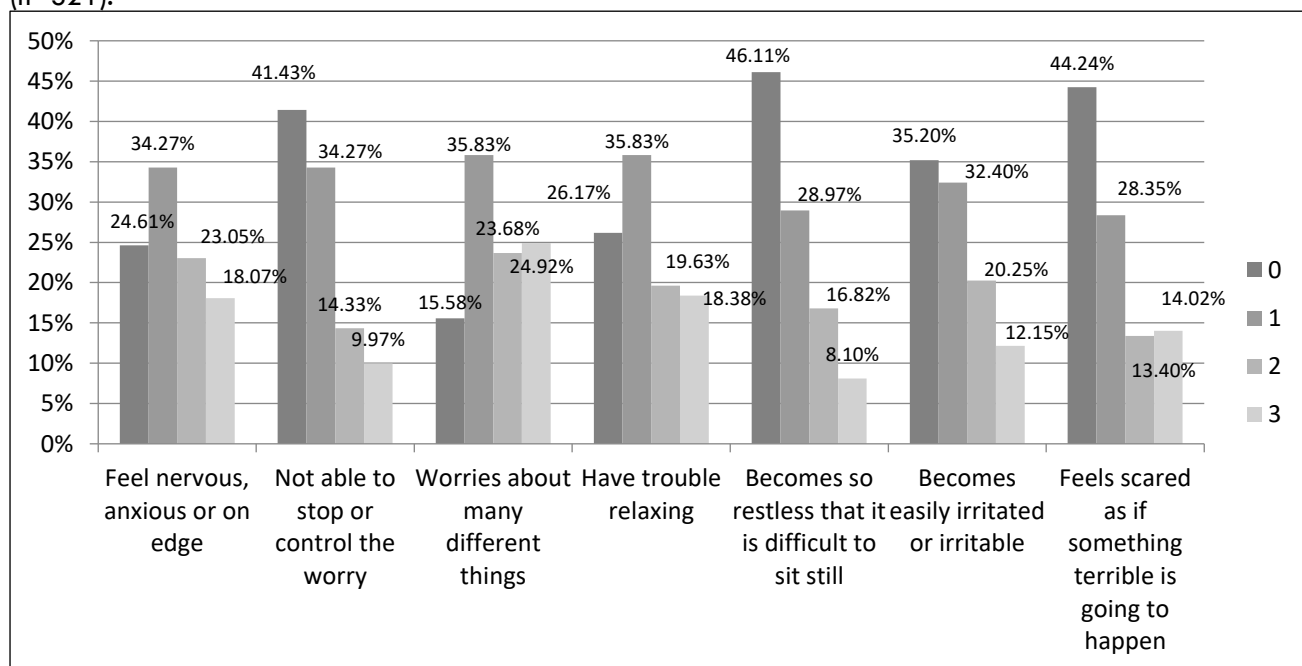
Table 2- Work routine and working hours during a pandemic among primary care professionals in Salvador-BA, Brazil, 2022. (n=321).

Variables	n	%
Received training in the management of patients with or suspected of having COVID-19		
Yes	92	28.70
No	229	71.30
Participated in the screening team of patients with suspected COVID-19		
Yes	259	80.70
No	62	19.30
Continuity of routine care during the pandemic		
Yes	203	63.20
No	118	36.80
Was part of the testing team (rapid tests)?		
Yes	168	52.30
No	153	47.70
Conducted home visits in the community during the pandemic		
Yes	94	29.30
No	227	70.70
New assignments beyond your routine were requested.		
Yes	226	70.40
No	95	29.60

When analyzing the impacts of the pandemic on the mental health of workers, 34.27% state that for many days they feel nervous, anxious, or on edge and 41.43% that they are not able to stop and control the worry at

all, and 35.83% stated that they worried about many different things for many days, and found it difficult to relax. (Figure 1).

Figure 1- GAD-7 Scale- Generalized Anxiety Disorder-7 in primary care professionals in Salvador-Bahia, Brazil, 2022 (n=321).



0- not at all, 1- several days, 2- more than half the days, and 3- almost every day

When evaluating the intensity of anxiety among health professionals, the results showed that 32.71% were without anxiety, 27.41% with a mild degree of anxiety, 24.61% with moderate anxiety, and 15.26% with a severe degree of anxiety.

To evaluate Burnout Syndrome, through the Maslach Burnout Inventory Scale (MBI), the final results are presented in Table 3.

Table 3- Burnout rates (emotional exhaustion, depersonalization, and professional accomplishment) in primary care professionals in Salvador- Bahia, Brazil, 2022 (n=321).

Variables	n	%
Level of emotional exhaustion		
Low	87	27.08
Average	83	25.85
High	151	47.07
Level of depersonalization		
Low	15	4.67
Average	85	26.48
High	221	68.85
Level of personal achievement		
Low	318	99.07
Average	2	0.62
High	1	0.31

Discussion

The prevalence of self-reported contamination by health professionals in this study was 64.79%. This percentage was high when compared to the results of international studies that evaluated the contamination rate among professionals working in PHC in Barcelona- 30.8% with positive RT-PCR ²⁰ and Algado-Selles et al ²¹, also in Spain, with 14.7% in primary care.

It was also higher when compared to national studies, such as the one by Gallasch et al. ²², covering professionals from different spheres of Health Care - 30.89%, with 27% working in PHC; and those of Ferreira²³, which revealed 25% of contaminated professionals throughout Brazil. Still in Brazil, Correia et al. ¹¹ obtained a positive IgG result of 30%.

The heterogeneity between these results can be attributed to the different collection strategies used (serological tests X self-reported disease), different sample sizes, and different types of populations. It is emphasized that the production of knowledge on this subject is timely, especially since it is precisely in this sector that the responsibility for the care of patients with sequelae of the COVID-19 disease and the continuity of the planning of preventive actions in the community lies.

It is important to plan actions to support and strengthen the local area in the fight against COVID-19 within the scope of Primary Health Care in the Municipality, with measures to prevent and manage occupational risks, considering that it is precisely these professionals who are responsible for the early detection of the disease through rapid tests, tracking of identified cases, supervision, and care of sick patients, preparation of referral flows, referrals, and counter-referrals, educational activities in the territory and awareness of the population, as well as application of the vaccine, assistance to patients with sequelae of the disease, ^{1,4,5} in addition to continuity of care for other patients with chronic diseases, prenatal care, and child care. ^{2,6,24}

A reformulation and/or improvement of existing surveillance actions was necessary to expand care to the community and to face the pandemic ^{5,24,25}, which meant that they had to reconcile the updating of new routines with the demands that emerged with the pandemic and the continuity of their regular activities. ^{2,26}

This was a highlight of this work. The reorganization of services was a reality in the municipality's PHC - 70.4% of professionals highlighted that new attributions were requested during their workday, 80.70% needed to be part of the reception team for patients suspected of having the disease, and 52.3% were part of the testing team and reported work overload. This reality was repeated in many other locations. ^{20,24,25,26}.

In this study, the majority (63.2%) maintained the exercises of their routine assignments, validating the importance of maintaining care for the general health of the population ^{26,27}, but on the other hand, few professionals (29.3%) remained with the home visiting activities. It is also observed that, in general, in the European Union, face-to-face consultations have decreased, and there has been an increase in teleconsultations. ⁵

The modality of care through these was not evaluated in this study, but it is worth emphasizing that it was a fundamental tool, applied by several countries, ^{3,26,27} as a measure of organization of assistance to patients for their care and follow-up. However, even with some limitations, such as digital exclusion ²⁵ and lack of physical contact ^{2,28}, it was guaranteed by Ordinance No. 467, of March 20, 2020, by the Brazilian Ministry of Health. ²⁹

In the assessed group, 67.28% of health professionals had some degree of anxiety. It is worth noting that the data showed that 8.7% began using antidepressants and 10.9% anxiolytics with the onset of the pandemic. When compared to other investigations, Shi et al. ³⁰, 2022, in China, presented similar results - 68.1%. Lower prevalences were found in studies by Lobo et al. ³¹ in Brazil, in which 52% had anxiety, up to 8.3%. Described in the study by Maroto et al. ³², among physicians working in Primary Care in Spain.

In Brazil, high degrees of mental disorders and impact on quality of life have also been described in Recife. ¹⁷ Regarding the measurement of Burnout Indexes, the results presented in this study indicate that the level of emotional exhaustion in its largest scale was 47.06%, with 68.84% of depersonalization at the high level, and 99.06% considered the level of low professional achievement. When compared to studies carried out in PHC in Brazil, it was observed that results in the studies

by Ferreira et al.²³ showed that 52.9% of health professionals in PHC in Montes Claros-MG had Burnout Syndrome, with higher prevalence in the high level with 54.8% for exhaustion, 77.6% for depersonalization and a value close to 98.6% for low personal fulfillment. Pedrosa et al.³³ had higher results for the high level of exhaustion with 59.2%, however, lower values for depersonalization with 29.6%, and only 1.4% did not feel professionally fulfilled among doctors and nurses in primary care to health in the city of Recife, PE. Although the studies by Santos et al.³⁴ in the Amazonia present a lower prevalence of 33.5% when compared to exhaustion at a high level, their results are superior with 84.8% of depersonalization at a high level and with the proximity in low professional achievement with 93.3%.

When compared to studies involving Burnout Syndrome in health professionals working in PHC, from other parts of the world, it was observed that in studies by Baptista et al.³⁵, evaluating primary care physicians in Portugal, they presented high levels in the 3 dimensions of Burnout: 65.9% personal, 68.7% work-related, and 54.7% patient-related. Smaller results were reported in the studies by Lasalvia et al.³⁶, in Italy, with a general prevalence of 25.4% of Burnout Syndrome, also in the medical category of the APS. Apaydin et al.³⁷ identified that 43.4% of health professionals working in PHC had the syndrome.

It is evident that limitations exist in this study - it is a study based on cross-sectional data, with a limited sample and

asymmetrical participation between different geographic areas and professional categories in the municipality. The option to search only health professionals who worked in the Family Health Units also does not represent the entire PHC in the municipality. In addition, the data obtained through the questionnaire may have biases, either due to memory or the voluntary omission of the respondent. However, it is worth noting that this is one of the few works on the contamination of Primary Health Care workers in the municipality. It highlights important elements of the work and health of health workers during the pandemic and can, therefore, provide elements that contribute to the workers' health surveillance.

Conclusion

Based on the findings of this study, healthcare professionals in the Family Health Strategy (ESF) experienced a high rate of COVID-19 contamination. The pandemic led to significant work overload and modifications in their routines. Furthermore, the study revealed insufficient protective measures and a lack of adequate support, contributing to the increased risk of infection. Consequently, there was a notable impact on the mental health of these professionals, with high levels of anxiety and burnout observed. This research underscores the need for enhanced surveillance, support systems, and preventive strategies to safeguard the health and well-being of primary care workers during public health emergencies.

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