

Prevalence of COVID-19 testing among health workers providing care for suspected and confirmed cases

Prevalência de testagem para COVID-19 entre trabalhadores da saúde atuantes na assistência a casos suspeitos e confirmados

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ABSTRACT | Objectives: To describe the prevalence of testing among health workers providing care for suspected and confirmed cases of COVID-19. **Methods:** This quantitative, cross-sectional study was conducted from April to June 2020, using a convenience sample. An online questionnaire was used for collecting sociodemographic, occupational, and clinical data, which were analyzed descriptively. **Results:** In total, 437 health workers participated in the study, with a predominance of nursing workers (58.68%), women (70.3%), age between 30 and 49 years (54.2%), individuals living in the Southeast region of Brazil (60.54%), working in the public care system (69.11%), and focused on primary care (30.89%). Among the participants, 36% reported comorbidities, 21.1% had symptoms suggestive of COVID-19, and only 27% had undergone some type of COVID-19 testing. **Conclusions:** Despite the existence of risk comorbidities and symptoms suggestive of contamination, the frequency of testing was below one third among respondents. The lack of action compromises health surveillance and protection strategies for workers providing care for the population and may favor the contamination of new patients and the community.

Keywords | pandemics; public health; occupational health; occupational risks.

RESUMO | Objetivos: Descrever a prevalência de testagem entre trabalhadores de saúde atuantes na assistência a casos suspeitos e confirmados de COVID-19 no Brasil. **Métodos:** Estudo transversal, de abordagem quantitativa, realizado entre abril e junho de 2020, com amostra composta por conveniência, com formulário para coleta de dados sociodemográficos, ocupacionais e clínicos disponibilizados virtualmente, com dados analisados descritivamente. **Resultados:** Participaram do estudo 437 profissionais da área da saúde, com predomínio de profissionais de enfermagem (58,68%), mulheres (70,3%), entre 30 e 49 anos (54,2%), residentes na região Sudeste (60,54%), atuantes na rede pública (69,11%) e voltados à atenção primária (30,89%). Entre os participantes, 36% relataram comorbidades, 21,1%, sintomas sugestivos de COVID-19 e apenas 27% haviam sido submetidos a algum tipo de testagem para COVID-19. **Conclusões:** Apesar da existência de comorbidades de risco e sintomas sugestivos de contaminação, a frequência de testagem foi inferior a um terço entre os respondentes. A falta de ação compromete ações de vigilância e de proteção à saúde do trabalhador atuante na assistência à população e pode favorecer, também, a contaminação de novos pacientes e da comunidade.

Palavras-chave | pandemias; saúde pública; saúde do trabalhador; riscos ocupacionais

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INTRODUCTION

The pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) imposed on society the need to implement protocols to prevent contamination, illness, and spread of coronavirus disease 2019 (COVID-19) among workers exposed to the virus in their work activities.¹⁻³

An intervention strategy recommended by experts is isolation of suspected cases and testing of those who are at high or very high risk for exposure to SARS-CoV-2.⁴ According to the Occupational Safety and Health Administration (OSHA), workers at high risk are those with high potential for exposure to known or suspected sources of COVID-19, while those at very high risk are those with high potential for exposure to known or suspected sources of COVID-19 during health care, postmortem, or specific aerosol-generating laboratory procedures.⁵

International experience recommends expansion of laboratory investigation with prompt delivery of test results as a strategy to differentiate COVID-19⁶ cases as well as escalation of investments to protect health care workers.⁷ As the pandemic evolved, there was a need for periodic investigation, even in asymptomatic individuals.⁸ Thus, identifying whether testing has been conducted among health workers in Brazil is necessary to generate inputs for the discussion of health protection strategies. This article seeks to contribute to the collection of those data by describing them from the perspective of workers' self-reports.

Issues such as the best biological material for testing, biological marker and method employed, time of testing in relation to the period of infection, and development of reliable and trustworthy tests have been faced to conduct mass testing.⁹ In Brazil, difficulties in accessing diagnostic tests, slow pace in planning and implementing management and government actions, and lack of economic investment for this purpose have been repeatedly reported. Noteworthy is the lack of tests and supplies for using reverse transcription polymerase chain reaction (RT-PCR) for detection of SARS-CoV-2, in addition to errors resulting from clinical diagnosis and handling of laboratory testing supplies.¹⁰

Only on July 8, 2020, almost 4 months after the World Health Organization (WHO) declared COVID-19 a pandemic, priority testing for "essential" workers was determined by Law No. 14.023.¹¹ Within this context, this paper aims to describe the prevalence of testing among health workers providing care for suspected and confirmed cases of COVID-19.

METHODS

This quantitative, cross-sectional study was conducted from April to June 2020, using data from the first phase of the "Potenciais de desgaste e fortalecimento dos trabalhadores de saúde atuantes nos cenários de atendimento à doença por coronavírus 2019 (COVID-19)" (Potential for strain and strengthening in health workers providing care for cases of coronavirus disease 2019 [COVID-19]) study.

A convenience sample was recruited at the national level in view of limitations to in-person access to workers and institutions at this critical time of increasing number of cases in Brazil. Health workers from different areas and working at all levels of care, at the front lines of the COVID-19 pandemic, were invited. Invitation was sent electronically, via e-mail and social media, and included a link to an electronic page with a form for collection of sociodemographic (sex, age, Brazilian region), occupational (occupation, type of institution, level of care), and clinical (COVID-19 testing, comorbidities, history of COVID-19 symptoms) data. Participation of individuals who had better access to technological tools and Internet connection can be considered a selection bias.

Data were tabulated in Microsoft Excel[®] for Office 365 MSO (version 16.0.12527.20986) spreadsheets and analyzed using R statistical software (version 1.2.5033). Then, data were analyzed descriptively (frequency, mean, and standard deviation).

The research protocol followed the recommendations of Brazilian National Health Council Resolution No. 510/2016 and additional resolutions. The study was registered on Plataforma Brasil with CAAE No. 30599420.0.0000.0008 and approved by the Brazilian National Research Ethics Committee (Comissão

Nacional de Ética em Pesquisa, Conep) with Opinion No. 3.979.223/2020.

RESULTS AND DISCUSSION

During the study period, 472 online forms were completed, but 35 were excluded from analysis because of incomplete or duplicate information. The sociodemographic and work-related characteristics of 437 participants are shown in Table 1.

There was a predominance of nursing workers among the respondents (58.8%), which is compatible

with the technical and scientific division of health care needs. Additionally, there was a need to expand the nursing staff because of the complexity of care, the status of those patients, and the increased time for workers to don and doff their personal protective equipment in the pandemic.¹¹ Currently, more than 2 million workers are registered in Brazilian nursing councils.¹²

The findings of predominance of women (70.3%) and workers aged 30 to 49 years (54.2%) in this sample are consistent with the known profile of nursing workers.¹³ In addition to protecting occupational health, testing in women is cited in the literature as

Table 1. Distribution of study participants according to sociodemographic, occupational, and clinical features (n = 437), Brazil, 2020

Variable	n (%)	Variable	n (%)
Sex		Type of institution	
Male	126 (28.8)	Only public	302 (69.1)
Female	307 (70.3)	Only private	79 (18.1)
Not reported	4 (0.9)	Both public and private	26 (5.9)
Age (years)		Philanthropic and public/private	17 (3.9)
20-29	89 (20.4)	Other combinations	7 (1.6)
30-39	161 (36.8)	Not reported	6 (1.4)
40-49	124 (28.4)	Level of health care	
50-59	49 (11.2)	Primary	134 (30.8)
60 or over	13 (2.9)	Secondary	79 (18.1)
Not reported	1 (0.2)	Tertiary	129 (29.5)
Occupation		Quaternary	20 (4.6)
Nurse	243 (55.5)	More than one level	65 (14.9)
Physician	69 (15.8)	Not reported	9 (2.1)
Practical nurse or nursing assistant	41 (3.3)	COVID-19 testing	
Physical therapist	21 (4.9)	No	315 (72.1)
Psychologist	15 (3.4)	Yes	118 (27.0)
Other*	47 (16.9)	Not reported	4 (0.9)
Not reported	1 (0.2)	Comorbidities	
Brazilian region		No	279 (63.9)
Southeast	300 (68.5)	Yes	157 (35.9)
North	78 (17.9)	Not reported	1 (0.2)
Northeast	30 (6.8)	History of COVID-19 symptoms	
South	20 (4.8)	No	343 (78.5)
Midwest	8 (1.8)	Yes	92 (21.1)
Not reported	1 (0.2)	Not reported	2 (0.4)

* Self-reported occupations that provide care for suspected or confirmed cases of COVID-19: pharmacy and biochemistry, nutrition, dentistry, speech therapy, occupational therapy, medical physics, social work, engineering, research, teaching, doula, work safety technician, technologist, logistics supervision, emergency department attendant.

relevant to reduce the impact of the pandemic on them, especially when pregnant.¹³

The study also demonstrated that a wide range of workers are potentially exposed to SARS-CoV-2 in their work routines, and they reported being involved in actions to meet the different demands of patients. Possible explanations for a greater participation of workers living in the Southeast region (60.5%) are this being the most populous region and the specific course of COVID-19 in Brazil.¹⁴ The second hypothesis is plausible, especially if we consider that the North region is the second most frequent in the sample.

Noteworthy is the predominance of workers in the public health system (69.1%), focused on primary care (30.89%). The Brazilian Unified Health System (Sistema Único de Saúde, SUS) has nationwide coverage and plays a key role in providing care for the population during a pandemic. The presence of tertiary care workers can be explained by the clinical characteristics of COVID-19, whose rapid progression to pulmonary insufficiency requires hospitalization.^{1,8}

In view of the current situation of COVID-19, widely spread by symptomatic and asymptomatic individuals, and the struggle to implement symptom-based screening and isolation strategies, testing has become the most recommended strategy for public health screening and protection.⁴ Therefore, epidemiological surveillance for workers must address the different levels of health care and the complexity of care, in an effort to promote effective prevention of illness and spread of the virus by asymptomatic individuals.

A concerning issue is that 36% of workers had comorbidities and were exposed to COVID-19 at the time of the study. There are some diseases that are known to increase the risk for severe cases of COVID-19.¹⁵ A smaller proportion of participants reported having recognized symptoms suggestive of COVID-19 (21.1%). However, COVID-19 symptoms are nonspecific, which can make contamination difficult to identify, especially at the beginning of the pandemic.

In the study period, only 27% of participants had undergone some type of COVID-19 testing; among the tested participants, 53% had a history of symptoms. Considering the potential for spread of the virus in an exposed group, the possibility of

nonspecific symptoms, and the potential for risk, there are reasons for conducting extensive testing.¹³

As knowledge about the disease has evolved, the WHO has recommended mass testing for populations, which has been recognized by the international scientific community as a strategy to define the prevalence of infection in the population, as well as early diagnosis and quarantine for mild or asymptomatic cases.^{9,16-18} Additionally, health care workers are disproportionately affected by COVID-19 and may be carriers of the disease.¹⁹

In addition to interrupting possible transmissions, testing of workers involved in patient care is an important tool for maintaining health care services, since it can provide early symptomatic treatment, early return to work, and reduced absenteeism, which has been observed internationally.^{20,21}

CONCLUSION

This study presents the profile of workers providing care for suspected and confirmed cases of COVID-19, with multiprofessional characteristics, distributed nationally, and working in public and private services at different levels of care (primary, secondary, and tertiary). Despite the existence of risk comorbidities and symptoms suggestive of contamination, the frequency of testing was below one third among respondents. This is related to lack of investments and slow decision-making by managers and government officials, which have been observed so far in the fight against COVID-19 in Brazil.

The findings of this study will potentially support the criticism of public policies addressing the COVID-19 pandemic at the national level, given that all regions were represented in the sample.

Lack of action compromises health surveillance and protection strategies for workers providing care for the population and may favor the contamination of new patients and the community. As a follow-up to this study, workers will be invited again to respond questions about their role in care settings for patients with COVID-19, development of symptoms, and testing for laboratory diagnosis of the infection.

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