

Print ISSN : 1115-2613  
Online ISSN : 2667-0526

Volume 30 • Issue 3 • May-June 2021

# NIGERIAN JOURNAL OF MEDICINE

[www.njmonline.org](http://www.njmonline.org)



An Official Publication of  
Nigerian Association of Resident Doctors (NARD)

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# Readiness of Nigerian Health-Care Workers to Work during COVID-19 Pandemic

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## Abstract

**Introduction:** Health-care professionals of all cadres are the utmost valuable resource during pandemics and maintaining an adequate workforce of health professionals during an emergency is critical to ensure uninterrupted provision of services that are essential for patient care. **Aim:** Examine readiness of health-care workers (HCWs) to provide service in the course of the COVID-19 pandemic and the factors influencing their decision. **Methodology:** This was a cross-sectional study of Nigerian health sector workers HCWs in the course of the COVID-19 pandemic. The respondents were recruited using HCWs focus groups on WhatsApp and Telegram social media platforms. **Results:** A total of 481 HCWs were recruited, consisting of 288 females and 193 males (M: F, 1:1.5), mean age = 30.71 ± 5.9 years. Most HCWs (97.3%) showed a willingness to provide service during the pandemic; 73.3% of the HCWs were willing to work if supplied with adequate personal protective equipment (PPE) although 5.8% were less willing to work without proper PPE. Factors supporting unwillingness to work during the pandemic were: concerns about the lack of adequate testing for COVID-19 (48.9%), lack of disability insurance plan (40.1%), fear of being infected (47.2%), and the risk of infection in family members (24.5%). The readiness to work was related to the job cadres of the HCWs ( $P = 0.001$ ), while the provision of additional incentives and a change in the working conditions would influence the readiness of the HCWs to work. **Conclusion:** HCWs were ready to provide service in the course of the COVID-19 pandemic if there was a safe work environment, although the availability of PPE and other personal factors would influence their willingness to work, while improvement in working conditions would motivate HCWs to work.

**Keywords:** COVID-19, health-care workers, pandemic, personal protective equipment

## INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also known as SARS-CoV-2 or COVID-19, caused a pandemic that is still spreading worldwide and has high mortality among the populace and health-care workers (HCW) globally.<sup>[1-3]</sup> With an estimated mortality rate of up to 5%,<sup>[4,5]</sup> COVID-19 pandemic impacts humans on all continents, different socioeconomic status, and with a great toll on the health sector.<sup>[6]</sup> Globally, the populace was advised to stay at home or ensure physical distancing to curb transmission of the virus, but the practices of HCWs were contrary to these public health advice because their profession requires them to report to work in health facilities caring for the sick and in the process experience close contact with individuals potentially infected with COVID-19. Thus, HCWs bear a comparatively higher risk of infection with COVID-19 and some HCWs have been infected and have died.<sup>[7,8]</sup>

As the cases of COVID-19 infection and related death increase in many nations of the world, the availability of personal protective equipment (PPE) for HCWs to prevent this highly infectious disease following exposure to aerosols or contaminated body fluids is a major challenge.<sup>[9]</sup> PPE scarcities have been reported in health institutions of many affected countries.<sup>[10]</sup> There is either delay in supplying PPE or the available PPE may not meet the requirements for patients care.<sup>[9]</sup>

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**How to cite this article:** Ogunkeyede SA, Adeyemo AA, Ogundoyin OA, Oyelakin OA, Fawole OB. Readiness of Nigerian health-care workers to work during COVID-19 pandemic. Niger J Med 2021;30:246-51.

**Submitted:** 31-July-2020

**Revised:** 26-Feb-2021

**Accepted:** 05-Mar-2021

**Published:** 19-Jun-2021

### Access this article online

Quick Response Code:



**Website:**  
www.njmonline.org

**DOI:**  
10.4103/1115-2613.318837

HCWs are frequently concerned about their personal safety and the transmission of infection to their families. There are reported cases of COVID-19 transmission to multiple family members through symptomatic and asymptomatic HCWs,<sup>[11]</sup> though, this cross-infection and mortality can be prevented through preventive measures at work and active case management.<sup>[12]</sup> It is likely that the optimization of safety of HCWs would enhance workforce assurance and readiness to maintain service provision throughout the COVID-19 pandemic. Exploring determinants of HCWs readiness to offer service in the course of the COVID-19 pandemic will help health system managers and policy-makers to develop approaches to address the concerns of HCWs and provide specific support to this workforce. The importance of maximizing the ability of HCWs to continue caring for the anticipated high volume of infected patients, especially in low- and middle-income countries with a preexisting shortage of HCWs is obvious. This study explored readiness to work by HCWs and factors influencing motivations to work in a resource-challenged environment during COVID-19 pandemic.

## METHODOLOGY

All research-related activities in this study were conducted with integrity, anonymity, and confidentiality. Ethical approval was secured from the institutional review board (UI/UCHECR/20/334). A cross-sectional design was adopted to study HCWs in Nigeria, recruited using a convenient sampling method through an electronic survey on social media platforms. The research utility of social media platforms has been shown previously.<sup>[13]</sup>

A Google form link was distributed to HCW (doctors, nurses, laboratory scientist, pharmacists, physiotherapist, radiographer, ward-maids/nurse assistants, cleaners, hospital porters, and audiologists) focus groups (approximately 20 chat groups of between 25 and 200 participants) on WhatsApp and Telegram social media platforms between May 1, and June 10, 2020. The calculated minimum sample size was determined to be 384 respondents.<sup>[14]</sup> A structured Google Forms questionnaire (a 35-item survey) was used to collect the data on demography, motivation to work, factors affecting motivation to work, and safety challenges regarding COVID-19 at work. The data were automatically saved to a dedicated Google drive account on completion of the questionnaire by the respondents. The data were analyzed using Statistical Product and Service Solutions (IBM-SPSS) software version 20 (Armonk, NY, USA). The data were analyzed using both descriptive and inferential statistics.

Full PPE was defined as equipment worn to prevent the wearer's body from exposure to infection.<sup>[15]</sup> Appropriate PPE was defined as the suitable device worn to prevent contraction of COVID-19 infection; however, the whole body is not protected.<sup>[16]</sup>

## RESULT

A total of 481 respondents completed the questionnaire

**Table 1: The sociodemographic characteristics of respondents**

Factors	Total (481; 100) (%)
Age (years)	
21-30	296 (61.4)
31-40	156 (32.4)
41-50	22 (4.6)
50-60	6 (1.2)
60-70	1 (0.2)
Gender	
Female	288 (59.8)
Male	193 (40.1)
Marital status	
Married	167 (34.7)
Single	310 (64.4)
Separated	1 (0.2)
Divorced	2 (0.4)
Widow	1 (0.2)
Cadre	
Doctors	153 (31.8)
Nurses	150 (31.2)
Laboratory scientist	72 (14.9)
Pharmacists	49 (10.2)
Physiotherapist	9 (1.9)
Radiographer	10 (2.1)
Others	38 (7.9)
Type of institution	
Government	137 (28.4)
Private	277 (57.5)
Missionary	18 (3.7)
NGO	26 (5.4)
Others	23 (4.8)

NGO: Nongovernmental organisation

consisting of 153 doctors, 150 nurses, and 178 other HCWs [Table 1]. The respondent's age ranged from 21 to 61 years (mean  $30.71 \pm 5.9$  years), and there were 288 females and 193 males (M:F, 1:1.5).

Majority of the respondents, 468 (97.3%), expressed readiness to continue service provision during the pandemic, out of which 450 (93.5%) were only willing to work if the hospital environment was safe and supportive. Only 18 (3.7%) HCWs were willing to work even if the hospital environment was not supportive, while 13 (2.7%) HCWs wished to work from home [Table 2]. The extent of medical services HCWs were willing to render depended on the availability of PPEs. Among the respondents, 353 (73.3%) were willing to perform their routine duties only if full PPEs were available and 28 (5.8%) expressed willingness to work when appropriate PPEs are available for patients care even if full PPEs kits were not available. However, 12 (2.5%) HCWs agreed to render skeletal services only in the presence of appropriate PPEs, while 87 (18.1%) HCWs agreed to render skeletal services in the absence of PPE.

The willingness to work was significantly associated with the HCWs cadres ( $P < 0.001$ ), however gender ( $P = 0.43$ ),

**Table 2: Willingness to work by health care workers in the course of pandemic**

Factors	Willingness to work during COVID-19 pandemic (%)			Total=481 (100)	P
	Yes, if the working environment is supportive=450 (93.6)	Yes, even if the working environment is not supportive=18 (3.7)	No, I prefer to stay safe at home regardless of any condition=13 (2.7)		
Age (years)					
21-30	282 (58.6)	7 (1.4)	7 (1.4)	296 (61.4)	0.97
31-40	142 (29.5)	10 (2.1)	4 (0.8)	156 (32.4)	
41-50	19 (4.0)	1 (0.2)	2 (0.4)	22 (4.6)	
50-60	6 (1.2)	0	0	6 (1.2)	
60-70	1 (0.2)	0	0	1 (0.2)	
Gender					
Female	272 (56.6)	8 (1.6)	8 (1.6)	288 (59.8)	0.43
Male	178 (37.0)	10 (2.1)	5 (1.0)	193 (40.1)	
Marital status					
Married	154 (32.0)	7 (1.5)	6 (1.2)	167 (34.7)	0.25
Single	294 (61.1)	11 (2.3)	5 (1.0)	310 (64.4)	
Separated	1 (0.2)	1 (0.2)	0	1 (0.2)	
Divorced	0	0	2 (0.4)	2 (0.4)	
Widow	1 (0.2)	0	0	1 (0.2)	
Cadre					
Doctors	142 (29.5)	4 (0.8)	7 (1.5)	153 (31.8)	<0.001
Nurses	146 (30.4)	2 (0.4)	2 (0.4)	150 (31.2)	
Laboratory scientist	67 (13.9)	3 (0.6)	2 (0.4)	72 (14.9)	
Pharmacists	43 (9.0)	5 (1.0)	1 (0.2)	49 (10.2)	
Physiotherapist	9 (1.9)	0	0	9 (1.9)	
Radiographer	9 (1.9)	0	1 (0.2)	10 (2.1)	
Others	34 (7.1)	4 (0.8)	0	38 (7.9)	
Type of institution					
Government	126 (26.2)	6 (1.2)	5 (1.0)	137 (28.4)	0.43
Private	259 (53.8)	12 (2.5)	6 (1.2)	277 (57.5)	
Missionary	17 (3.5)	0	1 (0.2)	18 (3.7)	
NGO	26 (5.4)	0	0 (0.0)	26 (5.4)	
Others	22 (4.6)	0	1 (0.2)	23 (4.8)	

NGO: Nongovernmental organisation

marital status ( $P = 0.25$ ), age ( $P = 0.97$ ), and type of institution ( $P = 0.43$ ) did not show statistically significant association [Table 1]. A significant number of the HCWs, 207 (43.1%) expressed their willingness to resign if they were forced to work in an unfavorable working condition. The willingness to resign was significantly associated with the HCWs cadres ( $P < 0.001$ ), type of health institution ( $P < 0.001$ ), but not with the gender ( $P = 0.26$ ) or marital status ( $P = 0.24$ ) [Table 3].

Multiple reasons were expressed by the respondents for their unwillingness to care for patients during COVID-19 pandemic, these included: fear of being ill with COVID-19 [102 (21.2%)], lack of adequate testing for COVID-19 among patients and hospital staff (235 [48.9%]), lack of medical disability insurance plan for HCWs (193 [40.1%]), and fear that family members could become ill with COVID-19 (167 [34.7%]) [Table 4].

Motivational factors to improve the productivity of HCWs during the pandemic were listed to include incentives such

as: increase in hazard allowances (319 [66.3%]), availability of anti-COVID-19 medication or vaccine (200 [41.6%]), and free accommodation at work during COVID-19 pandemic period (188 [39.1%]) [Table 5].

## DISCUSSION

The willingness of HCWs to be at their duty posts during a pandemic is essential to efforts in containing the health crisis. Our findings indicate that there was a great willingness among HCWs to service provision throughout the pandemic. Earlier studies on anticipated behaviors of HWCs toward pandemic infection showed a high willingness to work among certain physicians.<sup>[17,18]</sup> During the influenza A (H1N1) pandemic in 2009, a high willingness to work among Australian family physicians was recorded. However, a low prevalence of willingness to work among HCWs was recorded in Nigeria during the same period.<sup>[19]</sup> The ease of access to protective measures in the work environment may be responsible for the differences in the work readiness of HCWs in the course of a pandemic.<sup>[20,21]</sup>

**Table 3: Willingness to resign if mandated to resume during the pandemic**

Factors	Resign your job (%)			P	
	No=274	Yes=207	Total=481 (100)		
Gender					
Female	170 (35.4)	118 (24.5)	288 (59.9)	0.26	
Male	104 (21.6)	89 (18.5)	193 (40.1)		
Marital status					
Single	167 (34.7)	143 (29.8)	310 (64.5)	0.24	
Married	104 (21.6)	63 (13.1)	167 (34.7)		
Divorced	1 (0.2)	1 (0.2)	2 (0.4)		
Separated	1 (0.2)	0	1 (0.2)		
Widow	1 (0.2)	0	1 (0.2)		
Cadre					
Doctors	80 (16.6)	73 (15.2)	153 (31.8)	<0.001	
Nurses	71 (14.8)	79 (16.4)	150 (31.2)		
Laboratory scientist	50 (10.4)	22 (4.6)	72 (15.0)		
Pharmacists	26 (5.4)	23 (4.7)	49 (10.1)		
Physiotherapist	8 (1.7)	1 (0.2)	9 (1.9)		
Radiographer	8 (1.7)	2 (0.4)	10 (2.1)		
Others	31 (6.4)	7 (1.5)	38 (7.9)		
Type of institution					
Private	139 (29.0)	138 (28.7)	277 (57.7)		
Government	97 (20.1)	40 (8.3)	137 (28.4)		
Missionary	8 (1.7)	10 (2.0)	18 (3.7)		
NGO	15 (3.1)	11 (2.2)	26 (5.4)		
Others	15 (3.1)	8 (1.7)	23 (4.8)		

NGO: Nongovernmental organisation

**Table 4: Factor(s) that will make health care workers prefer to stay off duty/work**

Factors	Total (%)
Fear that family members might die of COVID-19	81 (16.8)
Delegated to care directly for a COVID-19 patient	85 (17.7)
Fear of being ill with COVID-19	102 (21.2)
If a close relation is ill and requires care	118 (24.5)
If a colleague is quarantined due to COVID-19 or died of COVID-19	135 (28.1)
Fear of a close relation being infected with COVID-19	167 (34.7)
Lack of a written family protection plan (insurance plan)	193 (40.1)
Being ill for any reason	227 (47.2)
Lack of adequate testing of patients and colleagues for COVID-19	235 (48.9)

\*Some HCWs had >1 reason for not willing to work. HCW: Health care workers

**Table 5: Motivational factor(s) to work during the pandemic**

Motivational factors	Total (%)
Certain incentives were offered by government	282 (58.6)
There is increase in hazard allowances or double pay	319 (66.3)
Free accommodation is available at work during this period	188 (39.1)
There is anti- COVID-19 medication or vaccine for medical personnel	200 (41.6)

\*Some HCWs had >1 factor influencing willingness to work. HCW: Health care workers

Previous studies found that demographic characteristics were important factors in work readiness in the course of a pandemic.<sup>[22,23]</sup> Male gender and younger age are related to work readiness;<sup>[24,25]</sup> but in this study, no distinction was observed between work readiness among the gender and the different age groups. This result might be a reflection of the relative similarity in age and sex among the respondents. It may also be secondary to economic conditions that put both genders in the frontline of the pandemic response in order to meet family needs. Another factor may be a genuine desire by HCWs to discharge their work responsibilities, as exemplified by the results from a study among nurses which showed work readiness during a previous pandemic.<sup>[22]</sup>

SARS-CoV-2 pandemic threatens the entire global population,<sup>[3]</sup> thus safety of HCWs at work is paramount. The COVID-19 pandemic had necessitated changes to routine practices in many outpatients and inpatients units, especially those involving aerosol-generating procedures. These changes were necessary because of the need for measures to ensure the safety of HCWs and patients. These changes probably prompted a majority of the study respondents to indicate a lack of work readiness during the pandemic unless safety measures were in place at their health facilities. Similar unwillingness to work in an unsafe clinical environment during the pandemic was recorded among HCWs during the 2009 Influenza A (H1N1) pandemic.<sup>[22,26]</sup> Thus, to prevent a potential shortage of HCWs during this COVID-19 pandemic, administrators and health institutions should focus on policies to ensure the safety of HCWs in various health care facilities and prevent the risk of further infection. This may include the provision of respiratory protection programs, supplementary training on controlling the spread of contagious diseases during pandemics, as well as change in seating arrangements in clinics in order to prevent nosocomial transmission. Moreover, HCWs should be provided with adequate PPE and required tutelage on usage guidelines to prevent infection of HCWs.<sup>[27]</sup>

A notable reduction in the work readiness when PPEs are not available was recorded among HCWs in this study. This may be due to the fear among HCWs of viral infection through exposure at work secondary to the usage of inadequate PPE. A similar drop in the willingness of HCWs to work was also recorded in the past pandemics of smallpox and pandemic flu.<sup>[28,29]</sup> Some previous studies had shown that the availability of appropriate PPE influenced the willingness of HCWs to work.<sup>[17,24,28]</sup> Thus, the availability of adequate PPE could predict readiness to work by HCWs in the course of a pandemic.<sup>[18,20,24]</sup> Adequate protection for HCWs therefore may be a more important factor influencing readiness to work in the course of a pandemic than economic motivations or other forms of incentives.<sup>[28]</sup> This is an important factor for health care administrators and policy-makers to consider when preparing for future pandemics.

Concerns about lack of adequate COVID-19 testing of patients and colleagues, the fear of contracting the infection, and lack

of medical disability insurance plans were the major factors for unwillingness to work during the pandemic. This differed from the findings of earlier studies which showed apprehension over the health of relatives was the main indication for unwillingness to work in the course of the COVID-19 pandemic.<sup>[30]</sup> Moreover, apprehension for the health of relatives and assignment for the direct care of infected patients were among the least indication for unwillingness to work during the pandemic, contrary to other publications that showed a reduction in willingness to work among HCWs during pandemic when delegated duties that cause close personal contact with an infected individual.<sup>[22]</sup>

Previous reports had shown that the provision of incentives to HCWs significantly influenced their willingness to work.<sup>[22,31,32]</sup> Similarly, in this study, the respondents showed motivation to work if offered certain incentives by the hospital administration such as an increase in hazard allowances or salary adjustments. This might be a reflection of the economic situation of the HCWs whereby a financial gain may induce working during a pandemic.

## CONCLUSION

This study provided the possible attitudes of HCWs toward service provision in the course of the pandemic in Nigeria. Health-care institutions and policy-makers need to understand the factors that may be responsible for the absence of HCWs from duty posts during COVID-19 pandemic. This will guide the implementation of safety policies at work and ensure measures that will enhance work readiness in the course of the pandemic.

## Limitations

The study method relied on recruitment of respondents from social media platforms. This may have introduced a bias in recruiting HCWs active on social media and excluding those who are not active on social media.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

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