



Original Article

Assessment of the willingness of doctors to work at coronavirus disease-19 treatment center

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ABSTRACT

Objectives: The Coronavirus disease 2019 (COVID-19) pandemic is currently ravaging the entire world. Doctors as well as other healthcare workers as front-liners in tackling this disease are at a higher risk of exposure to the virus and its potential consequences. The objectives of this study were to assess the knowledge of doctors on the mode of transmission of the virus, to assess their willingness and readiness to work at the COVID-19 treatment center, to identify factors that affect their willingness to work at the treatment center, and to assess their knowledge on infection prevention and control (IPC) practices.

Materials and Methods: All medical doctors who attended the COVID-19 sensitization and preparedness meeting with the management of Federal Medical Centre, Owo, Ondo State Nigeria, were recruited into the study after an informed consent was obtained. Study period spanned from the beginning of April 2020 to middle of June 2020. A structured, pre-tested questionnaire was administered to collect relevant information.

Results: A total of 112 doctors that were in attendance had the questionnaires administered to them; however, 106 (94.64%) questionnaires were returned. Out of these, 64.2% had correct knowledge of the mode of transmission of COVID-19. We observed that only 34.9% of doctors were willing to work in the treatment center while 1.9% were indifferent. The perceived lack of adequate training and insufficient personal protective equipment (PPE) for staff were major reasons why some doctors were not willing to work in these centers. Fifty percent of the participants got the correct meaning of donning and doffing and three quarters of them had good knowledge of IPC practice.

Conclusion: We found in our study that a substantial number of doctors were unwilling to work in COVID-19 treatment areas due to a number of factors including perceived inadequate PPE and inadequate knowledge. The factors that would influence their willingness to work in COVID-19 treatment center were more training, provision of inducement or extra allowances and life insurance schemes. We recommend that in addition to putting emphasis on training, re-training, and providing appropriate equipment, special inducement allowance, and life insurance for healthcare workers might be helpful to encourage them to work in COVID-19 treatment centers.

Keywords: Coronavirus disease, Treatment center, Willingness, Readiness, Federal Medical Centre Owo, Healthcare worker

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INTRODUCTION

The Coronavirus disease 2019 (COVID-19) is a potentially severe acute respiratory infection caused by the novel coronavirus (SARS-CoV-2).^[1] This was a previously unknown beta-coronavirus that was discovered in bronchoalveolar lavage samples taken from clusters of patients who presented with pneumonia of unknown cause in Wuhan City, Hubei Province, China, in December 2019.^[2] The World Health Organization (WHO) declared the COVID-19 outbreak a pandemic on March 11, 2020. The virus has an incubation period that ranges from 1 to 14 days and transmission occurs by inhalation of respiratory droplets. Droplets can be produced when an infected individual exhales, sneezes, or coughs or during aerosol-generating medical procedures; or more rarely following contact with fomites.^[3-5] As at December 26, 2020, 2,618,932 cases have been confirmed in Africa with 61,829 deaths.^[6] The first case of COVID-19 in Nigeria was confirmed on February 27, 2020, and as at December 26, 2020, the Nigeria Center for Disease Control had recorded 82,747 cases with 1,246 deaths.^[7]

COVID-19 is a rapidly spreading disease and the pandemic has entered a new phase with most African countries recording their highest figures of new infections and COVID-related deaths.^[8] Healthcare workers (HCWs) and many others on the front line of the response to the COVID-19 crisis however continue to provide essential services, putting themselves at very high risk and many have taken ill from the disease.

The global average health worker infection rate has been estimated to be 10%.^[9] Although the rate of HCW infections vary from country to country, Dr Ambrose Talisuna, Health Security Advisor at the WHO Regional Office for Africa has estimated that there were over 10,000 HCW infections.^[10] In Nigeria, the percentage of HCWs infected by the virus was estimated to be about 6%.^[11] HCWs, world leaders and the WHO are concerned because of the spread of this pandemic.^[12]

HCWs play a major role in combating any epidemic including the COVID-19 pandemic. They are expected to have close interaction with patients even though they are also vulnerable and may acquire the virus from their patients.^[13] It has been reported that there is a reduction in the number of health workers that are willing to work in COVID-19 treatment centers despite the increase in the demand for healthcare workers during the outbreak.^[14] This has, however, not been independently verified in Nigeria based on available literature at the time of this research.

Factors reported for the reluctance to work in COVID-19 treatment centers included fear of contacting the disease and risk of infecting members family.^[15] This is made more profound by lack of confidence and distrust of the government,

inadequate access to personal protective equipment (PPE), uncertainty that their organization will take care of their personal, and family needs if they develop infection or die.^[16-18]

These factors if not addressed, could lead to paucity of HCWs who are willing to work at COVID-19 treatment centers. This, in turn, may lead to delay in diagnosis, isolation, and treatment of patients thereby resulting in further community spread. As far as the authors know, this is the probably one of the earliest studies in Nigeria to assess the willingness of HCWs to work in COVID-19 treatment centers.

The purpose of this study was to assess the knowledge of HCWs on the mode of transmission of the virus, infection control practices, and to assess their willingness and readiness to work at COVID-19 treatment centers.

MATERIALS AND METHODS

The study center, Federal Medical Centre (FMC) Owo is a tertiary health Centre in Southwestern Nigeria. It also serves as one of the five Centers for the management of Lassa fever in Nigeria. The Centre has been managing Lassa fever, a severe viral hemorrhagic fever, for about 4 years and hence expected to have a reasonable level of institutionalized infection prevention and control (IPC) practice in place. Study period was from the April 1, to June 15, 2020.

In this study, the respondents (medical doctors in FMC Owo) were recruited from a group of doctors attending a meeting with the hospital management aimed at proffering solution on how COVID-19 would be managed in the health facility. The cadre of the doctors present at the meeting ranged from House officers, Medical Officers/resident doctors to Consultants. One hundred and twelve doctors were in attendance and all participated in the study of which 106 (94.64%) questionnaires were properly completed. A structured, pre-tested questionnaire was used to collect data from the doctors after a verbal consent was obtained. The questionnaire covered questions on willingness and readiness to work in a COVID-19 treatment center, knowledge of mode of transmission of COVID-19, and knowledge of IPC practices related to COVID-19. The knowledge of mode of transmission was assessed by asking participants to list the possible ways COVID-19 could be transmitted. The different responses from the doctors were analyzed along three thematic areas of droplet, contact and possible airborne transmissions.^[19] Similar correct responses (examples and explanations included) were grouped as the same and marks were awarded. At least three correct answers were expected and correct listing of two and above indicated good knowledge while listing of one or none was designated as poor knowledge. The knowledge of IPC practices in COVID-19 treatment center was assessed using six questions on IPC practices. Each correct answer attracted one mark and

a wrong answer attracted zero mark. The overall knowledge score for this section ranged from 0 to 6. Scores between 0 and 3 was rated as poor knowledge and 4–6 as good knowledge.^[20]

Data analysis

The Statistical Package for the Social Sciences software version 21.0 was used for data entry and analysis. Frequencies and proportions were generated and presented using tables and figures where necessary. The knowledge aspects were analyzed by assigning scores to correctly answered questions and these scores were weighted into poor or good knowledge. The different responses from the doctors were analyzed along three thematic areas of droplet, contact, and possible airborne transmissions. Scores analyzed to be at 66.67% and above were accepted as good knowledge while those less than 66.67% were taken as poor knowledge.

Ethical consideration and informed consent

Ethical clearance/approval was obtained from the Institutional Health Research Ethical Committee of the Federal Medical Centre, Owo with reference number FMC/OW/380/VOL. CVII/106. In addition, an informed verbal consent was obtained from each participant. Participants' confidentiality was respected and maintained by ensuring that no unauthorized person had access to the information on the data information sheets and no information could be traced to the participants (as coding system was used for the data information sheets instead of writing the participants' names on them).

Competing interest

The authors declare that they have no competing interest

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RESULTS

There were 112 doctors in attendance at the meeting all of whom participated in the study. However, only 106 (94.64%) questionnaires were properly filled and thus included in the analysis. The age of respondents ranged from 22 to 59 years with a mean age of 35.99 ± 9.9 years. The number of years of practice ranged from 1 to 32 years with a mean duration of 9.06 ± 8.8 years. Married respondents constituted 60.4%

(64) while 39.6% (42) were single. A total of 32.1% of respondents were willing to work in COVID-19 treatment center while 60.4% were not willing and 7.5% indifferent [Table 1].

For the knowledge assessment, 74.5% had good knowledge of IPC practices related to COVID-19 and 64.2% had good knowledge of the mode of transmission of COVID-19 [Table 2].

The cadre of the doctors did not appear to influence their willingness to work in COVID-19 treatment center and the level of knowledge on IPC practices as there was no statistically significant difference in the willingness to work ($P = 0.147$) and the level of knowledge ($P = 0.69$) with respect to cadre of doctors [Table 3].

There was no statistically significant difference between the level of knowledge and the years of practice ($P = 3.901$).

Nearly two thirds (62.3%) of respondents indicated that they will need more training to influence their willingness to work in a COVID-19 treatment center [Table 4].

A total of 53 (50%) of doctors who responded, got the correct meaning of donning and doffing and three quarters of respondents had good knowledge of IPC practices [Table 5].

Table 1: Readiness and willingness of the doctors to work in a COVID 19 treatment centre.

Characteristics	Frequency (n=106)	Percentage
Marital status		
Married	64	60.4
Single	42	39.6
Number of years of practice		
1–5	49	46.2
6–10	22	20.8
>11	35	33.0
Have you received training on COVID-19?		
Yes	63	59.5
No	43	40.5
Readiness to work in COVID-19 treatment center		
Ready	37	34.9
Not Ready	67	63.2
Indifferent	2	1.9
Willingness to work in COVID-19 treatment center		
Willing	34	32.1
Not Willing	64	60.4
Indifferent	8	7.5

Table 2: Knowledge of mode of transmission of COVID-19.

Knowledge grade	Frequency	Percentage
Correct	68	64.15
Not Correct	38	35.85

Table 3: Distribution of respondents by professional cadre.

Cadre	Frequency	Percentage	Willingness to work in COVID center			Knowledge levels		
			Yes (%)	No (%)	P-value	Poor (%)	Good (%)	P-value
Consultants	29	27.4	7 (24.14)	22 (75.86)	0.147	12 (41.38)	17 (58.62)	0.69
Residents/medical officers	40	37.7	12 (30.00)	28 (70.00)		8 (20.00)	32 (80.00)	
House officers	37	34.9	15 (40.54)	22 (59.46)		7 (18.92)	30 (81.08)	
Total	106	100	34 (32.08)	72 (67.92)		27 (25.47)	79 (74.53)	

Table 4: Factors that will influence respondents' willingness to work in COVID-19 treatment center.

Variable	Frequency	Percentage
More training	66	62.3
Provision of inducement/extra allowance	57	53.8
Provision of life insurance	59	55.7

Table 5: Knowledge of infection, prevention and control practices related to COVID-19.

	Frequency	Percentage
Good knowledge	79	74.5
Poor knowledge	27	25.5
Total	106	100
Meaning of donning and doffing		
Correct	53	50
Incorrect	53	50
Total	106	100

DISCUSSION

This study demonstrated that only about a third of doctors were either willing or believed they were ready to work in a COVID-19 treatment center. The reason for this low figure may not be far-fetched as only about 60% reported having had formal training on COVID-19. This value is similar to the 64.63% reported by Shi *et al.* in a study among medical staff in Chinese psychiatric hospitals.^[21] In the Chinese study, it was observed that independent predictors of willingness to care for patients included advanced training and experience of caring for patients with COVID-19. This implies that with more training, the tendency toward becoming willing to work in COVID-19 treatment center increases. The question to consider is if there are targeted, hands-on, and consistent training for the doctors in Nigeria to prepare them to work in the treatment centers. Training is a critical element of preparedness needed to mount an effective response to the pandemic.^[22]

On the other hand, however, some doctors may also avoid attending training on basic IPC practices so as not to be seen as knowledgeable in this aspect and subsequently get posted to work in such areas of the hospital.^[23] This is precipitated by

the background fear of being infected when posted to work in the COVID-19 treatment center as reported by 23.59% of doctors.

It is important to point out that there are a large number of resources available to health workers on COVID-19 through the internet, news and print media (television, radio, newspaper, and social media) and medical journals; all of which can be harnessed to complement other forms of training available.^[21,24,25]

In another study, 44% of the HCWs in Makerere, Uganda, agreed that they could confidently participate in the management of patients with COVID-19, while 60% of HCWs admitted having avoided patients with symptoms suggestive of COVID-19.^[24] Seventy three percent (73.9%) of doctors were willing to work during the surge of COVID-19 in Nepal with professional obligation being the major motivation in 76.7% of these.^[26] Doctors are people with a high sense of dedication to duty and responsibility. Professional obligation alone is responsible for a large percentage of the willingness to work in potentially hazardous areas. However, environment with good support system is known to facilitate this professional obligation. Given that such support systems such as good social safety nets and a reasonable level of insurance cover are not optimal at the moment in Nigeria, may contribute to the low level of willingness seen in our study.

It is noteworthy that about three quarters of respondents identified insufficient PPEs for staff as a reason for their unwillingness to work in COVID-19 treatment. PPEs include respirators/facemask, face shield, full cover-all (Hazman suit), and boot. The problem of inadequate supply of PPE is a global challenge. At the height of the first phase of the pandemic, many countries ran short of adequate supply. It was reported that inadequate access to PPEs was partly responsible for a significant number of COVID-19 deaths among HCWs in Italy.^[27] In some instances, the lack of PPE has led to re-use of the few available ones with associated consequences such as occupational acquisition of the virus. Other consequences of PPE shortages include reduced access to toilet and water and even the use of diaper by health workers in a bid to conserve it.^[15,28] Despite these shortages, HCWs have continued to provide services including those in developing countries where there are hardly any social safety nets.^[29]

The WHO recommended that HCWs should minimize the need and optimize the available PPE during the period of shortage.^[30] It must be emphasized, however, that PPEs by itself are not adequate to there is need for an intergrated Health and Safety approach including encouragement through adequate insurance cover based on several layers and with the full participation of workers and their employees.^[31]

CONCLUSION

We found in our study that a substantial number of doctors were unwilling to work in COVID-19 treatment areas due to a number of factors including inadequate knowledge and equipment. The factors that would influence their willingness to work in COVID-19 treatment center were more training, provision of inducement or extra allowances and life insurance schemes.

We recommend that in addition to putting emphasis on training, re-training, and providing appropriate equipment, special inducement allowance and life insurance for HCWs might be helpful to encourage them to work in COVID-19 treatment centers.

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Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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