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Covid-19 Safety Protocols And Guidelines: Awareness Perception And Factors Affecting Compliance Among Health Workers In Southern Nigeria

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ABSTRACT

Aim: The aim of this study is to assess perception and factors affecting compliance with COVID-19 safety protocols and guidelines among Health Care Workers.

Methodology: A descriptive cross-sectional study was carried out among 152 health care workers of Igbinedion University Teaching Hospital, Okada, Edo state. The respondents were selected by Stratified sampling technique based on the departments. The sampling ratio for each department was calculated and a proportional allocation was carried out. Simple random sampling was applied to select the number of Health Care Workers from each department by using table of random numbers. Structured, Pre tested, interviewed administered questionnaire was the tool used for data collection. Data was analyzed using IBM SPSS version 21.0 and level of significance was set at $P \leq 0.05$.

Results: A total of 152 respondents participated in the study. Majority 115(75.7%) of the respondents were aware Covid-19 was in Nigeria, 116(76.3%) were tested for SARS-CoV-2 and 37(24.3%) of the respondents knew of anybody who had tested positive for SARS-CoV-2. Majority 95(62.5%) of the respondents had attended a form of training on covid-19 since onset of the pandemic, About three quarters 112(73.7%) of the respondents agreed the use of personal protective equipment were important in preventing SARSCoV-2/COVID-19, 100(65.8%) used personal protective equipment and washed their hands when handling patient while reasons for not performing the standard protocol were either too busy with patients or scarcity of water **Conclusion**: This study revealed a high level of awareness of Covid-19 and the usage of personal protective equipment for the prevention of SARS-CoV-2/COVID-19. Above one quarter of the respondents think consistent hand washing and wearing of mask are measures that can prevent/control SARS-CoV-2/COVID-19. There was statistically significant relationship between socio-demographic characteristics, awareness, perception of Covid-19 safety protocol and guidelines. Findings suggest that both individuals and health system factors are significant in increasing the risk of COVID-19 among healthcare workers. Efforts at enforcing strict compliance with safety protocols and guidelines should be implemented to protect all healthcare personnel.

Keywords: Covid-19, Guidelines, safety protocols, perception. Health Care workers.

INTRODUCTION

Corona virus disease (COVID-19) is a global public health threat which began in Wuhan, China on December 8th 2019 and has evolved to become a pandemic crisis around the world.[1,2] It is caused by Severe Acute Respiratory Syndrome Corona Virus 2 (SARs-CoV-2).[1-4] In response to this serious situation, COVID-19 was declared as a public health emergency of International concern by World Health Organization (WHO) on January 30th, 2020 and called for collaborative efforts of all Countries to prevent rapid spread of the

disease.[1.2.4,5] Worldwide, total cases on 23rd February 2021 was 112 million, 63.1 million recovered and 2.48 million deaths.[1,2.5] The Countries with the most COVID-19 cases includes; United States with about 27 million cases, India with 10.8 million cases, Brazil with about 9.5 million cases.[1,2,6,7] In Africa, the first recorded case of COVID-19 was in Egypt on 14th February, 2020. Currently, South Africa is most affected with over 1.5 million cases.[1,2,5-7] In Nigeria, the first confirmed case was on 27th February 2020, in Ogun State in an Italian citizen who has returned from Milan, Italy.[5,7]

Studies conducted in United Kingdom (UK) as well as United States (US) and China found that frontline healthcare workers were more likely to test positive for COVID-19 than the general population8.[8-10] In-patient setting appears to pose the most risk followed by nursing homes and out-patient hospital clinics.[11,12] There has been significant number of COVID-19 death among health workers Worldwide.[1,2,5,13] On September 2nd 2020, the WHO Pan American Regional office in Washington DC reported that 570,000 HCWs were infected and at least 7,000 deaths.[2,6,14,15] The countries estimated to have the most deaths of HCWs were in Mexico (1,320 deaths), the US (1,077 deaths) and UK (649 deaths).[2,6,7] In Nigeria, about 800 HCWs were infected and on 26th December 2020, 20 doctors were reported dead in a week.[2,5,6]

It is well established that transmission of COVID-19 is from person to person through inhalation of aerosols from an infected person and is associated with overcrowding, absence of isolation room facilities and environmental contamination.[2,3,6,7,15] Old age and those with pre-existing illness such as hypertension, diabetes mellitus, cardiac disease, lung disease, cancers have been identified as potential risk factors for severe disease and mortality.[1-3,15,16] The SARS-CoV-2 is one of the three human coronaviruses causing severe forms of respiratory tract illness, with the other two being MERS and SARS.[2,3.15] It can affect the upper respiratory tract (sinuses, nose and throat) or the lower respiratory tract (trachea, bronchi, bronchioles, and lungs),[6,15,17] causing mild illnesses such as common cold, to severe acute respiratory diseases culminating in a multisystem disorder and even death.[2,4,6,15] Clinical manifestation of COVID-19 includes dry cough, fever and tiredness. Other symptoms include headache, sore throat, pains, nasal congestions, conjunctivitis, loss of taste and smell.[1-4,6,15] The onset of symptoms is usually sudden with an incubation period of 2-14 days after exposure, an average incubation period of 5 days and the main mode of spread is via symptomatic transmission.[3,4.15] In mild cases

recovery may occur in two weeks or between two to six weeks for severe cases.[4,6,17,18] However, complications such as acute pneumonia, respiratory failure, septic shock, multiple organ failure may occur in 5.0% of cases.[4,18,19]

To contain spread of the disease, the Federal Government of Nigeria (FGN) initiated a presidential task force on COVID-19 to provide high level strategic national response to the disease. The Federal Ministry of Health (FMH) has activated an NCDC led national COVID-19 Emergency Operations Centre (EOC) to coordinate the national public health response. At state level, preparedness and response activities are being coordinated through public health EOCs in each state.[2,5,6] Nigeria Center for Disease control (NCDC) gave guidelines for workplace safety protocol which includes; make sure your workplaces are clean and hygienic, surfaces (desks and tables), equipment and objects (telephones, keyboards) need to be wiped with disinfectant regularly, promote regular and thorough hand-washing by HCWs and patients, put sanitizers and hand rub dispensers in prominent places around the workplace, make sure these dispensers are regularly refilled and promote good respiratory hygiene in the workplace. Others include ensure that face masks(surgical mask) and/or paper tissues are available for those who develop a runny nose or cough at work, along with closed bins for hygienically disposing of them and refrain from unnecessary travel both local and international.[2,6] Before outbreak of COVID-19 in Nigeria, the government was relatively not forceful regarding disease prevention and control activity in the Country.[2,5.6,21] For example, during the Lassa fever outbreak in August 2015 which led to 101 deaths and 175 suspected and confirmed cases, there was inadequate community awareness and health education to avoid contact with reservoir sources mainly rats, programs on food safety practice to appropriate waste management coupled with improved water, sanitation and hygiene were not adequately implemented.[2,6,21,22] There was absence of obligatory laws and regulations governing the labor market and this made a lot of health workers susceptible to hazards that may be life threatening.[6,21-23] Nonetheless, the arrival of the index case triggered extreme measures towards containing spread of the disease.[6,23,24,25]

The major challenge that undermined control of COVID-19 in Nigeria was the issue of poor compliance attitude towards the COVID-19 safety protocols and guidelines.[2,6,26,27] The response of HCWs was below the expectations as it was observed that most HCWs especially at the early stage of the outbreak of the disease

demonstrated nonchalant attitude with total lack of commitment to preventive guidelines.[26,28,29] Some HCWs doubted the existence of the disease while others admitted the existence of the disease but do not believe it is a serious disease.[12,13] A good number believed COVID-19 cannot survive in region around the equator as temperature will kill the virus. Some individuals believed COVID-19 is a disease suffered by the elites or those that travel beyond national boundaries while others believe it is a death sentence.[5,26,28,29] HCWs are at the frontline of COVID19 pandemic response and are exposed to dangers like pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout and stigma, and physical violence.[27,30,31] They are overwhelmed by the number of people requesting testing and treatment at the same time.[31,32] Besides COVID-19 patients, they also have other category of patients to care for, including those with cancer, diabetes, liver failure, kidney failure, hypertension. This results in long and distressing work shifts to meet health services requirement. [31,33,34] High prevalence rate of severe insomnia, anxiety, depression, obsessive compulsive disorders have been reported among HCWS since the onset of COVID-19.[5,16,35,36] Thus, the presence of these in addition to the life status of daily fighting against COVID-19 suggests that HCWs cope with psychological distress and this can affect their compliance to COVID-19 safety protocols and guidelines.[5,37,38]

The reported factors that affect compliance with standard precautions include lack of pandemic preparedness, poor knowledge about COVID-19 among HCWs, shortage of time to implement the precautions (work overload), limited resources (PPEs, isolation centers, ventilators), lack of proper training and insufficient support from the government in creating a facilitating work environment.[35,37,38] Socio-demographic variable such as working site in the hospital and work experience are found to be associated with compliance to COVID-19 safety protocols.[39,40] Any Country's strategic response to COVID-19 crises is to ensure that the protection of it HCWs is a crucial element especially as governments rush to increase healthcare capacity to cope with surge of patients requiring urgent care.[2,5,1629] This lead to WHO issued recommendations on the radical use of Personal Protective Equipment's (PPE) in hospital and community settings.[1-4] Several health care centers have formulated algorithms and guidelines to decrease the risk of COVID-19 transmission. Nevertheless, protecting HCWs remains a challenge for most Countries where shortage of PPEs is a daily concern.[40,41] Special attention should be given to make HCWs and their workplace safe, improve their

knowledge and preparedness towards COVID-19 pandemic is important because unlike other, HCWs have double source of infection to COVID-19; from working place and the community.[23,37,40,41] Despite HCWs play a pivotal role in averting COVID-19 infections via standard practicing, evidence based infection prevention and control strategies.[3,4,24] There are limited data available on perception and factors affecting compliance of HCWs towards COVID-19 preventive measures, if HCWs have access to information, they will upgrade their knowledge and apply preventive measures against COVID-19 infection and give appropriate care to patients, families and communities.[36,37,39,40] Therefore, assessing perception and factors affecting compliance of HCWs in preventing COVID-19 will help HCWs to take alarming precautions to protect themselves as well as the community as a whole.[23,29,41]

Methodology

A descriptive cross-sectional study was carried out among 152 health care workers of Igbinedion University Teaching Hospital, Okada, Edo state. The respondents were selected by Stratified sampling technique based on the departments. The sampling ratio for each department was calculated and a proportional allocation was carried out. Simple random sampling was applied to select the number of Health Care Workers from each department by using table of random numbers. Structured, Pre tested, interviewed administered questionnaire was the tool used for data collection. The data was assessed for completeness, serialized, coded and entered into SPSS version 21.0 for analysis. The results were presented in frequency tables, charts and prose. Means were compared using t-test and bivariate analysis was done using chi-squared test. A $p<0.05$ was considered statistically significant. The information obtained was based on self-reporting and therefore subject to information bias. Ethical clearance was obtained from the Ethic and Research Committee of Igbinedion University Teaching Hospital, Okada, Edo State (Ethic clearance number: IUTH/R.24/VOL.1/34C) before administration of the questionnaire. Confidentiality was assured by informing respondents that personal information will not be divulged. Written and informed consent was obtained from all respondents. All data in hard and soft copies were stored safe, sealed away and pass-worded.

Limitation to study: No further diagnostic or confirmatory tools were used to confirm or refute the crude findings generated from the used General Health Questionnaire and as such, the awareness, perception and utilization of virtual learning may be over or underreported.

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Conflicts of interest: There are no conflicts of interest

RESULT

Table 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Variables	*Frequency (n=152)*	*Percentage (%)*
Age		
20-25 years	73	48.0
31-35 years	25	16.4
26-30 years	39	25.7
36 years and above	15	9.9
Sex		
Male	100	65.8
Female	52	34.2
Occupation		
Medical doctor	65	42.8
Pharmacist	39	25.7
Laboratory	19	15.8
Nurse	17	11.2
others	12	7.9
Marital status		
Married	103	67.8
Single	34	22.4
Divorce	6	3.9
Separated	9	5.9
Residence		
Within the hospital	100	65.8
Outside the hospital	52	34.2
Years of working experience		
1-5 years	16	10.5
5-10 years	28	18.4
10-15 years	36	23.7
16 years and above	72	47.4

Majority 73(48.0%) of the respondents were within the age group 20-25 years, 100(65.8%) were male, 65(42.8%) were medical doctors, 100(65.8%) resided within hospital quarters and 72(47.4%) of the respondents had work for 16years and above.

Table 2: PERCEPTION OF COVID-19 SAFETY PROTOCOL AND GUIDELINES OF THE RESPONDENTS

Variables	*Frequency (n=152)*	*Percentage (%)*
Believe that COVID-19 is in Nigeria currently		
Yes	115	75.7
No	37	24.3
Tested for SARS-CoV-2 the causative organism of COVID-19		
Yes	116	76.3
No	36	23.7
Aware of anyone who has tested positive for SARS-CoV-2/COVID-19		
No	117	77.0
Yes	35	23.0
Aware of modes of transmission of SARS-CoV-2/COVID-19		
Yes	110	72.4
No	42	27.6
Modes of transmission of SARS-CoV-2/COVID-19		
Coughing	70	46.1
Sneezing	30	19.7
Body contact with infected person	22	14.5
Contaminated surface	20	13.2
Hand shake	10	6.6
Health workers are more at risk of infection with SARS-CoV-2/COVID-19 than the general population		
Yes	100	65.8
No	52	34.2
Reasons health workers are more at risk of infection with SARS-CoV-2/COVID-19		
Direct contact with Covid-19 patients	129	84.9
Direct contact with all patients	23	15.1
COVID-19 is a preventable disease		
Yes	90	59.2
No	62	40.8
Attended any form of training on Covid-19 since onset of the pandemic		
Yes	95	62.5
No	57	37.5

Over three quarters 115(75.7%) of the respondents believed that Covid-19 was in Nigeria, 116(76.3%) had been tested for SARS-CoV-2, 36(27.0%) knew someone who had tested positive for SARS-CoV-2, 110(72.4%) knew the modes of transmission of SARS-CoV-2 while 70(46.1%) knew coughing as the modes of transmission of SARS-CoV-2. Majority 100(65.8%) of the respondents thought health worker were more at risk of SARS-CoV-2 infection because they may come in contact with infected persons, 90(59.2%) agreed

Covid-19 is a preventable disease and 95(62.5%) of the respondents had attend a form of training on Covid-19 since onset of the pandemic

Table 3: ATTITUDE TOWARDS COVID-19 SAFETY PROTOCOLS AND GUIDELINES OF THE RESPONDENTS

Variables	*Frequency (n=152)*	*Percentage (%)*
Hand hygiene, Use of personal protective equipment are important for prevention/control of SARS-CoV-2/COVID-19		
True	112	73.7
False	40	26.3
Recommended duration for each time hand hygiene is performed		
15minutes	70	46.1
30minutes	50	32.9
25minutes	22	14.5
1minute	10	6.6
Adverse reaction to hand sanitizers or any personal protective equipment		
Yes	50	32.9
No	102	67.1
Difference between number of times hand hygiene is performed when at home or on vacation compared to when at the hospital		
Yes	92	60.5
No	60	39.5
Reasons for the difference in the number of times hand hygiene is performed at home and at the hospital		
I do not shake with people	*70*	*46.1*
I am alone	*50*	*32.9*
I do not touch anything	*25*	*16.4.0*
Others	*7*	*4.6*
Adequate number of hand washing stations and PPE in the hospital		
No	90	59.2
Yes	62	40.8
Availability of hand washing station in the theatre, emergency ward and out-patient clinic		
Yes	117	77.0
No	35	23.0
Possession of hand sanitizers		
Yes	137	90.1
No	15	9.9
Always carry hand sanitizer		
Yes	110	72.4
No	42	27.6
Number of times hand hygiene and use PPE are performed while in ward		
Before and after attending to patients	109	71.7
Before attending to patients	23	15.1
Always	20	13.2

Preventive measures practiced against CoV,19/SARS-CoV-2**		
Wearing of face masks	85	44.3
Social distancing	47	24.8
Use of hand sanitizer/hand hygiene	35	18.3
Disinfecting of surrounding	25	12.6

** Multiple responses

More than one third 112(73.7%) of the respondents thought consistent hand washing and use of personal protective equipment were measures that can prevent/control SARS-CoV-2/COVID-19, 70(46.1%) performed hand hygiene 10-15 times per day, 70(46.1%) said the recommended time for each episode of hand hygiene was fifteen minutes and only 10(6.6%) said one minute. Majority 102(67.1%) of the respondents has had adverse reaction when used hand sanitizers, more 92(60.5%) performed hand hygiene and use of personal protective equipment more in the hospital than home, 90(59.1%) said hand washing stations were available in the theatres, 137(90.1%) had hand sanitizers and 110(72.4%) of those with hand sanitizers always carried with them.

Majority 109(71.7%) performed hand hygiene and use of personal protective equipment before and after attending to patients, only 20(13.2%) performed hand hygiene and use of personal protective equipment always, 85(44.3%) said preventive measures practiced against CoV,19/SARS-CoV-2 was regular wear of face mask, 47(24.8) social distance, 35(18.3%) use of hand sanitizer/hand hygiene and 25(12.6%) of the respondents said disinfecting the surrounding.

Table 4: FACTORS AFFECTING COMPLIANCE TOWARD COVID-19 SAFETY PROTOCOLS AND GUIDELINES OF THE RESPONDENTS

Variables	***Frequency (n=152)***	***Percentage (%)***
Institutional factors		
Availability of personal protective equipment's in the hospital		
Yes	92	60.5
No	60	39.5
Adequacy of personal protective equipment in the hospital		
No	75	49.3
Yes	77	50.7
Availability of hand washing stations in the theatres		
Yes	97	63.8
No	55	36.2
Formal training given by institution on prevention/control of COVID-19 to HCWs		

No	85	55.9
Yes	67	44.1
Visible posters in the hospital about COVID-19 and preventive measures including promotion of hand hygiene		
Yes	130	85.5
No	22	14.5
Recommendation regarding how to improve patient safety		
There should be free distribution of face mask.	91	59.9
Running water should be made available in public places.	61	40.1
Suggestions/recommendations regarding how to improve safety of health workers in the hospital environment		
Constant water should be made available	85	55.9
Distribution of free face mask	67	44.1
Use of personal protective equipment and hand washing when handling ill patient		
Yes	100	65.8
No	53	34.2
Individual		
Recommendation on how to improve safety of HCWs in the hospital environment**		
Constant water supply	112	39.9
Distribution of free face mask	87	31.0
Training and retraining	82	29.1
Performs hand hygiene and use of personal protective equipment when handling ill patient		
Yes	97	63.8
No	55	36.2
Reasons for not performing standard protocols (n=55)**		
Too busy with patient	64	66.7
Scarcity of water	32	33.3
Training given on prevention/control of COVID-19		
Yes	60	39.5
No	92	60.5
Sanctions against offenders who do not practice COVID-19 prevention protocols in the hospital		
Yes	100	65.8
No	52	34.2

****Multiple responses**

Majority 92(60.5%) of the respondents said personal protective equipment were available in the hospital, 77(50.7%) said protective equipment in their hospital were enough and 97(63.8%) said hand washing stations were available in all the strategic areas in the hospital. Higher proportion 130(85.5%) of the respondents said there were visible posters in the hospital on COVID-19 preventive measures and control, 87(31.0%) suggested

free distribution of face mask, 112(39.9%) constant water availability, 82(29.1%) training/retraining and 100(65.8%) of the respondents used personal protective equipment when handling ill patient.

Above half 97(63.8%) and 32(33.3%) of the respondents said too busy with patients and scarcity of water were the reasons for not performing the standard protocols respectively. Majority 92(60.5%) of the respondents had no training on prevention/control of COVID-19 and 100(65.8%) of the respondents knew sanctions against offenders who do not practice COVID-19 prevention protocols in the hospital.

Table 5: AWARENESS OF FACTORS AFFECTING COMPLIANCE OF COVID-19 SAFETY PROTOCOL AND GUIDELINES OF THE RESPONDENTS

VARIABLES		Awareness on COVID-19. Yes (%)	No (%)	*Total*	*Statistics (X^2) p – Value*	*Remark*
Age						
	20-25 years	70(96)	3(4)	73(100)		
	26-30 years	20(80)	5(20)	25(100)	X^2=83.621*	This result is
	31-35 years	25(64.1)	14(35.9)	39(100)		
	36 years and above	0(0)	15(100)	15(100)	p- value is 0.001	Significant at p<0.05
Sex	Male	100(100)	0(0.0)	100(100)	X^2=63.158*	This result is
	Female	15(80)	37(20)	52(100)	p- value is 0.001	Significant at p<0.05
Profession	Medical doctor	60(92.3)	57.7)	65(100)		
	Pharmacist	34(87.2)	5(12.8)	39(100)		
	Nurse	12(70.5)	5(29.5)	17(100)	X^2=100.853*	This result is
	Laboratory	4(21.1)	15(78.9)	19(100)		
	Others	0(0)	12(100)	12(100)	p- value is 0.001	Significant at p<0.05
Residence	within the hospital	45(86.5)	7(13.5)	52(100)	X^2=18.947*	This result is
	Outside the hospital	70(70)	30(30)	100(100)	p- value is 0.001	Significant at p<0.05
Years of working Experience	1-5 years	16(57.1)	12(42.9)	28(100)	X^2=42.724*	This result is
	5-10 years	28(84.8)	5(15.2)	33(100)	p- value is 0.001	Significant at p<0.05
	10-15 years	17(89.5)	2(10.5)	19(100)		
	16 years and Above	72(100)	0(0.0)	72(100)		

***Statistically Significant**

Majority 70(96.0%%) the respondents between the age group 20 – 25 years were aware of COVID-19 presence in Nigeria, the awareness decreased with increasing age and age was statistically significant (p< 0.001). All 100(100%) the male respondents were aware of COVID-19, mode of transmission and method of

prevention/control than the females therefore, gender was statistically significant ($p< 0.001$). The awareness of awareness on CoVid-19 was higher among medical doctors and pharmacists than other Health Care and this was found to be statistically significant ($p< 0.001$). Those respondents who resided within hospital environment were more informed on CoVid-19 than those resided outside the hospital and it was statistically significant ($p< 0.001$). All 72(100%) the respondents with 16 years and above of years of working experience were more aware of COVID-19. The awareness increased with loner years of service and this finding was also found to be statistically significant ($p< 0.001$).

DISCUSSION

The respondents within the age group 20-25 constituted the highest proportion of the studied population. This survey was dominated by male respondents who were mostly experienced at work up to 16 years and above. This may be due to uneven level of exposure which favors the men more than women within the society and to cover this gap, implementation of the Sustainable Development Goal, SDG-5 (gender equality) is a key factor.[1-4,6,21,24] Most of the respondents were aware of COVID-19. This level of awareness may be explained by the continuous awareness campaigns organized by the Infection, Prevention and Control (IPC) pillar in the state and the hospital sponsored by NCDC and CDC (Africa).[2,6] Several studies conducted in Asia and Nigeria agreed with this study which indicated high level awareness of COVID-19 among the respondents.[9,10,23,26] The high level of awareness of COVID-19 recorded in this study could be attributed to the caliber of respondents who participated in the survey.

The finding of this study revealed that majority of the respondents believed that COVID-19 was in Nigeria. This finding was similar to a study carried out in Sokoto and Rivers States, Nigeria which revealed that almost all respondents agreed that COVID-19 was in Nigeria.[25,38,41] This may be due constant update about COVID-19 morbidity and mortality rate through social media and electronic media.[2,6,7,15] This elucidates the huge role played by mass media in keeping the society abreast with the onset and evolutionary trends of COVID-19 pandemic.[15,21,27] Majority of the respondents had been tested for SARS-CoV-2. This may be due to high level of awareness of COVID-19 among respondents and increased risk of exposure to COVID-19.[1,2,t,15] This finding differs from a study conducted in the middle and early stages of the COVID-19 outbreak in a non-

epidemic but still critically affected area in Henan, China to assess the knowledge of HWC's towards COVID-19 safety protocols and guidelines.[33] This study revealed that high proportion of the respondents demonstrated sufficient awareness of COVID-19. This finding was similarly found that awareness directly affected attitudes.[33,34,38] The greater the HCWs' awareness, the more confident they were in defeating the virus.[36] Efforts toward assessing the awareness and attitude of the underprivileged and vulnerable population and the dissemination of health education via indigenous languages among these groups should be intensified instead of focusing on the health care workers who have good knowledge on the subject matter. Coupled with the food insecurity that existed even before the pandemic, it was predictable that this pandemic will push more populations below the poverty line, a phenomenon perceived as a threat to the targets of SDG 1, SDG 2, SDG 8, and SDG 10.[2,5,6,15] Although, the high level of COVID-19 awareness among the respondents signified a positive predictor in curtailing COVID-19 pandemic generally, the result however excluded the underprivileged (uneducated and vulnerable) individuals.[6,15] This was consistent with other studies that reported the use of social media as the major tool for COVID-19 information dissemination.[34,36,39] Facebook and the internet constituted the main sources of information with about 85.5 million users recorded within the first quarter of 2020.[2,3,16,24]

Right from the WHO declaration of COVID-19 as pandemic, several guidelines and information on COVID-19 have been uploaded online by WHO and NCDC which were easily accessible by internet users. [1,2,10,13] Access to such reliable information could help dispel the pandemic of misinformation, misconception and citizenry ignorance about COVID-19.[1,2,10,13] This further reflects the effectiveness of the social media and internet in the creation of awareness about COVID-19 pandemic within the Nigerian population.[10,28,38,39] However, some media platforms often exaggerate the risk associated with COVID-19 pandemic.[32,34,39] Most of the respondents agreed that health workers were more at risk of infection with SARS-CoV-2 compared to general population because they come in contact with infected persons often. This showed the remarkable resilience and professional dedication of health care workers despite fear of getting infected.[12,35,36] This finding was consistent with previous studies that showed that the risk of contracting covid-19 was among hospital staff was higher despite their high level of awareness.[11,14-16,20]

Most of the respondents had attended a form of training on COVID-19 since onset of the pandemic. This study showed a significant ($p < 0.05$) relationship existing between socio-demographic characteristics and the awareness of health care workers. This finding was similar to a study conducted at federal medical center, Abeokuta, Nigeria which revealed that majority of the respondents agreed that HCWs were more at risk of infection with COVID-19 than the general population because they are in contact with infected persons.[28] In the same light, about two thirds of the respondents had not attended any form of training on COVID-19 since the onset of the pandemic.[28] This may be due to restrictions in movement and gathering during the onset of COVID-19 in Nigeria.[1,2,6,15] More than a third of the respondents agreed that consistent hand washing and wearing of mask were measures that can prevent/control SARS-CoV-2/COVID-19 and as such use of personal protective equipment were important for SARS-CoV-2/COVID-19. Aligning with this finding was showed by a bi-national survey in Africa conducted in both Egypt and Nigeria to assess the attitude of HCWs towards the prevention of COVID-19 through the use of safety protocols and guidelines showed that attitude of most respondents towards instituted preventive measures was satisfactory.[27]

Most of the respondents practiced self-isolation, social-distancing and valued the importance of proper hygiene, the use of face mask when going out. The level of satisfactory attitude towards COVID-19 safety protocols and guidelines in this study may be attributed towards the high level of health sensitization.[22,27,39] In a similar study conducted in 2020 to assess the attitude of HCWs towards COVID-19 safety protocols and guidelines from six geo-political zones in Nigeria, majority of the respondents affirmed that personal hygiene measures could curb the spread of COVID-19 infection such as hand washing before and after attending or handling sick persons, wearing of personal protective equipment (PPE), proper covering of mouth when coughing and sneezing.[42] This study, although greater proportion of the HCW's attitude towards COVID-19 preventions was satisfactory, it was evident that there was fair practice of COVID-19 safety protocols and guidelines, such as the hand hygiene and use of face mask. This may be linked to unavailability of PPEs to the HCWs and water scarcity.[23,27,29] Majority of the respondents in this study reportedly took different precautionary measures including social distancing, improved personal hygiene and use of face mask. This generally indicates the optimism and willingness of the Nigerian population in effecting attitudinal and

behavioral changes relevant in the fight against the COVID-19 pandemic. The awareness and sensitization campaigns by the Federal Ministry of Health (FMOH) and the NCDC may have significantly reflected in the awareness, perception and attitude of the respondents.[2,7]

The institutional factors affecting compliance to COVID-19 safety protocols and guidelines of this study showed that majority of the respondents agreed that personal protective equipment (PPE) and hand washing stations were available in the hospital and they were enough to use while there were visible poster in the hospital about COVID-19 and preventive measures. Majority of the respondents recommended free distribution of face mask and constant water supply to the hospital. This study was not consistent with an online study conducted in Ghana and India to determine the factors affecting COVID-19 safety protocols and guideline showed that only a few of the respondents agreed that personal protective equipment (PPE) and hand washing stations were available in the hospital and they were no enough to use while there were few visible poster in the hospital about COVID-19 and preventive measures. However, most of them recommended free distribution of face mask and constant water supply to the hospital.[11,18]

More than half of the respondents only performed hand hygiene when handled ill patient and those that did not said they were too busy or insufficient water supplied but they were aware of sanctions against offenders who do not practice COVID-19 prevention protocols. This finding unanimously agreed with a studies conducted in Eastern region Ghana, where the healthcare workers were fairly compliant with hand hygiene practices and wearing PPE.[39] Some of the barriers to compliance to safety protocols and guidelines in this study despite their awareness of sanctions against offenders who do not practice COVID-19 prevention protocols may be centered on unavailability of personal protective equipment, water scarcity and sometimes too busy to comply with the rigors of standard protocols due to the high demand of patients care on HCWs. Contrary to this finding, was a study conducted in 2020 to assess the level of compliance to COVID-19 safety protocols and guidelines in two tertiary Hospitals in Rivers State, Nigeria where there was non-compliance with safety protocols and guidelines in the hospitals.[40] This implies that some HCWs do not have rational anticipation that taking unhealthy related actions may result to hazard as postulated by Health Belief Model (HBM).[2,4,15] This study showed good compliance to COVID-19 safety protocols and guidelines. However, some of the non-

compliance observed may not be unconnected to poor safety culture in the hospital, insufficient delivery of PPEs, absence/poor monitoring and supervision, others include lack of incident reporting, irregular trainings on Standard Procedures, excess workload, poor time management, poor prompt handling emergency situations and nonexistence of punitive actions on non-compliance.[5,15,20,37.]

CONCLUSION

This study revealed a high level of awareness of Covid-19 and the usage of personal protective equipment for the prevention of SARS-CoV-2/COVID-19. Majority of the respondents used personal protective equipment and washed their hands when handling patients though, some of them that do not performed the standard protocol were either too busy with patients or due to unavailability/scarcity of water. Good compliance was associated with being male, having a longer service year, training, awareness and positive perception toward COVID-19 preventive measures. This research can create a framework for HCWs, policymakers and other stakeholders to implement interventions. The focus should be on closing gaps in awareness, perception and compliance through expanded in-service training and quality improvement activities aimed at improving team self-assessment of compliance levels, with additional support provided to those identified as non-compliant.

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