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Knowledge, attitude and willingness of Nigerian nursing students to serve as volunteers in covid-19 pandemic

Prisca Olabisi ADEJUMO[1], Olawale Akanbi MORONKOLA[2], Adeniyi Funmilayo OKANLAWON[1], Adelani Wakeel TIJANI[3], Ijeoma L. OKORONKWO[4],Simeon Kayode OLUBIYI[5], Mfuh Anita Yafeh. LUKONG[2], Adisa Bolaji IYANDA[2], Iyanuoluwa Oreofe OJO[1], Ifeoluwapo Oluwafunke KOLAWOLE[1], Rose Ekama ILESANMI[1], Chiemerigo Anne ONYENEHO[1], Morufat A. ALABI[1] and Beatrice Mgboro OHAERI[1*]

[1]Department of Nursing Sciences, Faculty of Clinical Sciences, College of Medicine, University of Ibadan, Ibadan, Oyo State, Nigeria.
[2]Department of Health Education, Faculty of Education, University of Ibadan, Ibadan, Oyo state, Nigeria.
[3]Department of Nursing Sciences, Faculty of Basic Medical Science, Edo University, Iyamho, Edo State, Nigeria.
[4]Department of Nursing Sciences, Faculty of Health Sciences and Technology, University of Nigeria, Enugu Campus, Enugu State, Nigeria.
[5]Department of Nursing Sciences, Faculty of Clinical Sciences, College of Health Sciences, University of Ilorin, Ilorin, Kwara State, Nigeria.
[6]Department of Nursing Sciences, College of Health Sciences Federal University, Birnin Kebbi, Kebbi State, Nigeria.

The current outbreak of the novel COVID-19 cases in different parts of the world continues to have adverse effect on the health, education, economy, politics and other sectors of national life of countries worldwide. Nigeria, as the 2nd country in Africa that has an increased incidence of infection, assessing the level of nursing student's information about COVID-19, their attitude and willingness to serve as volunteers during the pandemic can be an effective step in flatting the curve of the disease. Hence, the need for this study. A descriptive cross-sectional survey was employed in this study. Seven hundred and twenty-five undergraduate nursing students from purposively selected universities in Nigeria participated in the study. The participants cut across 200 to 500 levels of study. A semi structured questionnaire containing 36 items was used to collect data via online means on the knowledge, attitude and willingness of Nigerian nursing students to serve as volunteers in COVID 19 pandemic. Data were analyzed and presented in frequency and percentage while the association among the variables was tested using chi square. The mean age of respondents was 21.5±2.5 years. The findings from the study revealed that the respondents had good knowledge 73.7 and 66% of them expressed positive attitude towards caring for people during the pandemic, while, 62.8% indicated their willingness to serve as volunteers. Age, knowledge and attitude does not influence their willingness to serve as volunteer. In view of the above findings, the faculty to collaborate with the stakeholders in the practicing area to encourage nursing students by providing resources such as personal protective equipment's and incentives when involved in the care of patients with COVID -19 and other infectious diseases.

Key words: Attitude, knowledge, willingness, nursing students, pandemic, COVID-19, volunteering.

INTRODUCTION

Coronavirus disease 2019 (abbreviated "COVID-19") is an emerging respiratory disease that is caused by a novel coronavirus and was first detected in December 2019 in Wuhan, China. The disease is infectious, and some of its clinical presentation or symptoms include fever, dry cough, fatigue, myalgia, and dyspnea (The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020; Chen et al., 2020).

Globally, World Health Organization has reported an increase in incidence of COVID-19 with 5,817,385 cases and 362,705 deaths as of May 30, 2020 (WHO, 2020). At the early stage of the COVID-19 outbreak in China, 18.5% of the patients with COVID-19 developed to the severe stage, which is characterized by acute respiratory distress syndrome, septic shock, difficult-to-tackle metabolic acidosis, and bleeding and coagulation dysfunction (The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020; Chen et al., 2020). Also, at this early stage of the Coronavirus disease outbreak in China, the overall case fatality rate was 2.3%, much lower than those of SARS (9.5%), MERS (34.4%), and H7N9 (39.0%) (The Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020; Chen et al., 2020; Munster et al., 2020). However, as of May 30, 2020, China recorded an estimated 84,565 cases and 4645 deaths (WHO, 2020).

The novel outbreak spread to different parts of the world leading to an increase in COVID-19 cases. For instance, Europe had 2,122,350 cases and 179,353 deaths, America had 2,677,500 cases and 154,608 deaths, South- East Asia had 249,525 cases and 7,157 deaths and Africa had 96,902 cases with about 2,482 deaths as of May 30, 2020 (WHO, 2020). In response to this serious situation, the World Health Organization (WHO) declared it a public health emergency of international concern on January 30 and called for collaborative efforts of all countries to prevent its rapid spread (WHO, 2020).

In Nigeria, the first confirmed case of COVID-19 was announced on February 27th, 2020 by the Nigerian Government and the number of cases has been on the increase. Furthermore, Nigeria has recorded 9,302 cases and 261deaths from COVID-19 as of May 30, 2020 (WHO, 2020). At the early stage of the disease, more than half of the cases contracted the virus after returning from high-risk countries, 10% of the cases are contacts of already confirmed cases. The affected states were Lagos, Ogun, Osun, Oyo, Edo, Rivers, Ekiti, Bauchi, Kaduna and the Federal Capital Territory (Nigeria Centre for Disease Control, 2020). However, all of the states in Nigeria have been affected by this virus, and the recent transmission classification by WHO is community transmission (WHO, 2020). Nursing students who are potential health workers, have close contact with infected patients and have a decisive role in infection control (Lu, 2020).

In Africa, Nigeria being one of the top 10 countries that have an increased incidence of infection, assessing the level of nursing student's information about COVID-19, attitude and willingness to serve as volunteers during COVID-19 can be an effective step in controlling the disease (WHO, 2020). Several studies have been conducted on knowledge of COVID-19 in developed countries. A study conducted among psychiatric nurses and doctors in China showed that 89.51% of the medical staff of the psychiatric hospitals had extensive knowledge of COVID-19 (Shi et al., 2020). Also, a study carried out in Iranian hospitals showed that more than half (56.6%) of the nurses had good knowledge regarding COVID- 19 infection during the current outbreak (Nemati et al., 2020). In India, healthcare professionals and students from the Mumbai Metropolitan Region showed adequate awareness of COVID-19 in the healthcare setting with an overall percentage of 71.2% having answered knowledge questions correctly (Modi et al., 2020), no study in Nigeria has reported about the level of knowledge, attitude and willingness to serve as a volunteer in COVID-19 pandemic among nursing students and this has made this study to be imperative in a time like this.

Studies which have been carried out among healthcare workers concerning their attitude towards COVID -19 outbreak in China showed that healthcare workers including nurses have anxiety for themselves and their families not to be infected with the virus (Huang and Zhao, 2020). In another study in Saudi Arabia, a high level of anxiety about Middle East Respiratory Syndrome (MERS) infectious disease was shown among medical students (Al-Rabiaah et al., 2020). However, it is difficult to ascertain the attitude of nursing students in a developing country such as Nigeria because there is paucity of literature in this area. Also, to the best of the researchers' knowledge, this is the first study that assesses the attitude of nursing students of COVID-19 in Nigeria. Literature has further shown that voluntary services or programmes like treatment of COVID-19 patients, public education on COVID-19, helping with the production of protective gear such as face mask, face shield, and hazmat suits among others have been initiated by some governments, Ministry of Health, and educational institutions of some nations like Oman, India,

*Corresponding author. E-mail: bmkohaeri@yahoo.co.uk. Tel: +2348161352904.

Andalas University (Unand) in Padang, Indonesia among medical and nursing students (Hooghe and Stolle, 2003; Mitjà and Clotet, 2020; Jakarta, 2020) and this has helped in reducing the impact of these infectious diseases. The major motivational factor that influenced their volunteering into rendering these services is the opportunity to build skills in their different professions, such factors include provision of personal protective equipment and incentives (Eley, 2003). Also, volunteers who are driven by their religious values are more likely to develop a stronger motivation to volunteering and a positive attitude towards non-profit organizations (NPOs) activities and consequently a stronger willingness to stay with the organization. Perhaps, these religious values could be attributed to providing service to humanity by the volunteers (Zollo et al., 2018). However, despite the potential benefits of volunteering in a study conducted in Dhofar University, low level of volunteering was still found among the students (Abuiyada, 2018). Negative attitude about volunteering has been reported to be a barrier to students volunteering to such health services (Abuiyada 2018). Getting people with positive attitude is a promising way of enhancing willingness to volunteer in management of COVID-19 crisis (Lauber et al., 2020). Furthermore, because of the high risk of infection, nurses work under great pressure when dealing with these patients, as a result, they need a helping hand to be able to combat the rapid spread of the disease condition. The willingness of nursing students to serve as volunteers regarding COVID-19 will play an important role in achieving victory in the battle against the epidemic in the country, hence, the need to conduct this study at this time.

Previous studies have explored the knowledge and attitudes of medical staff towards infectious diseases and their willingness to work during an epidemic (Askarian et al., 2007; Sarani et al., 2016; Angelillo et al., 2001; Daugherty et al., 2009). Ma et al. (2009) reported the outcome of a study on the knowledge and attitudes of critical care clinicians during the 2009 H1N1 influenza pandemic. They found that only 82.3% of medical staff expressed willingness to care for patients with Influenza A virus subtype H1N1 (swine flu). However, no study focused on nursing students during this pandemic outbreak. The purpose of this study was to assess the knowledge, attitude and willingness of undergraduate nursing students in Nigeria to serve as volunteers in COVID - 19 Pandemic including the association of respondent's age.

MATERIALS AND METHODS

A descriptive cross-sectional survey. Nigeria is divided into six geopolitical zones majorly and these includes North West, North East, North Central, South, South, South East and South West. The zoning has also led to the establishment of a total of a total of forty-four federal universities approved by the National University Commission (NUC), of which thirty- two are federal universities, six are federal Universities of agriculture, and six are federal universities of technology. It is also worthy to note that all the states in each Zone have a federal Universities, and all most all states have a state University as well. Due to prevailing situation in the country and worldwide, the researchers were only able to get one university in five zones which made the total of the universities selected to be five to participate in the study; namely the University of Ibadan (UI), Oyo state, University of Ilorin, Ilorin Kwara state, University of Nigeria, Nsukka, Federal University, Birnin Kebbi, and Edo State, University, Iyamho. Therefore, the Departments of Nursing in these universities were purposively selected because they are known for the education of undergraduate nurses, with a five-year nursing programme and they were also willing to participate in the study. Only the students in second, third, fourth and fifth year of study were recruited.

These strata were considered because they would have been exposed to clinical practicum postings. Ethical approval for the study was obtained from UI/UCH ethical committee with the approval number UI/EC/20/0231. An informed consent form was sent to participants providing information on the essence of the study and seeking the respondents' consent to take part in the study. The researchers adhered to the ethical principles that guide the study which are the principles of informed consent, respect for persons, beneficence, non-maleficence, and justice. Each participant responded to the online survey. Out of 1704 enrollees, seven hundred and twenty-six undergraduate nursing students participated in the study through online survey. These groups of nursing students are presently in their 2nd, 3rd, 4th and 5th year in each Department of Nursing of the five selected institutions within the academic year 2019-2020 session. The undergraduate nursing students from five universities were recruited in this study. Each level across the universities were: 200level= 226, 300level=192, 400level=145 and 500level= 162 and this was possible through the online survey method of data collection. The instrument for data collection was a semi structured questionnaire developed after extensive literature review and consultation with experts in medical surgical nursing. The reliability test was also conducted. A Cronbach alpha value of 0.7 was established. This indicates that the items of instrument were well cross-related, hence it shows a good, valid and reliable instrument. The questionnaire consisted of four parts:

Section A: This included items that elicited information on socio-demographic characteristics of the respondents such as age, gender, level of study, and training institution.
Section B: This included items regarding knowledge about Corona Virus and its management.
Section C: This comprised items on the attitude of nursing students towards Coronavirus.
Section D: This contained items on willingness to volunteer in the care of patients infected with Corona virus.

The researchers entered the questionnaire items into the Question Pro software and the link generated was sent online to different social media platforms for nurses (WhatsApp group platform and Telegram group platform). The participants completed the questionnaire within 13 min and the responses were retrieved via the QuestionPro website by the researchers. Data collection spanned a period of three weeks.

Statistical analysis

The data obtained were collated, cleaned, tallied, and analyzed

Table 1. Sociodemographic characteristics of respondents.

Socio-demographic characteristics	Fr		Mean±SD
	(n=726)	%	
Age group			21.5±2.5
18 to 24 years	545	75.1	
>24 years	181	24.9	
Gender			
Male	121	16.7	
Female	598	82.3	
No response	7	1	
Level of study			
200 level	226	31.1	
300 level	192	26.4	
400 level	145	20	
500 level	162	22.4	
No response	1	0.1	
Institution			
Department of Nursing, University of Ilorin	100	13.8	
Department of Nursing, University of Nigeria, Nsukka	289	39.8	
Department of Nursing, Edo State University, Iyambo	125	17.2	
Department of Nursing, University of Ibadan, Ibadan	70	9.6	
Department of Nursing Sciences, Federal University Birnin Kebbi	128	17.5	
No response	14	1.9	
Marital relationship status			
Single, never married	640	88.2	
Married	66	9.1	
Divorced	1	0.1	
Widowed	1	0.1	
No response	18	2.5	

using the survey monkey software. However, the data generated were transformed to Statistical Package for the Social Sciences (SPSS) version 22.0. The quantitative variables such as socio-demographic data were summarized using percentage and frequency with the mean age calculated so as to present the summary at a glance. The responses such as age, knowledge, willingness and attitude were categorized and Chi square at the p-value 0.05 level of significance were used to test the association between the generated categorical variables.

RESULTS

Table 1 shows that the majority 75.1% of the respondents were within the age of 18-24 years. More than half 82.3% of the respondents were female, 31.1% of the respondents were in 200 level in the selected institution

and 88.2% of the respondents were single. Table 2 shows respondents 84.0% claimed that the official name of the coronavirus disease to be COVID-19, 88.4% could identify the causative organism of COVID-19. While, 91.7% claimed that their source of information of COVID-19 are NCDC and WHO. Majority 97.5% of the respondents believed that close contact with a patient who recently arrived from COVID-19 countries is a media of transmission of the virus. Table 3 reflected that more than half 73.7% of the respondents had good knowledge of COVID-19. Table 4 shows 38.5% of the respondents strongly agreed that avoidance of a person that returns from foreign land in the last one month or members of their family can curtail the spread of virus. Also, 44.8% of the respondents strongly agree that COVID-19 will finally be successfully controlled. While, 46.1% agreed that they

Table 2. Knowledge of respondents about coronavirus.

Knowledge items	Fr	%
Which of the following is the official name of the coronavirus disease?		
Koronavirus 2019	2	0.3
COVID-19	610	84
Severe Acute Respiratory Coronavirus 2 (SARS-CoV-2)	73	10
Coronavirus 2019	36	5
No response	5	0.7
What is the causative organism of coronavirus disease?		
Staphylococcus aureus	39	5.4
SARS-CoV-2	642	88.4
Trichomonas	19	2.6
No response	26	3.6
COVID-19 is an infectious disease transmitted from one object to a person		
Yes	481	66.3
No	219	30.2
I don't know	11	1.5
No response	15	2
Which of this combination is the best source of information for COVID-19?		
Social Media and the State Ministry of Health	50	6.9
NCDC and WHO	666	91.7
Religious Leaders and Professional Association	6	0.8
No response	4	0.6
The most likely sources of infection with COVID-19 in Nigeria include		
God's wrath and ancestral curse		
Close contact with a person who recently arrived from COVID-19 pandemic countries and patient-to-caregiver transmission	1	0.1
Mother—to-child-transmission during delivery and being a relative of COVID-19	708	97.5
patient	8	1.2
Walking around the house of an infected person and bearing the same name with		
COVID-19 infected person	6	0.8
No response	3	0.4
The main clinical symptoms of COVID-19 include the following		
Fever, dry cough, fatigue, myalgia, and dyspnea	174	24
Fever, dry cough, fatigue and dyspnea	211	29
Cough, Fever, and breathlessness only	89	12.3
Cough, Fever, Dyspnea, and Sneezing	245	33.7
No response	7	1
COVID-19 is more deadly among which group of people?		
Adolescents		
The old people	12	1.7
The pregnant women	698	96.1
No response	13	1.8
	3	0.4

Table 2. Cont'd

Most at risk populations for developing complication following infection with COVID-19 includes		
Women		
Pilots	1	0.1
Individuals with chronic medical conditions	6	0.8
Men	704	97.1
No response	9	1.2
	6	0.8
One of the following is not the most likely way COVID-19 can be transmitted to another person		
From fomites to a healthy person	20	2.8
Respiratory droplet	62	8.5
Mosquito bite	625	86.1
Unhealthy hygienic practices	16	2.2
No response	3	0.4
What is the incubation period of COVID-19?		
2-14 days	708	97.5
2-20 days	5	0.7
2-25 days	3	0.4
2-30 days	5	0.7
No response	5	0.7
Infection control and preventive measures against the spread of COVID-19 includes:		
Spraying self with alcohol and drinking chlorinated water		
Frequent hand hygiene for at least 20 seconds	14	1.9
Avoid touching of the face and any oral mucosa	518	71.3
Bathing with hot water and salt, Isolation/quarantine	174	24
No response	15	2.1
	5	0.7
Using antibiotics prevents one from contracting COVID-19		
Yes	44	6.1
No	589	81.1
I don't know	85	11.7
No response	8	1.1
Only those who traveled outside Nigeria within the last three months and their family members contract COVID-19		
Yes	87	12
No	601	82.8
I don't know	29	4
No response	9	1.2
Currently, there is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection		
Yes	706	97.2
No	5	0.7
I don't know	10	1.4
No response	5	0.7
Eating or contacting wild animals would result in the infection by the COVID-19 virus		
Yes	177	24.4

Table 2. Cont'd

No	419	57.7
I don't know	122	16.8
No response	8	1.1
The current effective treatment for COVID-19 is:		
The use of hydroxychloroquine or other antimalarial alternative therapy	60	8.3
Early treatment at NCDC approved health facility	9	1.2
No response	651	89.7
	6	0.8

Table 3. Cumulative knowledge score of the respondents.

Level of knowledge	Frequency	Percentage
Poor knowledge	191	26.3
Good knowledge	535	73.7

Table 4. Respondents' attitude towards COVID-19 and its management.

Attitude	SD	D	U	A	SA
	F (%)	F (%)	F (%)	F (%)	F (%)
I am less worried about the spread of COVID-19 because Nigeria environment is hot and will kill the virus, virus easily and curtail the spread	305(42.7)	291(40.8)	57(8.0)	48(6.7)	25(1.8)
Once I take a hot bath and hot food, I care less of contracting COVID-19	393(55.0)	258(36.1)	32(4.5)	26(3.6)	17(0.7)
Frequent hand washing with soap and water or the use of hand sanitizer in preventing COVID-19 is a waste of time	497(69.5)	170(23.8)	19(2.6)	15(2.1)	25(3.5)
I feel covering my nose and mouth when coughing or sneezing is against my fundamental human rights	455(63.8)	232(32.5)	19(2.6)	9(1.3)	11(1.5)
Advising people to keep physical/social distancing between one another/next person negates the spirit of good friendship	324(45.3)	267(37.3)	35(4.9)	68(9.5)	32(2.9)
One should avoid any form of personal contact with a person that returns from foreign land in the last one month or members of their family	25(3.5)	39(5.5)	35(4.9)	352(47.7)	275(38.5)
COVID-19 will finally be successfully controlled	9(1.2)	9(1.2)	69(9.7)	319(43.0)	320(44.8)
If I need to get outside the house, I will wear mask	19(2.7)	17(2.4)	45(3.9)	327(46.1)	318(44.9)

SD -Strongly agree, D- Disagree, U- Undecided, A-Agree, SA- Strongly agree.

Table 5. Overall attitude score of the respondents.

Level of attitude	Frequency	Percentage
Negative attitude	244	33.6
Positive attitude	482	66.4

Table 6. Participants' willingness to volunteer in the care of patients infected with COVID-19.

Willingness	Yes	No	I don't know
	f (%)	f (%)	f (%)
I am willing to volunteer if there is monetary reward	407(56.7)	202(28.1)	117(15.2)
As a health professional, I am ready to care for COVID-19 patients	523(72.7)	82(11.4)	121(15.9)
I will be willing to take up a job in a facility that only cares for COVID-19 infected patients	307(42.7)	253(35.2)	166(22.1)
If there are protective materials and COVID -19 infected patients, I am ready to volunteer to care for them	617(85.8)	53(7.4)	55(6.8)
I can only serve as a volunteer to care for CoVID-19 infected patients, If only I am remunerated apart from feeding and transport allowances	340(47.6)	233(32.6)	153(19.9)
I am ready to care for COVID-19 infected patients if only I am trained on how to care for them	629(87.8)	47(6.6)	50(5.6)

Table 7. Overall willingness of the respondents to serve as volunteer in COVID-19 pandemic.

Level of willingness	Frequency	Percentage
Unwilling	270	37.2
Willing	456	62.8

need to wear mask if they need to get outside their house. Table 5 shows that more than half 66.4% of the respondent had positive attitude. Table 6 shows that majority 85.8% of the respondent were willing to serve as volunteer if protective material is provided. Also, 87.8% of the respondents were willing to care if they are trained on how to care for COVID-19 patients. Table 7 reflect 62.8% of the respondents were willing to serve as volunteers. Table 8 results showed that age, knowledge and attitude were not statistically significant to willingness of the respondent to serve as volunteer in COVID-19 pandemic.

DISCUSSION

The study assessed the knowledge, attitude and willingness of nursing students to serve as volunteers in COVID -19 pandemic. The study participants were predominantly female. This is typical of the nursing profession as a female-dominated profession. Findings from the study indicated that the participants had a good knowledge of COVID-19 pandemic. This is similar to study conducted by Jamshidi et al. (2016) that shows nursing students had good knowledge of COVID-19 and this helped to increase their self-confidence. One could infer that the good knowledge exhibited by the nursing study could be because of the massive publicity given to the current pandemic. Also, respondents in the current study demonstrated understanding of the guidelines for

prevention of COVID-19 such as frequent hand washing, wearing facemask and social distancing. Based on this finding, suffice it to say that students are ready to contribute their quota during the pandemic. Furthermore, it appears that good knowledge of Nigerian nursing students would translate to positive attitude and willingness to contribute their services as volunteers, however there was no statistically significant association between their knowledge level and their willingness to serve as volunteers. This is contrary to a study conducted in China among the healthcare workers where 82.3% of the medical staff expressed a willingness to care for patients with Influenza A virus subtype H1N1 (Ma et al., 2009).

Furthermore, the participants in the study expressed a positive attitude towards caring for people infected with COVID-19. This is similar to a study in Uganda, where it was stated that healthcare workers expressed good attitude to caring for patients with COVID-19 (Olum et al., 2020). It can be inferred from the present study that, Nigeria like other African countries, there are myths surrounding the spread of the novel virus; including that the virus does not thrive in hot climate such as Nigeria, and that hot drinks can easily destroy the virus. As such, the students may feel that they have limited risk. Likewise, the passion for the nursing profession might bring them to this level where they have exhibited good attitude.

Regarding the willingness of nursing students in Nigeria

Table 8. Association between respondents age, knowledge, attitude and willingness.

Variable	Willingness		X2	df	p-value
Age groups	Unwilling	Willing			
18 to 24 years	192(35.2%)	353(64.8%)	3.020	1	0.082
>24 years	78(43.1%)	103(56.9%)			
Knowledge					
Poor knowledge	77(40.3%)	114(59.7%)	1.083	1	0.298
Good knowledge	193(36.1%)	342(63.9%)			
Attitude					
Negative attitude	82(33.6%)	162(66.4%)	2.020	1	0.155
Positive attitude	188(39.0%)	294(61.0%)			

to serve as volunteers, findings indicated that the students were willing to serve as volunteers. This finding corroborates the reports of a systematic review of healthcare workers' willingness to work during an influenza pandemic (Yumiko et al., 2015). However, a study in China contradicted our finding, in China 85% of healthcare workers who despite the use of PPE, demonstrated fear of contracting infection (Zhang et al., 2020) which may a suggest an unwillingness of the HCWs to work with infected patients. The willingness on the part of the nursing students could be due to the fact that they understand and they are ready to follow the WHO guideline for the prevention of infectious diseases such as COVID-19. The age of the respondents was not significantly associated with their willingness to serve finding is consistent with that of Shi et al. (2020) who reported that age was not significantly associated with willingness to care for psychiatric patients suffering from the COVID-19. In another study Huynh et al. (2020) also found no association between age and attitude of health workers to COVID-19 infection. The study was carried out among nursing students in the universities in the selected geographical zone in Nigeria, a wider study including other institutions of learning such as the hospital-based nursing schools in Nigeria and a larger sample size will be more representative.

Conclusion

This study concluded that an appreciable number of nursing students in Nigeria has good knowledge, positive attitude towards COVID-19 pandemic and are willing to serve as volunteers in the care of persons infected with the virus. Age, knowledge and attitude were not significantly associated with their willingness to serve as volunteers. Due to the aforementioned, it is proposed that the nursing students should continuously undergo training

in the use of WHO guideline of infection prevention control (IPC), this will help the nursing students provide adequate care without being at risk or falling victim of circumstance.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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