Full Length Research Paper

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

Prisca Olabisi ADEJUMO¹, Olawale Akanbi MORONKOLA², Adeniyi Funmilayo OKANLAWON¹, Adelani Wakeel TJANI³, Ijeoma L. OKORONKWO⁴, Simeon Kayode OLUBIYI⁵, Mfuh Anita Yafeh. LUKONG², Adisa Bolaji IYANDA², Iyanuoluwa Oreofe OJO¹, Ifeoluwapo Oluwafunke KOLAWOLE¹, Rose Ekama ILESANMI¹, Chiemerigbo Anne ONYENEHO¹, Morufat A. ALABI¹ and Beatrice Mgboro OHAERI¹

¹Department of Nursing Sciences, Faculty of Clinical Sciences, College of Medicine, University of Ibadan, Ibadan, Oyo State, Nigeria.
²Department of Health Education, Faculty of Education, University of Ibadan, Ibadan, Oyo state, Nigeria.
³Department of Nursing Sciences, Faculty of Basic Medical Science, Edo University, Iyamho, Edo State, Nigeria.
⁴Department of Nursing Sciences, Faculty of Health Sciences and Technology, University of Nigeria, Enugu Campus, Enugu State, Nigeria.
⁵Department of Nursing Sciences, Faculty of Clinical Sciences, College of Health Sciences, University of Ilorin, Ilorin, Kwara State, Nigeria.
⁶Department 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 flattening 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 261 deaths 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.
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 (Askanian 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 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 (n=726) | %     | Mean±SD |
|-----------------------------------|-----------|-------|---------|
| **Age group**                     |           |       |         |
| 18 to 24 years                    | 545       | 75.1  | 21.5±2.5|
| >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 sociodemographic 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 patient | 708 | 97.5 |
| 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                                                                    | 12  | 1.7  |
| The old people                                                                 | 698 | 96.1 |
| The pregnant women                                                             | 13  | 1.8  |
| No response                                                                    | 3   | 0.4  |
Table 2. Cont’d

| Most at risk populations for developing complication following infection with COVID-19 includes |   |   |
|-----------------------------------------------------------------------------------------------|---|---|
| Women                                                                                           | 1 | 0.1 |
| Pilots                                                                                          | 6 | 0.8 |
| Individuals with chronic medical conditions                                                    | 704 | 97.1 |
| Men                                                                                             | 9 | 1.2 |
| No response                                                                                     | 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                                      | 14 | 1.9 |
| Frequent hand hygiene for at least 20 seconds                                                  | 518 | 71.3 |
| Avoid touching of the face and any oral mucosa                                                 | 174 | 24 |
| Bathing with hot water and salt, Isolation/quarantine                                           | 15 | 2.1 |
| No response                                                                                     | 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

|                | Frequency | Percentage |
|----------------|-----------|------------|
| No             | 419       | 57.7       |
| I don’t know   | 122       | 16.8       |
| No response    | 8         | 1.1        |

The current effective treatment for COVID-19 is:

| Treatment                                                                 | Frequency | Percentage |
|---------------------------------------------------------------------------|-----------|------------|
| 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       |

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 (%)   |
|--------------------------------------------------------------------------|-----------|----------|----------|----------|----------|
| 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 (f %) | No (f %) | I don’t know (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 a 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     |             |     |    |         |
| 18 to 24 years | Unwilling   | 192 | 353 | 0.082   |
|                | Willing     | 219 | 223 |         |
| >24 years      | Unwilling   | 78  | 103 | 0.082   |
|                | Willing     | 192 | 208 |         |
| Knowledge      |             |     |    |         |
| Poor knowledge | Unwilling   | 77  | 114 | 0.298   |
|                | Willing     | 139 | 178 |         |
| Good knowledge | Unwilling   | 193 | 342 | 0.155   |
|                | Willing     | 247 | 294 |         |
| Attitude       |             |     |    |         |
| Negative attitude | Unwilling  | 82  | 162 |         |
|                | Willing     | 200 | 294 |         |
| Positive attitude | Unwilling  | 188 | 294 |         |
|                | Willing     | 247 | 294 |         |

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 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.

ACKNOWLEDGEMENT

The author extends our thanks to the nursing students who made this study possible.

REFERENCES

Abuiyada R (2018). Students’ Attitude towards Voluntary services: A study of Dhofar University. Journal of Sociology and Social Works. 6(1): 73-80. Accessed 25th June, 2020 and Available from: https://doi.org/10.15640/jssw.v6n1a9
Al-Rabiaah A, Temsah MH, Al-EyadhyAA, Hasan GM, Al-Zamil F, Al-Subaie S (2020). Middle East Respiratory Syndrome-Corona virus (MERS-CoV). Associated Stress Among Medical Students at a University Teaching Hospital in Saudi Arabia. Journal of Infectious Public Health 13(5):687-691. doi 10.1016/j.jiph.2020.01.005.
Angelillo IF, Viggiani NMA, Greco RM, Elto D (2001). HACCP and Food Hygiene in Hospitals Knowledge, Attitudes and Practices of Food-Services Staffing Calabria, Italy. Infection Control Hospital Epidemiology 22(6):363-369.
Askarian MML, McLaws M Meylan (2007). Knowledge, Attitude, And Practices Related To Standard Precautions of Surgeons and Physicians in University-Affiliated Hospitals of Shiraz, Iran International Journal of Infectious Disease, 11(3):213-219
Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y (2020). Epidemiological and Clinical Characteristics of 99 Cases of 2019 Novel Coronavirus Pneumonia in Wuhan, China: A Descriptive Study. Lancet 395(10223):507-513.
Daugherty EL, Perl TM, Rubinson L, Bilderback A, Rand CS (2009). Survey Study of the Knowledge, Attitudes, And Expected Behaviors of Critical Care Clinicians Regarding an Influenza Pandemic. Infectious Control Hospital Epidemiology 30(12):1143-1149.
Eley D (2003). Perceptions of And Reflections on Volunteering: The Impact of Community Service on Citizenships in Students. Voluntary Action 5(3):27-46.

Hooghe M, Stolle D (2003). Age Matters: Lifestyle and Cohort Differences in the Socialization Effect of Voluntary Participation. European Political Science 2(2):9-56.

Huang Y, Zhao N Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. Psychiatry Research 288:112954. doi: https://doi.org/10.10110/2020.02.19.20025395

Huynh G, Nguyen TN, Vo KN, Pham LA (2020). Knowledge and Attitude Toward COVID-19 Among Healthcare Workers At District 2 Hospital: Ho Chi Minh City. Asian Pacific Journal of Tropical Medicine 13(8):333-334https://www.nuc.edu.vn/nigerian-universities/federal-universities/ Accessed 15th August, 2020.

Jakarta (2020). Jakarta to standard precautions of surgeons and physicians in university-affiliated Hospitals West Sumatra Medical Nursing Students Volunteer to Curbs Spread of COVID-19News Desk. The Post Jakarta / Tue, April 7, 2020 / 06:31 pm. Accessed 4th June, 2020 https://www.thejakartapost.com/youth/2020/04/07/west-sumatra-medical-nursing-students-volunteer-to-curb-spread-of-covid-19.html

Jamshidi N, Molazem Z, Sharif F, Torabizadeh C, Najafi Kalyani M (2016). The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. The Scientific World Journal 24th June, 2020 Available at http://dx.doi.org/10.1155/2016/1846178

Lauber C, Nordt, C, Falcato L, Rossler W (2002). Determinants of Attitude to volunteering in Psychiatry: Results of a Public Opinion Survey in Switzerland. International Journal of Social psychiatry 48(3):209-219. doi:10.1177/00207640212873253

Lu H (2020). Drug treatment options for the 2019 new coronavirus (2019-nCoV) (2020). Bioscience Trends 14(1):69-71. https://doi.org/10.5582/bst.2020.01020.

Ma X, He Z, Wang Y (2009). Knowledge and attitudes of healthcare workers in Chinese intensive care units regarding H1N1 influenza pandemic. BMC Infectious Disease 11(1):1-7. https://doi.org/10.1186/1471-2334-11-24.

Mitja O, Cletot B (2020): Use of Antiviral Drugs to Reduce COVID-19 transmission. The Lancet Global Health 8(5):e639-e640.

Nemati M, Ebrahimizadeh M, Nemati F (2020). Assessment of Iranian Nurses Knowledge and Anxiety Toward COVID-19 During the Current Outbreak in Iran. Arch Clinical Infectious Disease. Online ahead of Print; 15(COVID-19):e102848. doi: 10.5812/archcid.102848.

 Munster VJ, Koompans M,van Doremalen N, vanRiel D, deWitte, A. (2020). Novel Coronavirus Emerging in China-Key Questions for Impact Assessment. Nigeria. England Journal Medicine. 2020; 382:692 -4 of Shiraz, Iran. International Journal of Infectious Disease 11(3):213-219.

Nigeria Centre for Disease Control (2020). Two hundred and Fifty-four New Cases of COVID-19 confirmed in Nigeria. Accessed 8th April, 2020. Available https://ncdc.gov.ng/news/237/update-on-covid-19-in-Nigeria.

Olum R, Chekwewch G, Welah G, Nassozi RD, Bongomin F (2020). Coronavirus Disease Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. Frontier Public Health. Accessed 30th April, 2020, https://doi.org/10.3389/fpubh.2020.00181.

Modi PD, Nair G, Uppe A, Modi J, Tuppekari B, Gharpure AS, Langade D (2020). COVID-19 Awareness among Health care Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. Cureus 12(4):e7514. doi:10.7759/cureus.7514.

Sarani H, Balouchi A, Masinainezhad N, Ebrahimitasbs E (2016). Knowledge, attitude and Practice of nurses about standard precautions for hospital-acquired infection in teaching hospitals affiliated to Zabol University of Medical Sciences. Global Journal of Health Sciences 8(3):193-198.

Shi Y, Wang J, Yang Y, Wang Z, Wang G, Hashimoto K, Zhang K, Liu H (2020). Knowledge and Attitudes of medical staff in Chinese psychiatric hospitals regarding COVID-19. Brain, Behavior, & Immunity-Health. https://doi.org / 10.1016/j.bbbeh.2020.100064.

The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team (2020). The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. Chinese Journal Epidemiology 41(1):145-51.

World Health Organization (WHO) (2020). Coronavirus Disease (COVID-19) Outbreak: Rights, Roles and Responsibilities of Health Workers; Including Key Considerations for Occupational Safety and Health. Available @ https://www.who.int/publications-detail/coronavirus-disease-(covid-19)-outbreak-rights-roles-and-responsibilities-of-health-workers-including-key-considerations-for-occupational-safety-and-health (AccessedMay20, 2020)

World Health Organization (WHO) (2020). Coronavirus disease (COVID-19) SituationReport-120. Accessed 26th May 2020 and Available https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports.

Yumiko Aoyagi, Charles R Beck, Robert Dingwall, Jonathan S Nguyen-Van-Tam (2015). Healthcare workers’ willingness to work during an influenza pandemic: a systematic review and meta-analysis Influenza Other Respiratory Viruses. 9(3):120-130. doi:10.1111/irv.12310

Zhang M, Zhou M, Tang F, Wang Y, Nie H, Zhang L, You G (2020). Knowledge, Attitude, and Practice Regarding COVID-19 Among Healthcare Workers in Henan, China. Journal of hospital infection 4(1):120 https://doi.org/10.1016/j.jhin.

Zollo L, Ciaippe C, Faldetta G, Pellegrini M (2018). Volunteers’ Religiosity and Intentions to stay: The Mediating Role of Motivation. Academy of Management. Accessed 24th June, 2020 and Available http://doi.org/10.5465/AMBPP.2018.1064