

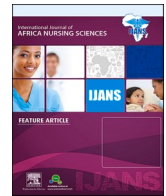


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Readiness for clinical practice amidst coronavirus among nursing students in southwest Nigeria

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ABSTRACT

Background: COVID-19 is a public health problem that has claimed the lives of many men, women, and children globally, apart from its overwhelming economic impact. Nurses are inexorably faced with this situation as part of the frontline hospital workers, likewise student nurses on clinical practice while on training.

Objective: To assess readiness on resumption for clinical practice amidst coronavirus pandemic among Nursing students in South-West Nigeria.

Methods: This is a cross-sectional descriptive study that utilized a multistage sampling technique to select the respondents. Three-hundred respondents were recruited for the study. Data were analyzed using SPSS 22.0, descriptive statistics were presented in tables and charts while the hypotheses were tested with Chi-square at a significant level of $p = 0.05$.

Results: The findings revealed that the mean and standard deviation of the respondents was 22.16 ± 3.11 years; 61.7% were ready for clinical practice, 92(30.7%) were ready to nurse coronavirus patients. There is a significant difference between nursing institutions and readiness for clinical practice $p = 0.000$. There is no significant difference between years of clinical exposure and readiness for clinical practice $p = 0.594$.

Conclusion: This study revealed that though the students had a high level of readiness, only few are ready to practice in coronavirus wards, this could pose a challenge to future nurses. It is important to build clinical competence and students' confidence to work in areas of infectious diseases like coronavirus.

1. Background

Coronaviruses cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) (Backer, Klinkenberg & Wallinga, 2020). Coronavirus (abbreviated "COVID-19") was first detected in December 2019 in Wuhan (Munster, Koopmans, Doremalen, Van & De Wit, 2020). The disease caused by this virus is highly infectious, and its main clinical symptoms include fever, dry cough, fatigue, myalgia, and dyspnea. In China, 18.5% of the patients infected with COVID-19 progress to the severe stage, which is characterized by acute respiratory distress syndrome, septic shock, difficult-to-tackle metabolic acidosis, bleeding, and coagulation dysfunction (Chen, Dong, Qug & Gong, 2020).

The World Health Organization (WHO) declared the disease caused

by coronavirus a public health emergency of international concern on January 30 and called for collaborative efforts of all countries to prevent the rapid spread of COVID-19 (WHO, 2019). During the first week of March 2020, a devastating number of new cases of the disease were reported globally; it became a global pandemic. As of the time of writing this paper, COVID cases had risen to 79,937,170 cases, including 1,752 330 deaths (WHO, 2020a, 2020b). Nigeria recorded her index case in February 2020. At the time of this study, a total of 82,747 confirmed cases and 1,246 deaths were recorded by December 2020 in Nigeria. Lagos as the epicenter had 23,545 confirmed cases (NCDC, 2020).

COVID-19 is spread by human-to-human transmission through droplets, feco-oral, and direct contact and has an incubation period of 2–14 days (Backer et al, 2020). The nurses working in the clinical areas and the students practicing in the affected wards have been on the frontline of contracting the virus. As of the time of the study, no antiviral treatment or vaccine has been explicitly (Fig. 1) recommended for

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COVID-19.

According to the International Council of Nurses (ICN, 2020), based on information collected from 30 countries' National Nursing Associations, government figures, and media reports, over 230,000 health workers were infected with (Tables 1-4) COVID 19, as a result of the continuing shortage of protective equipment. The council also reported that more than 600 nurses lost their lives as a result of the disease. Because of this, it becomes obvious that applying preventive measures to control the COVID-19 pandemic is the most critical intervention strategy. Health-Care Workers (HCWs), especially the nurses were the ones in contact with patients; and thus, nurses were at risk of being infected. As a measure to protect these frontline workers from this grave danger, the World Health Organization and Centers for Disease Control and Prevention (CDCP), therefore, published recommendations for the prevention and control of COVID-19 for HCWs (WHO, 2020a, 2020b; CDCP, 2019).

Clinical practice in nursing education is an important component of the nursing curriculum aimed at equipping nursing students with the skills needed for performing their duties (Awuah-Peasah, Sarf & Asamoah, 2013). The purposes of the clinical practice are for the students to learn how to perform physical and psychosocial assessments, interact with clients, families and staff, administer medications and perform other related tasks, develop critical thinking skills, and develop plans for nursing care. In the clinical setting, learning depends on the patient's condition and the ability of the student to put into practice what has been taught. The need for training sessions for health workers, including nurses, on managing patients with coronavirus, should include when to wear masks and which types, reviewing respiratory system, and airborne precautions when treating diseases, hand washing, proper donning and doffing gowns and gloves, and screening patients to identify coronavirus (Jang, 2020).

The Children and Young People Student Nurse Network (2020) conducted a survey in the UK to assess how the nursing students felt about going into clinical practice, given the situation of coronavirus pandemic. Among the 81 respondents, 44% were ready to help, 32% felt comfortable with it but needed reassurance, 21% were extremely frightened, and 2% did not want to go into practice yet. However, some nursing students across the country also opted to assist the National Health Service on the frontline for the last six months of their degree program.

With the increasing rise of infection in Nigeria and Lagos being the epicenter, nurses were faced with the responsibility of performing their nursing care as one of the frontline health workers in the hospitals and student nurses are part of the caregivers. These called the attention of the researchers to assess the nursing students to ascertain their readiness to resume clinical practice amidst the coronavirus pandemic in southwest Nigeria, seeing the rate of infection and fatalities, especially among the nurses. One may wonder if nursing students have the knowledge, materials, and emotional stability needed to resume clinical practice. They are the future nurses, and the need for them to be professionally prepared to render nursing care at such a critical period is extremely important.

2. Materials and methods

2.1. Research design

This is a cross-sectional online descriptive study that utilized a multistage sampling technique to select the respondents.

2.2. Sampling technique

The purposive sampling method was used to select Lagos and Ogun out of the six states in the Southwest geographical zone of Nigeria (Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti). The selection was done because Lagos, the epicenter, has an interstate boundary with Ogun State.

Simple random sampling (balloting) was used to select the five nursing institutions out of the eleven nursing institutions in the two selected states. The convenience sampling method was used for the selection of the nursing students from the selected institutions in Lagos and Ogun states; this was done because of the lockdown across the country during the study. Data were collected through electronic means using Google forms, sent to the students via WhatsApp and email. Data were collected from 17 June 2020 to 1 August 2020.

2.3. Sample size

The Scheaffer, Mendenall and Ott formula (2018) was used to determine the sample size and attrition giving a total of 330 out of the

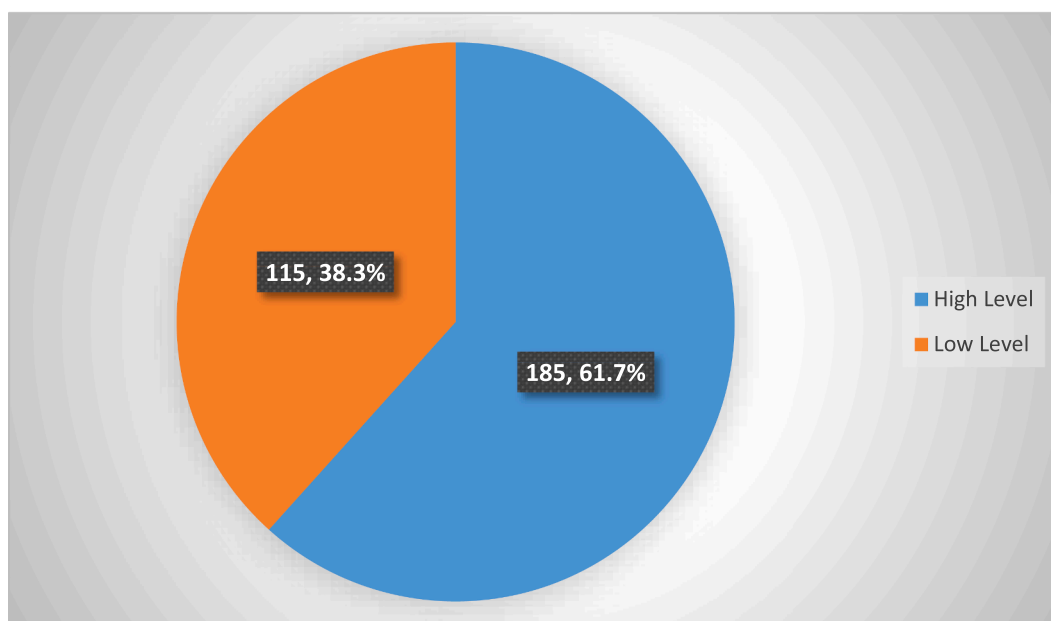


Fig. 1. overall readiness of the respondent for clinical practice amidst coronavirus.

Table 1
Socio-Demographic Characteristics of the Respondents.

| Variable | Frequency (n = 300) | Percentage (%) | Mean/SD |
|--|---------------------|----------------|--------------------|
| Age (years) | | | |
| 15–19 | 59 | 19.7 | |
| 20–24 | 209 | 69.7 | |
| 25–29 | 25 | 8.3 | |
| greater than 30 | 7 | 2.3 | |
| | | | 22.16 ± 3.11 years |
| Nursing Institution | | | |
| Institution A | 48 | 16.0 | |
| Institution B | 50 | 16.7 | |
| Institution C | 95 | 31.7 | |
| Institution D | 61 | 20.3 | |
| Institution E | 46 | 15.3 | |
| Level | | | |
| 200 | 74 | 24.7 | |
| 300 | 73 | 24.3 | |
| 400 | 79 | 26.3 | |
| 500 | 74 | 24.7 | |
| Marital status | | | |
| Single | 289 | 96.3 | |
| Married | 11 | 3.7 | |
| How many years have you been exposed to clinical practice | | | |
| 1 | 29 | 9.7 | |
| 2 | 89 | 29.7 | |
| 3 | 116 | 38.6 | |
| 4 | 66 | 22.0 | |
| | | | 2.73 ± 0.91 years |
| Religion | | | |
| Christianity | 260 | 86.7 | |
| Islam | 40 | 13.3 | |
| Your fees are paid by | | | |
| Parents | 269 | 89.7 | |
| Relations | 13 | 4.3 | |
| Social support | 6 | 2.0 | |
| Others | 12 | 4.0 | |
| Parents level of education | | | |
| Primary | 5 | 1.7 | |
| Secondary | 46 | 15.3 | |
| Tertiary | 245 | 81.7 | |
| None | 4 | 1.3 | |
| Tribe | | | |
| Yoruba | 219 | 73 | |
| Igbo | 75 | 25 | |
| Hausa | 6 | 2 | |
| Total | 300 | 100.0 | |

total population of 646 nursing institutions in South-west Nigeria. Only 90%, 300 of the respondents filled and submitted the questionnaire. However 54 respondents were selected from institution A, 56 from institution B, 101 respondents selected from institution C, 67 respondents selected from institution D, and 52 respondents were selected from institution E. The proportionate sampling depended on the number of nursing students in each institution.

2.4. Research setting

The Southwest geographical zone of Nigeria is made up of six states: Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti. It is bounded in the east by Edo and Delta states, in the north by Kwara and Kogi states, in the west by the Republic of Benin, and the south by the Gulf of Guinea. The climate of South-west Nigeria is tropical in nature and characterized by wet and dry seasons. Typical case purposive sampling method was used to select Lagos and Ogun. Lagos is the epicenter, and it shares boundaries with Ogun State. The institutions selected were:

Institution A: Department of Nursing Science, Faculty of Clinical Sciences, College of Medicine, University of Lagos. It runs a five-year

Table 2
Readiness of Nursing Students to Resume for Clinical Practice Amidst Coronavirus Pandemic, in Southwest Nigeria.

| S/ N | Readiness to practice | Yes Freq | % | No Freq | % | I don't know Freq | % |
|------|--|----------|------|---------|------|-------------------|------|
| 1 | Are you prepared to practice in the clinical area | 204 | 68.0 | 70 | 23.3 | 26 | 8.7 |
| 2 | Are you prepared to practice where there are coronavirus patients | 92 | 30.7 | 154 | 51.3 | 54 | 18.0 |
| 3 | If specially trained on infection control/ infectious diseases will you be able to practice where there are coronavirus patients | 233 | 77.7 | 36 | 12.0 | 31 | 10.3 |
| 4 | If specially equipped with the necessary PPEs will you be able to practice where there are coronavirus patients | 246 | 82.0 | 32 | 10.7 | 22 | 7.3 |
| 5 | If no special training will you be able to practice where there are coronavirus patients | 43 | 14.3 | 237 | 79.0 | 20 | 6.7 |
| 6 | If no special equipment PPEs will you be able to practice where there are coronavirus patients | 18 | 6.0 | 273 | 91.0 | 9 | 3.0 |

degree programme, but students start clinical work at 200 level.

Institution B: Department of Nursing, Faculty of Clinical Sciences, College of Medicine, Lagos State University. Students take a five-year degree programme but begin clinical practice at their 200 level.

Institution C: School of Nursing, Babcock University, Ogun State. A degree programme is five years and students start clinical practice at 200 level.

Institution D: School of Nursing, Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos. It runs a three-year, hospital-based nursing programme. Students start clinical work from 100 level.

Institution E: School of Nursing, Abeokuta, Ogun State. It equally runs a three-year, hospital-based nursing programme, and students also begin clinical practice from 100 level.

2.5. Instrument for data collection

Is a self-structured tool, developed after literature review by the authors.

3. Validity

The validity of the instrument was determined through the face and content validity test by experts in the field of nursing research and public health.

4. Reliability

The reliability of the instrument was established through the test–retest method; thirty nursing students in Igando School of Nursing were used for the test–retest and the reliability index was 0.72. Some changes were made to the instrument before it was used for data collection.

5. Ethical consideration

Ethical approval was obtained from Health Research Ethics Committee, Lagos University Teaching Hospital, to conduct the study. Confidentiality of personal information of the respondents was maintained throughout the study by making respondents' information

Table 3

Difference between Nursing Institutions and Readiness for Clinical Practice among Nursing Students, in Southwest, Nigeria.

| Test Institutions | Readiness | | | | Total | X ² | Df | p-value | Remarks |
|-------------------|---------------|------|-----------------|------|-------|----------------|----|---------|-------------|
| | Low115(38.3%) | | High 185(61.7%) | | | | | | |
| | Freq | % | Freq | % | | | | | |
| Institution A | 28 | 58.3 | 20 | 41.7 | 300 | 21.083 | 4 | 0.000 | Significant |
| Institution B | 26 | 52.0 | 24 | 48.0 | | | | | |
| Institution C | 35 | 36.8 | 60 | 63.2 | | | | | |
| Institution D | 15 | 24.6 | 46 | 75.4 | | | | | |
| Institution E | 11 | 23.9 | 35 | 76.1 | | | | | |

Table 4

Difference between Years of Clinical Exposure and Readiness for Clinical Practice amidst coronavirus among nursing students, in southwest, Nigeria.

| Test Years of Exposure | Readiness | | | | Total | X ² | Df | p-value | Remarks |
|------------------------|---------------|------|-----------------|------|-------|----------------|----|---------|-----------------|
| | Low115(38.3%) | | High 185(61.7%) | | | | | | |
| | Freq | % | Freq | % | | | | | |
| 1 | 8 | 27.6 | 21 | 72.4 | 300 | 1.896 | 3 | 0.594 | Not Significant |
| 2 | 33 | 37.1 | 56 | 62.9 | | | | | |
| 3 | 47 | 40.5 | 69 | 59.5 | | | | | |
| | 27 | 40.9 | 39 | 59.1 | | | | | |

anonymous and asking respondents to provide honest answers. Eligible nursing students' participation in the survey was voluntary and they were informed that there would be no compensation. An informed consent form was the first part of the questionnaire sent to each respondent. They were asked to continue with the questionnaire after giving their informed consent.

6. Method of data analysis

Statistical Package for the Social Sciences (SPSS) Version 22, was used for data analysis. The Socio-demographic variables and objectives were analyzed using descriptive statistics and presented using tables, graphs, and charts. Hypotheses were tested using Chi-square at a significant level of $p = 0.05$.

The mean on the level of readiness of students to resume clinical practice amidst coronavirus was determined to be 3.64 ± 1.38 , using the six questions. Scores below the mean were rated low readiness while those above the mean were rated high readiness.

7. Discussion

The care given to the patient by the nursing students during their clinical practice depended on the patient's condition, and the ability of the nursing students to put into practice what they have learned. This study revealed that the majority of the respondents were from the Yoruba tribe. The reason for this might not be far from the fact that the study was carried out in the Southwest, Nigeria. The majority of the respondents were sponsored by their parents and most of the parents had tertiary education as their highest level of education. This might have influenced the parents' determination to see their wards complete the nursing training.

This study also revealed that 61.7% of the respondents were ready for clinical practice amidst coronavirus pandemic but only 30.7% were ready to practice where there are coronavirus patients. This is congruent with the study done in the UK (by [The Children and Young People Student Nurse Network \(2020\)](#)) which revealed that 44% of the respondents were not ready to care for coronavirus patients, 32% needed reassurance, and only 2% rejected going into practice yet. This study is also similar to the one conducted in India by [Agarwal et al. \(2020\)](#), which revealed that 70% of the 616 respondents were not ready for clinical practice due to fear of getting infected with the disease.

This study revealed that the hypotheses tested a significant difference between nursing institutions and readiness for clinical practice among the respondents with $X^2 = 21.0833$ and the $p = 0.000$. The reason for this may be attributed to the location of some of the nursing institutions; some institutions are in areas with a high number of positive cases, and the students might probably think that they cannot escape meeting infected cases if in the clinical area. Also, some of the clinical areas were used as isolation centers. This might have spurred their courage and prepare their mind for clinical practice, which could have played a role in the level of their readiness for clinical practice. The institutions were responsible for the respondents' level of preparedness; however, the study did not show any significant difference between the year of exposure to clinical practice and the level of readiness for clinical practice amidst coronavirus pandemic, with $X^2 = 1.896$ and the $p = 0.594$.

8. Limitation of study

This study was limited by the prevailing situation orchestrated by the coronavirus pandemic which includes the lockdown and social distancing. These factors equally compelled the use of Google forms for data collection thereby limiting the study beyond the researchers' control. More nursing institutions would have been involved to enable generalization. The study was also limited to a nominal scale of measurement with only YES/NO options. The institutions were not grouped based on the type of nursing programme and clinical exposure before comparison.

9. Conclusion

Most respondents are ready to resume clinical practice amidst the pandemic, but less than one-third are ready to practice where there are coronavirus patients. This calls the attention of the nursing institutions and the management of the clinical settings to see that they intensify the theoretical teaching of the nursing students before their exposure to the clinical practice. Also, it is necessary to bridge the gap between the theoretical and the clinical practice by making sure that all the materials needed for ideal nursing knowledge from the classroom to be put into practice in the clinical settings are available. This will help to boost their competency and readiness to practice.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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This is to acknowledge that the authors consent to submission of the manuscript to the journal. We are grateful to all the respondents for filling and submitting the questionnaire for the study.

References

- Agarwal V, Gupta L., Daval B., Misra D., Vikas A., Goel A.,(2020), Survey amongst undergraduate medical students to understand knowledge, attitude and preparedness towards the coronavirus pandemic Doi: 10.1101/2020.04.11.20061333 Accessed 07/8/2020.
- Awuah-Peasah, D., Sarfo, L. A., & Asamoah, F. (2013). The attitudes of student nurses toward clinical work. *International Journal of Nursing and Midwifery*, 5(2), 22–27. <https://doi.org/10.5897/IJNM12.017> ISSN 2141-2499 Available online <http://www.academicjournals.org/ijnm>. Accessed 07/8/2020.
- Backer J, Klinkenberg D, Wallinga J.(2020) Incubation period of 2019 novel coronavirus infections among travellers from Wuhan, China, 20–28. *Euro Surveill*;25(5). DOI: 10.2807/1560-7917.es.2020.25.5.2000062. Accessed 20/8/2020.
- Centers for Disease Control and Prevention (2019), Update and interim guidelines on Outbreak of 2019 Novel coronavirus. Accessed 21/8/2020.
- Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y. et al. (2020), Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan China: a descriptive study. *Lancet* 395:507-13 21/8/2020.
- International Council of Nurses (ICN Immediate and serious threat: ICN calls on WHO member states to collect and share data on health workers COVID 19 Infection rates and deaths www.icn.ch 2020 Accessed 10 /9/2020.
- Jang, (2020), How Nurses are supporting the covid 19 Response, *Science of Caring Journal* Accessed 10/10/2020.
- Munster, V. J., Koopmans, M., van Doremalen, N., van Riel, D., & de Wit, E. (2020). A Novel Coronavirus Emerging in China - Key Questions for Impact Assessment. *New England Journal of Medicine*, 2020(382), 692–694 Accessed 30/8/2020.
- Nigeria Center for Disease Control, (2020), Nigeria report on COVID-19. <https://covid19.ncdc.gov.ng/contact>. Accessed 24th March 2020.
- Scheaffer R.L. Mendenhall W.,R. Ott L.,Gerow K.G (2018), *Elementary Survey Sampling*, Seventh Edition Publisher: Richard Stratton. 21/9/2020.
- The Children and Young People Student Network @ Cyst NN.UK (2020, covid 19, trust creates PPE Safety Officer role to Support Staff during pandemic. Accessed 20/9/2020.
- World Health Organization.(2020) Coronavirus disease (COVID-2019) situation reports. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>. (access Feb 16. 2020).
- World Health Organization. (2019), nCoV outbreak is an emergency of international Concern. <http://www.euro.who.int/en/health>. Accessed 23/8/2020.
- World Health Organization (2020). Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected: interim guidance, anuary 2020 URL: <https://tinyurl.com/r7w9key> [accessed 2020-05-12].