Information and Knowledge Sources about COVID-19 amongst Final Year Medical Students in Enugu State, Nigeria: A Cross Sectional Study

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Article Information

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ABSTRACT

Background: Coronavirus disease (COVID-19) was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. Fortunately and unfortunately, there are various information sources out there; medical students should have optimal knowledge of COVID-19 with all forms of education explored as they would ultimately become the future physicians.

Objectives: This current study aimed to identify the knowledge about COVID-19 amongst final year medical students and various means at which they source their information.

Methods: This was a cross-sectional study conducted amongst final year medical students in the universities in Enugu State, Nigeria. An online questionnaire was distributed amongst the respondents. The SPSS software was used for analysis with $p < 0.05$ as significant.

Results: 84.3% of the respondents first got to know about COVID-19 from the internet amongst others; only 21.9% alluded to being adequately informed about COVID-19.

Amongst those that use the internet as their predominant source of information, about 71.7% of them use Social Media as the preferred means. The most commonly used social media was WhatsApp whereas the most trusted Social Media was Twitter.

There was a significant association between age and preferred social media for assessing information ($X2=30.142$; df =12; p=0.03). There was no significant association between age and medium chosen as predominant source of information ($X2=2.796$; df =6; p=0.834).

Conclusion and Recommendation: Final year medical students showed the expected level of information and knowledge about COVID-19. Medical educators should incorporate social media in medical education especially twitter and WhatsApp, which were the most trusted media of information sources, should be employed in the dissemination of information amongst medical students and the populace in general.

1. INTRODUCTION

Coronavirus disease 2019, popularly called COVID-19 is a respiratory infection caused by a novel coronavirus called Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV2). The virus is a member of the coronavirus family that are zoonotic pathogens and transmit illnesses between human and several animal species. On 11th March 2020, the World Health Organization (WHO) declared Novel Coronavirus Disease (COVID-19) outbreak as a pandemic and reiterated the call for countries to take immediate actions and scale up response to treat, detect and reduce transmission to save people's lives. [1, 2].

Evidence showed that people use a vast range of sources to get COVID-19-related information, and their choice of primary source reflects their trust in the legitimacy of these sources and affects their attitudes and vaccine uptake, as also supported by past research on vaccine hesitancy in general [2].

COVID-19 can present in manifolds of ways ranging from minor symptoms to very severe symptoms. Fever or chills, cough, difficulty in breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat nasal congestion or runny nose, nausea or vomiting, diarrhea etc. It can also present with a more severe infections like pneumonia, severe acute respiratory syndrome and kidney failure with a mortality rate around 4%. Elderly persons and those suffering from co-morbidities like heart disease, lung disease and diabetes, are at higher risk of developing severe COVID-19 illness [3, 4]. COVID-19 spreads primarily from person to person through small droplets from the nose or mouth which are expelled when a person with COVID-19 coughs, sneezes, or speaks. These droplets can also survive on objects and surfaces such as tables, doorknobs and handrails, hence when an uninfected person touches it he/she can contact the virus [5].

A drug trial was reported done with strong effort by some pharmaceutical companies and

countries to develop vaccine which will be an effective preventive measure to avert the upsurge [3, 6]. Currently there over 200 vaccine candidates undergoing human trials and many have been certified safe and currently been administered. In Nigeria the comments ones available are Moderna, Pfizer, Gamaleya, Jansssen (Johnson & Johnson), Serum Institute of India Covishield (Oxford/ AstraZeneca formulation), Sinopharm (Beijing) Covilo [7]. Apart from the vaccines, patients who presents with symptoms suggestive of COVID-19 are isolated and treated symptomatically.

A study conducted in six developed countries in April 2020 showed that while the majority of people used official news organizations as their primary source of information, about half of the participants reported also using Google or other online search and social media platforms for COVID-19-related information. Specifically, 25–53% of the participants across six countries reported using Facebook to obtain information on COVID-19 at least once over the past week, while 15–46% of the participants used YouTube for the same purpose [8].

Final year medical students stay at the bridge between the medical education and practice of medicine proper. It is important that such cadre of students have the right access to the appropriate sources of information in order to pass it across to the general community. Most of the information that applies to them also applies to younger doctors and also applies to students in general. Amongst the medical students, the various methods of accessing information about COVID-19 commonly used are forums such as lectures, seminars, through the mass media, online Google search, social media, informal discussions and interactions and a host of others [9, 10].

The importance of social media and its effect on education cannot be over-emphasized especially in modern clinical education. This study aim to verify the knowledge level, compare various sources of information and determine the most common medium of information and knowledge sources about COVID-19 amongst the final year medical students in Enugu state, Nigeria. This study would ensure that all other non-clinical forms of education is maximized for medical students especially in public and tropical health related courses.

2. MATERIALS AND METHODS

2.1 Study Area and Design

This was a cross sectional study conducted in Enugu State, South Eastern Nigeria, amongst the final year medical students in the state. Enugu State has a 2009 estimated population of 3,541,743 at an annual growth rate of 2.8% based on the 2006 population census figures.

The State shares boundaries with Kogi and Benue states in the North, Ebonyi state to the East, Abia state to the South and Anambra state to the West. The major local language is Igbo and it has a mixture of both Christians and Muslims. There's a huge deposit of coal in the state and hence popularly called the Coal city state. The State's area code is 042, while its ISO 3166 code is NG-EN. Official website is Enugustate.gov.ng [11, 12].

There are majorly two universities that offers medicine and Surgery that currently have final year medical students. They are University of Nigeria, Ituku-Ozalla Campus and Enugu State University of Science and Technology ESUT (Parklane). The estimated number of final year medical students is 80 in each of the schools. ESUT Parklane is located in the hub of Enugu city while Ituku-Ozalla is located in far Nkanu West and Awgu Local Government Areas of the state [13, 14].

2.2 Study Population and Procedure

Final year medical students aged 18 years and above were engaged in the study across the major universities in Enugu state which is one of the biggest states in Southern Nigeria. Questionnaires were distributed to the social media platforms of the schools (Mainly via WhatsApp and emails). Responses were obtained from individuals who voluntarily consented to participate by answering the questionnaires. The response rate was 71.5% in this study.

2.3 Data Collection and Methods

Data was collected using a self-administered structured online-based questionnaire created on Google forms. The questionnaire design was self-created and a panel of investigators constituted to ensure standard overall assessment and it was adapted to suit the Nigerian university educational setting.

The questionnaire had two sections: Section one was the Socio-demographic characteristics of the respondents as follows: Institution, age, sex, marital status, religion and ethnicity.

The second section contained information about COVID-19: as follows; whether they had heard of COVID-19; how they got to know about COVID-19; the medium that was predominantly used; the list of media used to access the information, how informed they were about COVID-19, their level of information about COVID-19, and whether they would be open to learning more about COVID-19 and which medium they would prefer.

The type of questions used included: Yes/No questions, four response questions in a form of strongly agree, agree, disagree, and strongly disagree (modified Likert scale) as well as other open questions.

2.4 Statistical Analysis

Data analysis was carried out using Statistical package for Social Sciences (SPSS) by IBM and descriptive analyses were conducted to determine frequencies and proportions of categorical variables in the total study sample.

P value less than 0.05 was interpreted as significant.

2.5 Elimination of Bias

All forms of survey bias such as non-response, systematic, social, answer-order bias were eliminated by regular contacts with the participants, proper structuring of the questions and using alternating random patterns for the questions.

Validity and reliability of tools (questionnaire) was done by setting up a panel of investigators to ensure adequacy of the structures used in designing the questionnaire, ensuring good response rate (71.5%) and minimizing all forms of survey related bias as stated above.

3. RESULTS

3.1 Socio-Demographics Characteristics of Respondents

The study received responses from a total of 115 final year medical students from two tertiary institution; University of Nigeria, UNN, Nsukka, Enugu, Nigeria and Enugu State University of Science and Technology, ESUT, Enugu, Nigeria (Table 1).

Table 1. Socio-demographic characteristics of the study participants (n=115)

Variables	Frequency (n; %)
Age (y)	
15-20	11(9.6)
21-25	65(56.5)
26-30	36(31.3)
>30	3(2.6)
Sex	
Male	66(57.4)
Female	48(41.7)
Rather not say	1(0.9)
Marital status	
Single	106(92.2)
Married	9(7.8)
Divorced	Nil
Religion	
Christian	96(83.5)
Muslims	19(16.5)
Traditional religion	Nil
None	1(0.9)
Ethnicity	
Igbo	80(72.1)
Yoruba	12(10.8)
Hausa	5(4.5)
Others	16(12.2)

Of the 115 responses, 64.9% responses were from University of Nigeria Nsukka, Enugu state while 35% were from Enugu state University of Science and Technology, ESUT, Nigeria.

3.2 Information and knowledge about COVID-19

The illustrations in this section depicts the level of knowledge and information sources about COVID-19.

3.3 Having Heard of COVID-19

100% of the respondents said that they have heard of COVID-19 (As shown in Fig. 1).

3.4 The Predominant Source of Information

This gives insights to the major information sources about COVID-19. (As shown in Fig. 2 and Fig. 3).

3.5 The Pattern of Distribution among Social Media

This helps to show the pattern of various social media options used by the students for information sources. (As shown in Fig 4 and 4a).

3.6 Correlative Analysis

There was significant association between age and preferred social media for assessing information (X^2=30.142; df =12; p=0.03) (As shown in Table 2).

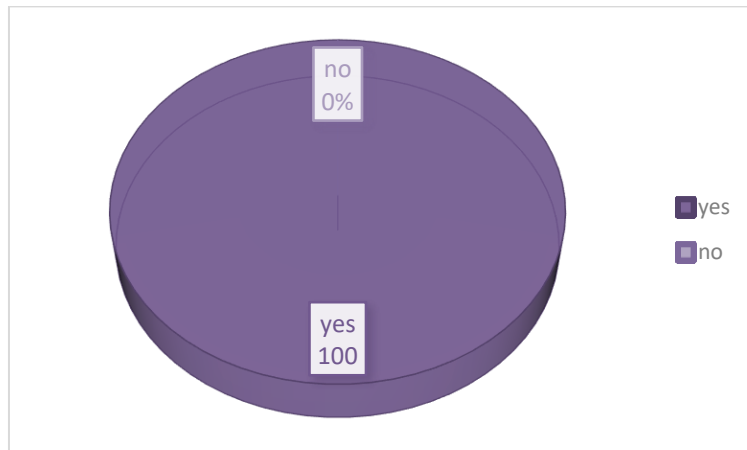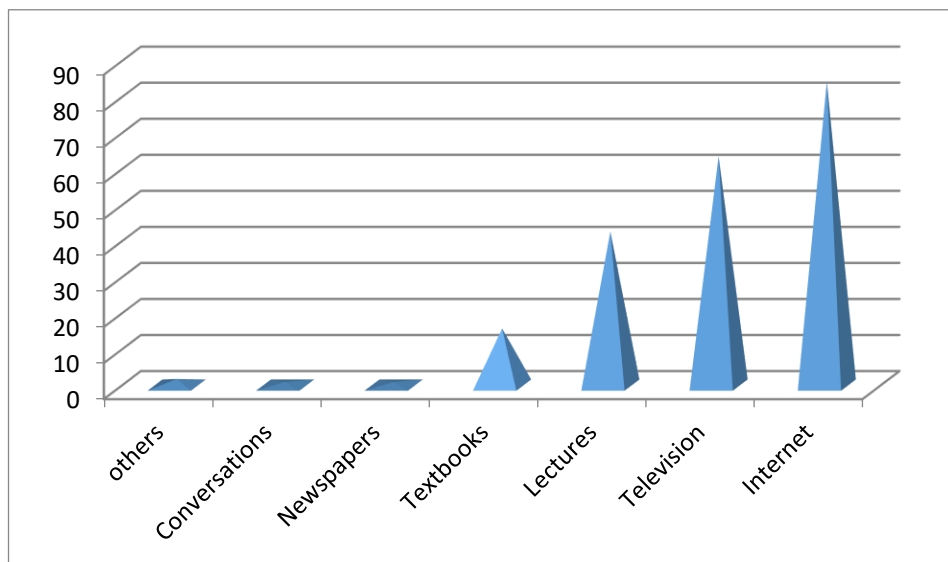**Fig. 1. Distribution of students who had heard about COVID-19**
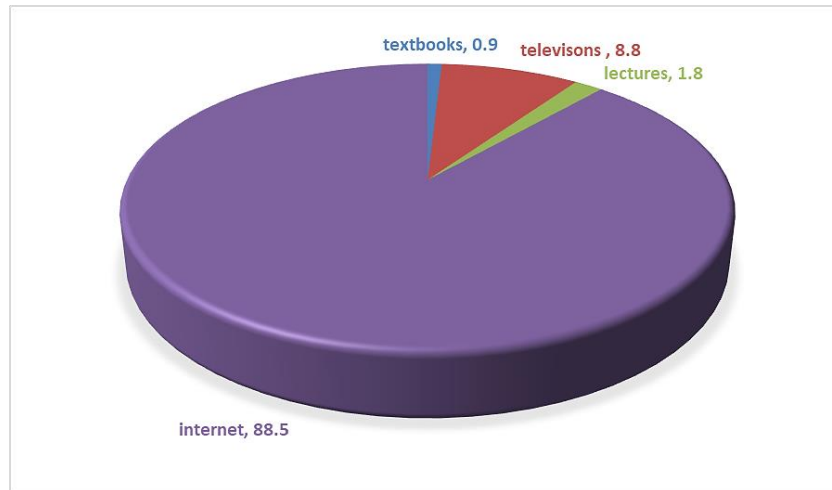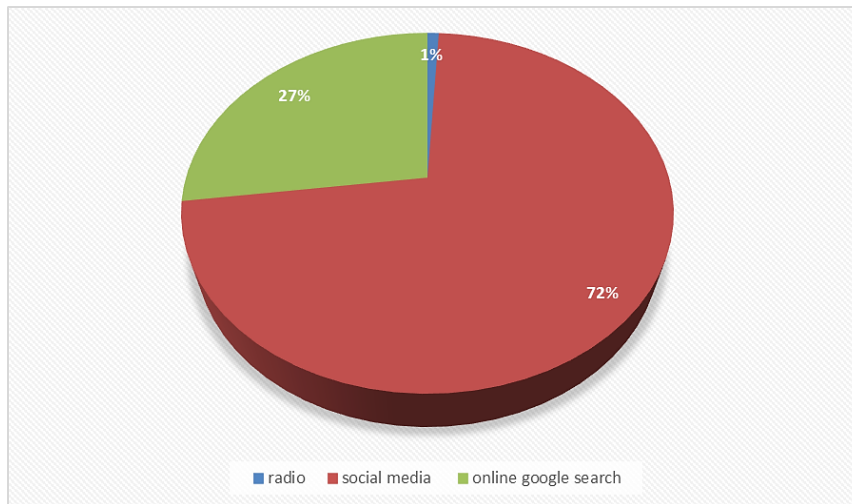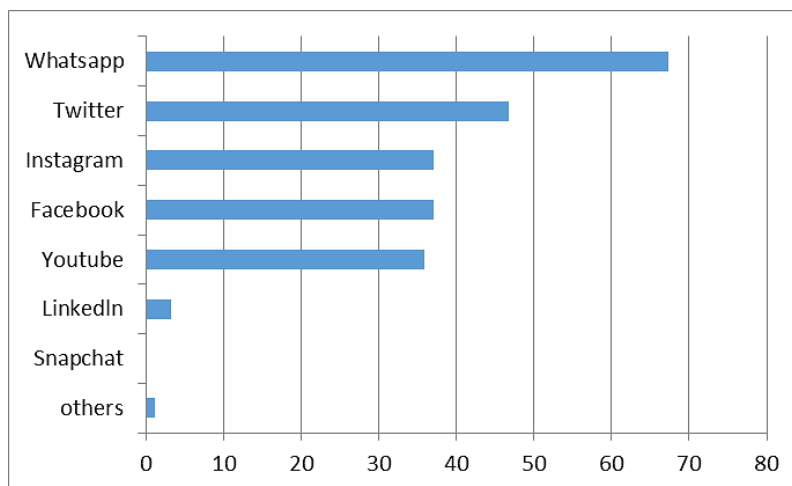

Fig. 2. Distribution of students where they first got to hear and read about COVID-19
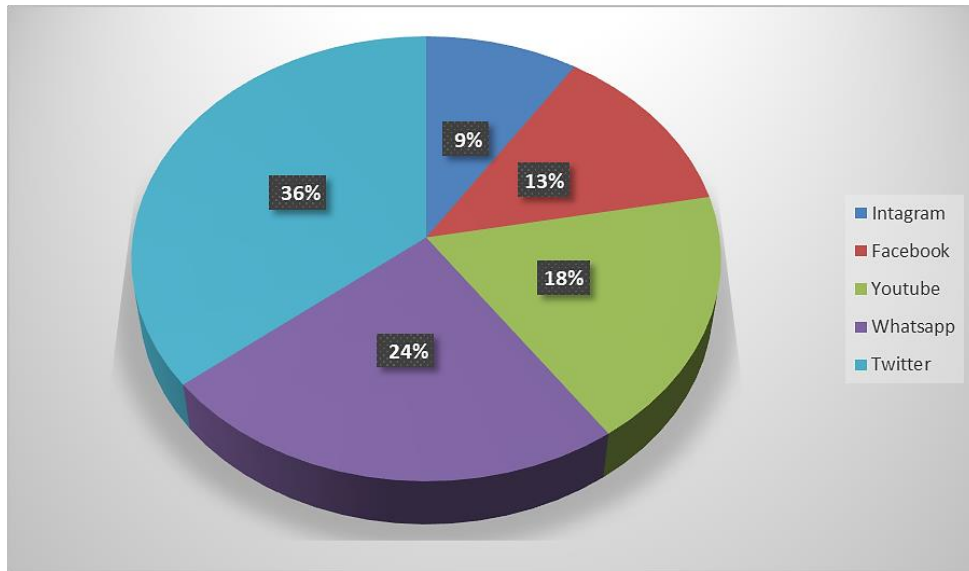
Fig. 3. Distribution of predominant source of information about COVID-19
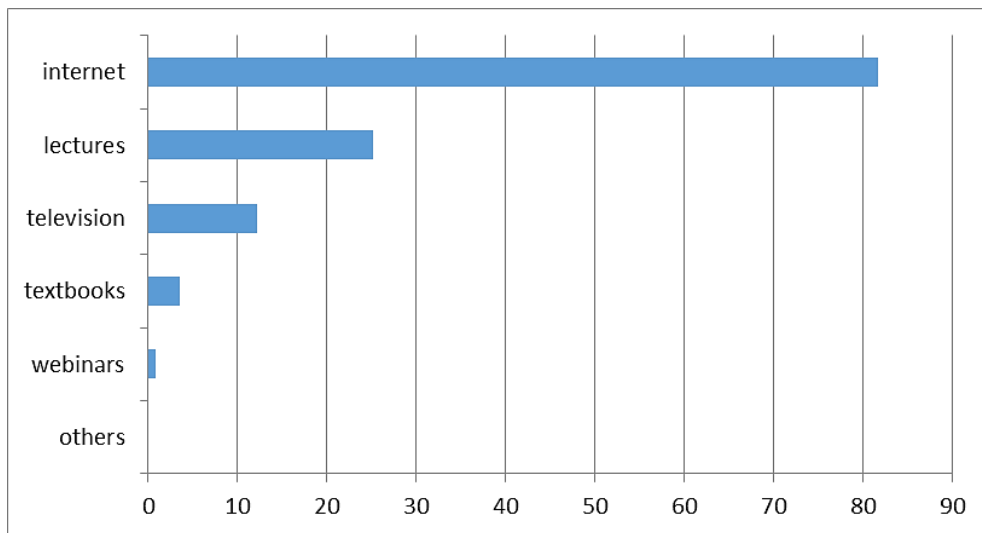

Fig. 4. Distribution of students amongst those who chose internet as their predominant source of information

Fig. 4a. Distribution of the predominant social media sources of information and knowledge

Fig. 4b. Distribution of preference and trust amongst the social media

Fig. 5. The best source of information and knowledge and where they want to get more knowledge about covid-19

Table 2. Results of correlation studies comparing age with preferred social media type and preferred sources of information

	X²	df	P value
Age (y)			
15-20	11(9.6)	12	0.03
21-25	65(56.5)		
26-30	36(31.3)		
>30	3(2.6)		
Age (y)		6	0.834
15-20	11(9.6)		
21-25	65(56.5)		
26-30	36(31.3)		
>30	3(2.6)		

There was no significant association between age and medium chosen as predominant source of information (X^2=2.796; df =6; p=0.834).

4. DISCUSSION

4.1 Knowledge and Information about COVID-19

The level of knowledge and information about COVID-19 amongst the participants were high, evidenced by a 100% awareness on COVID-19 from our study (Fig. 1). All the participants were mostly students from the biggest universities across the southeastern part of Nigeria, hence a good representativeness of the Nigerian medical school undergraduate's opinion. This high level of knowledge was also found to be high in another study in a Palestinian university students in Salameh B. et al [15]. This was reflected in the participant's high level of knowledge of symptoms and signs of COVID-19, prevention practices and at risk groups. It was also found to be high amongst medical students in a study by Khasawneh AI et.al [16], in Jordan and another study done by Dahiru T et.al in Nigeria confirmed the same finding [17].

Our results found no association between the knowledge scores and other variables (p=0.834). In consonance with our study; a study done by Beig M et.al in Saudi also found no associations between knowledge scores and other variables [18].

In our study, as shown in Figs. 2, 3 and 4, the greater percentage (84%) of our participants first got to know about COVID-19 through the use of internet. The internet also constituted the commonest (88.4%) source of information and knowledge about COVID-19. This was followed by television (8.9%) as the second source of information and then followed by lectures. This study is in contrast with a study done in Nigeria by Dahiru T et al. [18] where the three most common source of information are television, radio and social media in that order.

From our study also, we found out that our participants who used internet did it via online Google searches and social media. Going further, as revealed in Fig. 4; Fig 4a and 4b, we noted that amongst the social media that our participants got more information regarding COVID-19 from WhatsApp posts and status updates (67%) followed by Twitter (47.3%), Instagram, Facebook & YouTube at 37.6%,

36.3% and 36.3% respectively but in terms of preference for reliability of facts; twitter was the most preferred and most trusted (36.1%) followed by WhatsApp (24.1%) and YouTube 18.5%. This has a little similarity with a study by Bapaye, J. A et al where WhatsApp constituted the major information source [19]. This findings is also consistent with a study in Palestinian university, by Baker I et al, where social media was the predominant source of informant amongst the university students [20, 21]. In our study, Majority use the internet for this further information gathering as shown in Fig. 5.

About 85.8% of the participants still desire having more information about COVID-19 while 14.2% were not interested in obtaining further information. This is similar to a study done by Thi le H et.al[21] where participants were still interested in obtaining for more information.

As shown in Table 2, there was significant association between age and preferred social media for assessing information as most of the students in all the age groups opined to the importance of using social media in gathering more medical information especially during the covid-19 pandemic; however, there was no significant association between age and medium chosen as predominant source of information. The medical education involves constant updates of latest trends both in medical and surgical sub-specialties and these further buttresses the need for utilizing multiple methods of medical education modalities especially in developing nations, using social media as an adjunct medium, to further add knowledge through demonstrative teachings and visual simulations which would interest and attract most youths even globally in the midst of the Covid-19 pandemic.

5. CONCLUSION AND RECOMMENDA-TION

Final year medical students showed the expected level of information and knowledge about COVID-19. Various means has been identified with regard to the information and knowledge sources about COVID-19 amongst the medical students.

Traditionally, medical education has been mostly via lecture and classroom and clinical posting based, and seeing the surge in the social media and various other means of getting acquainted with medical and health related information and

knowledge, there is a strong need to incorporate those means professionally into the medical education.

Medical educators could target Twitter and WhatsApp which were the most commonly preferred information and knowledge sources from our study as potential extra means of teaching medical students and passing information thereby, going a long way in bridging the knowledge gap between students generally and the health professionals.

Finally, the importance of medical textbooks should be prioritized, particularly for medical students, because not all information on the internet is accurate.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-text-image generators have been used during writing or editing of manuscripts.

CONSENT AND ETHICAL APPROVAL

Participants were ensured of the confidentiality of their responses. No means of personal identification of respondents was included in the study tool. Respondents were informed that their participation were voluntary and consent was implied by completion of the questionnaire. Ethical clearance certificate for the study was gotten from the University of Nigeria Teaching Hospital Ethical clearance department.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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