Awareness, Attitude, and Anxiety of Radiographers in the Management of COVID-19 Patients in a Nigerian Population

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ABSTRACT

Background: Healthcare workers which included radiographers are extremely strained during the course of any pandemic because of their role as key players in response to a pandemic. Imaging, especially chest radiograph and computed tomography (CT) have emerged as key components of COVID-19 patient investigation and management pathways. **Objectives:** This study assessed the Awareness, attitude and anxiety of medical radiographers in the management of COVID-19 patients. **Materials and Methods**: Forty-four (44) practicing radiographers in government and private hospitals and diagnositic centers within Anambra State participated in the study. A validated questionnaire designed according to the objectives and developed based on, awareness, attitude and anxiety of radiographers in management of COVID-19 patient was used. Only those that were properly filled were used in the final data analysis. The data were analyzed using Microsoft's™ Statistical Package for Social Sciences (SPSS) version 20. **Results:** This showed that 29 respondents (65.91%) are highly aware of COVID-19 infection, 14 (31.85%) were aware, and 0 (0.00%) were not aware. Their attitude to attend to covid-19 patients showed that 31.82% (14) gladly accepts, 22.73% (10) said that they will resign and leave the profession, 29.55% (13) will do it grudgingly, while 15.91% (7) stated other reasons in attending to COVID-19 patients. The anxiety revealed that there is the possibility of getting COVID-19 infection in which 54.55% (24) strongly agreed, 40.91% (18) agreed, while 2.27% (1) strongly disagreed. **Conclusion:** Radiographers are aware of COVID-19 infection, and majority show poor attitude and high anxiety level in attending to infected patients.

Keywords: Awareness, attitude, anxiety, COVID- 19 and Radiographers.

Access Code

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INTRODUCTION

Corona viruses, so named due to the outer periphery of envelope proteins looking like a crown ('corona' in Latin), are a family of enveloped ribosome nuclei acid (RNA) viruses [1]. COVID-19 is an infection caused by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), which is a beta coronavirus that was first detected in Wuhan, China. In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic [2]. It rapidly spread globally, causing more than 34 million infections and over one million deaths by October 2020 [3]. The disease was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since spread globally, resulting in the ongoing 2019–20 corona virus pandemic.

In Africa, as of June 16, 2020, 251,866 cases were recorded with 6769 deaths, and 1,143,308 recoveries have been reported in fifty-five (55) African countries which are about 3.2% of all incident reported globally. Five of these African countries account for 63% of these cases. These include South African (34%), Egypt (16%), Nigeria (6%), Ghana (4%) and Cameroon (3%). In South Africa, the first case of COVID-19 was reported on March 5, 2020 and as of June 16, 2020, there have been 1,148,933 tests conducted, 73,533 positive cases identified cases, 39,867 recoveries of COVID-19 with 1568 deaths. In Egypt, the first case of COVID-19 was on February 14, 2020 and as of June 16, 2020 there have been 46, 289 confirmed cases of COVID-19 with 1,672 deaths. In Ghana, the first case of COVID-19, was reported on March 14, 2020, and as of June 16, 2020, there has been 11,964 confirmed cases of COVID-19 with 54 deaths.

Nigeria reported its first confirmed case of coronavirus on the February 2020, when an Italian citizen in Lagos tested positive for the virus [4]. A report from the National Center for Disease Control (NCDC) revealed that the first cases of COVID-19 in Nigeria involved an Italian citizen who entered the country on February 24 on a Turkish Airlines flight from Milan via Istanbul. Since then, cases have been increasing, with the recent figure showing that as at May 14, 2020, there were 5,962 confirmed cases of coronavirus, with 1,180 discharged cases and 168 deaths recorded [5]. Nigeria reported the first death from COVID-19 on March 23, 2020 [5]. Reports and press briefings from the NCDC show that Lagos State has the highest number of COVID-19 confirmed cases [5].

Facts on COVID-19 are rapidly evolving and it is known that there can be a presymptomatic, symptomatic, and asymptomatic transmission [2]. It can also be transmitted through other sites apart from the respiratory route [6]. The symptom usually develops about 5-6 days after infection, and the incubation period may range between nations and even among health institutions [7].

Since the onset of the coronavirus pandemic there has been an increased use of masks [8] and sanitizers resulting in exhaustion of resources in the market. A shortage of personal protective equipment endangers health workers worldwide [2]. The governments, media, doctors, researchers, celebrities, police and other stakeholders of the society appealed to the public to avoid public gatherings including sports, religious ceremonies, family functions, meetings as well as classes in school, to prevent the global spread of corona virus infection despite these efforts, many people ignore the importance of social distancing due to attitudinal issues [9].

The state of lock-down in many parts of the world, which are contributing largely to the global economy, has led to the halting of services and products. This has led to a break in the global supply chains and thus, affected the global economy brutally [10]. As COVID-19 is a new disease and is having the most devastating effects globally, its emergence and spread, causes confusion, anxiety and fear among the general public. It is more common in the elderly, in men, and subjects with diabetes mellitus, hypertension, cardiovascular disease, and malignancy. Signs and symptoms include respiratory symptoms and include fever, cough and shortness of breath. In more severe cases, infection can cause pneumonia, severe acute

respiratory syndrome and sometimes death.

Imaging (especially chest radiograph) and computed tomography (CT), have emerged as a key components of COVID-19 patient investigation and management pathways [14]. The healthcare workers are extremely strained during the course of any pandemic [15] because of their role as key players in response to a pandemic. They are the primary sector that has contact with patients and are prone to exposure to infected cases in healthcare settings.

It has been perceived that there has been a level of unwillingness and fear in the management of COVID-19 patient by medical radiographers due to the fear of contacting the virus.

Many researches have been done on the knowledge and attitude of health workers in general towards the management of COVID-19 patient but there is paucity of researches done on medical radiographer's awareness, attitude and anxiety towards the management of COVID-19 patients. Thus, this study aimed at assessing the awareness, attitude and anxiety of radiographers in the management of COVID-19 patients.

METHODS

A descriptive cross-sectional survey, which is defined as a study that characterize the prevalence of a health outcome in a specified population was adopted for this study. The respondents that took part in the study were forty-four (44) medical radiographers employed and are practicing in government and private hospitals and diagnostic centers within Anambra State between June 2021 and March 2022.

A validated questionnaire designed according to the objectives of the study was used. The questionnaire was developed based on information, awareness, attitude and anxiety of radiographers in management of COVID-19 patient. In order to ascertain the validity of the instrument, the instrument was presented to two research experts for face and content validity. After that, the instrument was also presented to a specialist in the field of test and measurement, who helped to determine if the items in the instrument are measurable. Only the copies of questionnaire that were duly filled and completed by the radiographers were used in the final data analysis. The questionnaire was divided into four sections.

Section A: consists of socio-demographic variables of the radiographers.

Section B: consists on Awareness of COVID-19 virus among radiographers.

Section C: consists of attitude of radiographers towards COVID-19 patients.

Section D: consists of anxiety of radiographers towards COVID-19 virus.

The questionnaires were distributed to the radiographers who were on duty in the radiology department of each hospital during morning and afternoon shifts.

Sample size estimation

All practicing radiographers working in the state were sampled based on numerical strength.

Ethics approval: Ethical approval of the research design and protocol was obtained from the Faculty of Health Sciences and Technology Nnamdi University, Nnewi Campus before the commencement of data collection. Reference number: NAU/FHST/2021/RAD22.

Informed consent: Introduction/informed consent letter was obtained from Radiography department which was issued to all participants to either accept or reject to participate before being included in the study.

Statistical analysis

The data collected were analyzed using Microsoft's™ Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics such as frequency distribution tables and simple percentages were used for the data presentation, interpretation and analysis.

The level of statistical significance was at ($P < 0.05$).

RESULTS

Social demographic variables.

Table 1: The table reveals that 43.18% (19) of the respondents are between the ages of 21 to 30 years, 50.00% (22) of them are between the ages of 31 to 40 years, 6.82% (3) of them were 41-50 years while 0.00% (0) of the respondents was above 50 years. It was observed that out of the 44 respondents sampled, 28 of them were males while 16 were females. This distribution shows that the male constitutes 63.64% of the respondents while the female makes up 36.36%.52.27% (23) of the respondents are single while 47.73% (21) of them are married.

Table 1: Social demographic Distribution of Respondents

Age	Frequency	Percentage
21-30	19	43.18
31-40	22	50.00
41-50	3	6.82
above 50 years	0	0.00
Male	28	63.64
Female	16	36.36
Single	23	52.27
Married	21	47.73

Awareness of COVID-19 virus among the Radiographers

Up to 65.91% (29) are highly aware, 31.85% (14) are aware, 2.27% (1) are somewhat aware while 0.00% (0) was not aware. This table also revealed that 4.90% (2) got the information through their colleagues, 13.73% (6), through the radio and newspaper, 18.63% (9) were through the social media, 15.91% through the internet and television, 9.31% (4) were from notice board, and 7.35% (3) through pamphlet. 68.18% (30) said that they are aware of the first case of COVID-19 in Nigeria, 9.09% (4) are not aware while 22.73% (10) are not sure of the first case of COVID-19 in Nigeria.

Table 2: Awareness of the COVID-19 virus disease by the Radiographers.

Level of Awareness	Frequency	Percentage
Highly aware	29	65.91
Aware	14	31.82
Somewhat aware	1	2.27
Not aware	0	0.00
Sources of Information		
Colleagues	2	4.90
Radio	6	13.73
Newspaper	6	13.73
Social media	9	18.63
Internet	7	15.91
Television	7	15.91
Notice board	4	9.31
Pamphlet	3	7.35
Aware of first case of Covid-19		
Yes	30	68.18
No	4	9.09
Not sure	10	22.73

Attitude of Radiographers towards COVID-19 Patients.

The result from table 4 shows the reaction of the respondent towards attending to patients with COVID-19 on a daily basis. 31.82% (14) gladly accepts, 22.73% (10) will resign and leave the profession, 29.55% (13) will do it grudgingly, while 15.91% (7) stated other reasons in attending to COVID-19 patients. On their risk of infection from work, 81.82 (36) agreed, 18.18% (8) disagreed while 0.00% (0) were not sure. On how they feel about patients with COVID-19 cases. 50.00% (22) feels sympathy towards them, 38.64% (17) feels empathy towards them, 0.00% (0) feels anger and dispassionate while others are 2.27% (1).   The result on whether COVID-19 will finally be successfully controlled. 84.09% (37) agreed, 9.09% (4) disagreed while 6.82% (3) were not sure. The result if the respondent is willing to attend to COVID-19 patient if adequately compensated. 68.18% (30) agreed, 13.64% (6) disagreed while 18.18% (8) were not sure.

Table 3: Attitude of Radiographers towards COVID-19 Patients.

What will be your reaction if you have to attend to patients with COVID-19 on a daily basis?

Responses	Frequency	Percentage
Gladly accept	14	31.82
Resign and leave the profession	10	22.73
Do it grudgingly	13	29.55
Others	7	15.91
Do you see yourself at risk of the infection from going to work these days		
Yes	36	81.82
No	8	18.18
Not sure	0	0.00
How do you feel about patients with COVID-19 cases?		
Sympathy	22	50.00
Empathy	17	38.64
Anger	0	0.00
Dispassionate	0	0.00
Indifferent	4	9.09
Others	1	2.27
whether COVID-19 will finally be successfully controlled		
Yes	37	84.09
No	4	9.09
Not Sure	3	6.82
If you are adequately compensated, will you be willing to attend to COVID-19 patients?		
Yes	30	68.18
No	6	13.64
Not sure	8	18.18

Anxiety of Radiographers towards COVID-19 virus.

The results from table 4 show the respondents view on the possibility of getting COVID-19 infection in the hospital 40.91% (18) agreed, 54.55% (24) strongly agree, 0.00% (0) somewhat agreed, while 2.27% (1) both disagreed and strongly disagreed. 25.00% (11) agreed that hospital control system is adequate, 0.00% (0) strongly agreed, 22.73% (10) somewhat agreed, 43.18% (19) disagreed, while 9.09% (4) strongly disagreed. 20.45% (9) agreed that work place safety is adequate, 2.27% (1) strongly agreed, 27.27% (12) somewhat agreed, 34.09% (15) disagreed, 15.91% (7) strongly disagreed. 25.00% (11) agreed that adequate testing centers and contact tracing have been provided, 18.18% (8) strongly agreed, 13.64% (6) somewhat agree, 31.82% (14) disagreed, 11.36% (5) strongly disagreed   97.73% (43) of the respondents agreed that provision of PPE and training of radiographers will help reduce their anxiety level while 2.27% (1) disagreed, 95.45% (42) agreed that the use of face mask and formidable social will help reduce their anxiety level, 93.18% (43) agreed that strengthening disease surveillance will help reduce their anxiety level, while 6.82% (3) disagreed.

Table 4: Anxiety of Radiographers towards COVID-19 virus.

There is possibility of getting the infection in the hospital

Responses	Frequency	Percentage
Agree	18	40.91
Strongly agree	24	54.55
Somewhat agree	0	0.00
Disagree	1	2.27
Strongly disagree	1	2.27
Hospital control system is adequate		
Agree	11	25.00
Strongly agree	0	0.00
Somewhat agree	10	22.73
Disagree	19	43.18
Strongly disagree	4	9.09
Work place safety is adequate		
Agree	9	20.45
Strongly agree	1	2.27
Somewhat agree	12	27.27
Disagree	15	34.09
Strongly disagree	7	15.91
Adequate testing centers and contact tracing have been provided		
Agree	11	25.00
Strongly agree	8	18.18
Somewhat agree	6	13.64
Disagree	14	31.82
Strongly disagree	5	11.36
What should be done to encourage radiographers to reduce their anxiety level		
Items	**Yes (%)**	**No (%)**
Provision of personnel protection equipment (PPE) to all radiographers who have direct contact with all patient	43(97.73)	1(2.27)
Use of face mask	42(95.45)	2(4.55)
Formidable social insurance policy	42(95.45)	2(4.55)
Strengthening disease surveillance	41(93.18)	3(6.82)
Training of radiographers	43(97.73)	1(2.27)

DISCUSSION

Our findings showed that medical radiographers are adequately aware of the COVID-19 disease. This could be as a result of their academic enlightenment and exposure in the medical profession. These findings are in agreement with those of [11] who in their study, showed that academic enlightenment has positive relationship with knowledge of COVID-19. It also agreed with the findings of [12] that associated high awareness of COVID-19 with health care workers. They got the information through their colleagues, the radio, newspaper, social media and other sources. The majority got the information through the internet which was in agreement with majority of previous literatures. Although, some of the radiographers said that they were not aware that the first case of the virus was in Nigeria was recorded in Lagos but majority of them were aware of the first case of COVID-19 in Nigeria. The result of the study revealed that some radiographers had good attitude in the examination of COVID-19 patients. This could be as a result of their professional obligations to such patients. These findings are in agreement with that of [13] who in their study showed that radiology health care workers have positive work attitudes. The findings of Wahed *et al*., (2020) also revealed that positive attitude was more among health care workers than physicians. More findings of Hesaraki *et al*., (2020) also showed that health care workers had good attitude toward COVID-19. This study also showed

that some of the radiographers have poor attitude in attending to COVID-19 patients as some threatened to resign and leave the profession while others attend to them grudgingly. They opined that they may be infected from the work place. That notwithstanding, they feel sympathy towards the patients and will attend to COVID-19 patients if adequately compensated.

The result on assessment of impact of COVID-19 on radiographers and patients' relationship showed average. These finding are in agreement with those of [16] which showed that fear of infection of COVID-19 and lack of indemnity are factors militating against effective dispensation of statutory obligations to such patients. However, improvement in workplace safety will boost health workers willingness to effectively carry out their duties in the face of COVID-19 pandemic.

The result of this study revealed that adequate provision of PPE and training of radiographers, the use of face mask, adoption of formidable social insurance policy and strengthening disease surveillance will help reduce the anxiety level amongst radiographers. This is due to the safety advantages observed from the adoption of such practices in health care delivery.[17] In their study revealed that unavailability of personal protective equipment (PPE), fear of transmitting the disease to their families, and social stigma were the most frequently reported reasons for increased risk perception. [16] It was agreed that provision of personal protective equipment (PPE) to all healthcare workers, especially the front liners and formidable social insurance policy as well as training and retraining of healthcare personnel would reduce anxiety amongst health care workers. The findings of this research are in agreement with those of Elshami *et al*. (2020), who stated that availability of personal protective equipment (PPE) was necessary to reduce anxiety amongst health care workers. The studies of Lawal *et al*., (2020) showed that fear of contracting COVID-19 and perceived inadequate personal protective equipment (PPE) were key contributors to work-stress in the practice of health care workers during

the pandemic. These findings are in agreement with this study and should be adopted to enhance radiographer's performance in attending to COVID-19 patients. The findings [18] contradicted the findings of this study, who stated that there was no significant change to clinical practice, working pattern and perceived increase in workload due to surges in COVID-19 patients. The small sample size of this study restricted against making a general conclusion that it represents the general opinion of Nigeria radiographers, therefore a larger sample size covering more geographical locations around the country be carried out to make sure that the entire spectrum of Nigeria radiographers is reflected. Radiology departments in various hospitals should provide personal protective device for radiographers to enhance their protection when handling COVID-19 patients. There should be a proper orientation and training on COVID-19 especially the newly employed radiographers. Organizing workshops, seminar, conferences for up-to-date measures on COVID-19 virus and infection shoul be taken as a paramount importance to all hospital facilities in the country.

CONCLUSION

The study concluded that radiographers have adequate awareness of COVID-19 infection, and good attitude in examining COVID-19 patient due to their professional obligation. Despite this, they have poor attitude because of fear of work place infection by the virus, Radiographers and COVID-19 patient relationship is moderate because workplace safety is inadequate which led to their unwillingness in attending to COVID-19 patients. Strategies which included the use of face mask, provision of personnel protective equipment (PPE), training of radiographers and formidable social insurance policy should be adopted to reduce the anxiety level of radiographers.

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