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ASSESSMENT OF KNOWLEDGE AND ATTITUDE OF COVID-19 IN NIGERIA AMONG HEALTH CARE STUDENTS

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ABSTRACT

Background: Coronavirus (COVID-19) is a disease caused by a virus belonging to an order Nidovirales, and family of Coronaviridae and can be transmitted from person to person through respiratory droplets produced during coughing and sneezing. The aim of this study was acquired to give information on the knowledge and attitude of health care students as COVID-19 disease is concerned.

Method: This study was a survey research design that was drawn from a total population of 2500 FCDT&T students of which 355 were selected from seven departments in FCDT&T given a total sample size of 355 students for this study. The instrument for data collection of this study was a structured questionnaire developed and validated by Emerging and Re-emerging ABSR researchers consisting of microbiologists, dental technologists, nutritionists, chemists, and therapists.

Results: The findings revealed 77.7% scored was observed on knowledge, and 45.4% on the attitude of the health care students as regard COVID-19. Pearson's correlation revealed there is a statistically negative relationship between knowledge and attitude of health care students.

Conclusion: Recommendation government, various communities, and hospitals should work in collaboration to deal with COVID-19.

Key words: knowledge; attitude, droplet, technologist, sneezing

INTRODUCTION

Coronavirus (COVID-19) is a disease caused by a virus belonging to an order Nidovirales, and family of Coronaviridae that usually spread from person to person. The first reported case of the coronavirus disease COVID-19 (SARS-CoV-2) in a human was in Wuhan, China by the end of the year 2019 and it was declared an epidemic by the World Health Organization (WHO) on the 11th of March, 2020 when the number of countries, cases, and death involved were 114, 118000 and 4000 respectively.[1-3]

The coronavirus-2 disease has been identified under an electron microscope as an RNA virus with an appearance of crown-like spikes on its envelope. Coronaviruses are circular in the shape of size ranging between 65-125 nm in diameter.[4] Coronaviruses have four genera (a) alpha-coronavirus comprises the human (HCoV-229E and HCoV-NL63); (b) beta-coronavirus comprises HCoV-OC43, Severe Acute Respiratory Syndrome human coronavirus (SARS-HCoV), HCoV-HKU1, and Middle Eastern respiratory syndrome coronavirus (MERS-CoV); (c) delta-coronavirus was isolated from pigs and avian species and; (d) gamma-coronavirus was found in whales and avian species.[5,6] SAR-CoV- 2 consists of two highly pathogenic beta-coroviruses (SARS-CoV and MERS-Cov were first reported in November 2019 and September 2012 respectively; both viruses occurred in Guangdong, City of China).[6,7]

COVID-19 can be transmitted from person to person through respiratory droplets produced during coughing and sneezing. Time from exposure and symptom onset is generally between 2-14 days, with an average of 5 days. COVID-19 symptoms include fever, cough, sneezing, and difficulty in breathing. Complications are usually pneumonia, throat pain, and acute respiratory distress syndrome.[8] COVID-19 is usually diagnosed using test screens patient blood samples for antibodies against the virus and another test positive test used to for detecting viral DNA of SARS-CoV-2 in a sputum, throat swabs, and secretions of the lower respiratory sample by performing real-time fluorescence (RT-PCR).[9-11]

Presently, an antiviral drug or vaccine for the treatment of SARS-CoV-2 has not been found, and the major effort is that of supportive therapy by ensuring the symptom is totally abolish. Preventive measures taking include washing of hands with soap and water, covering of the mouth with handkerchief especially when coughing, maintaining a social distance of at least of 1-meter from person to person, and for anybody suspected is having the symptoms of COVID-19 should be subjected to self-isolation for fourteen days.[8,12]

As the number of cases spike and the risk of contracting the virus keep increasing, to contain the spread of the virus, Governments have responded quickly by closing all schools to ascertain education continuity and protect the safety of learners and large social gathering has been banned causing a negative impact on socio-economic disruptions.[13]

The objective of this study was acquired to provide information on the knowledge and attitude of health care students towards the COVID-19 disease. To provide possible solutions on how to reduce the spread of the virus in Nigeria and to reveal whether there exists a statistical relationship between knowledge and attitude of health care students concerning COVID-19.

METHODS

The research design used was a descriptive survey which was carried out in the Federal College of Dental Technology and Therapy, Enugu. FCDT&T, Enugu has nine departments out of which seven departments were selected for this study. A random sampling technique was used in this study which resulted in 355 dental students were drawn from seven departments in FCDT&T, Enugu in Enugu, Nigeria between August- October, 2020. The selected dental departments are Dental Therapy, Dental Technology, Dental Nursing, Biomedical

Engineering, Prosthetics & Orthodontics, Social Works, and Public Health.

The instrument for data collection of this study was a structured questionnaire developed and validated by Emerging and Re-emerging Biotechnology researchers consisting of microbiologists, dental technologists, nutritionists, chemists, and therapists. Questionnaire items were constructed to give answers to the research questions formulated for the study. All Questions 1-3 were answered by students. The questionnaire consists of three sections. Section A sought information on personal data while section B contains eleven (11) items structured with a 3-point expectation score of Yes, No and I don't know (YNDK) to provide answers to the knowledge-based research questions and section C consisted of seven (7) items structured to give adequate answers on attitude research questions. Five-point scale rating of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD), and Undecided (UD) with values of 5, 4, 3, 2, and 1 respectively.

Question on knowledge of health care students on COVID-19 was assessed, incorrect or I don't know responses were awarded a score of zero and correct answer of yes was given the score value of 1 and 16 points was the knowledge scores. Question on an attitude of health care students on COVID-19 was assessed, SA and A responses produced yes were awarded a score of 1 and incorrect answer of undecided, disagree and strongly disagree were given the score value of 0 and 65 was the attitude scores.

Ethical approval to carry out the research work was obtained from the Institutional Review Committee of the Federal College of Dental Technology and Therapy, Nigeria. All participants gave their informed consent before inclusion in this study, and their confidentiality was preserved.

The Statistical analysis used for this work was Package for Social Sciences (SPSS) version 21. The statistical tool was used to provide the frequency and data were presented as mean ± standard deviation. Pearson's Product Moment Correlation was used to find if there exists a relationship between knowledge and attitude towards COVID-19.

RESULTS

Table 1 shows that out of 355 health students about 259 (73%) respondents were between the 15-20 years age which was an active group, while 86 (24.2%) respondents were 21-25 years age, about 8 (2.3%) were 26-30 years age, 1 (0.3%) respondent were between 31-35 years age and 1 (0.3%) respondent was above 35 years of age.

It was also gathered from table 1 that 120 (33.8%) of the total respondents were male, while 232 (65.4%) were female and 3 (0.8%) were found Missing.

Table 1 also presented marital status of the respondents, 348 (98%) respondents were single, 4 (1.1%) were married, 2 (0.6%) were divorced while 1 (0.3%) was found missing.

Table 1: Demographic Data of the Respondent

	Variable	n	(%)
Age	15 – 20	259	73.0
	21 – 25	86	24.2
	26 – 30	8	2.3
	31 – 35	1	0.3
	>36	1	0.3
Gender	Male	120	33.8
	Female	232	65.4
	Missing result	3	0.8
Marital status	Single	348	98.0
	Married	4	1.1
	Divorced	2	0.6
	Missing result	1	0.3
Department	Dental therapy	125	35.2
	Dental technology	101	28.5
	Dental nursing	75	21.1
	Biomedical engineering	19	5.4
	Prosthetics and orthotics	13	3.7
	Social works	1	0.3
	Public health	21	5.9

Table 1 also presented various departments of the respondents, out of 355 respondents about 125 (35.2%) were from dental therapy, while 101 (28.5%) were from dental technology, about 75 (21.1%) were from dental nursing, 19 (5.4%) were Biomedical Engineering students, 13 (3.7%) students were from Prosthetics & Orthodontics, 1 (0.3%) were in Social Works and 21 (5.9%) were in Public Health.

Table 2 above showed that out of 355 about 290 (81.7%) believed that patients with COVID-19 usually develop severe acute respiratory symptoms, about 43 (12.1%) disagreed and 22 (6.2%) had no idea. It was also gathered from table 2 that 317 (89.35) were in support that Coughing, high fever and fatigue are the hallmarks of the infection symptoms, while about 32 (9%) totally disagreed and 6 (1.7) had no idea. Also, from the above table 285 (80.3%) believed that the Incubation period for the COVID-19 virus is usually 1-14 days, about 37 (10.4%) were totally disagreed and 33 (9.3) had no idea. It was also gathered that out of 355 about 304 (85.6%) agreed that the mode of transmission is by close contact with infected persons, about 18 (5.1%) were not in support and 33 (9.3%) had no idea. A higher frequency of about 275 (77.5%) was equally obtained from the above table for respondents that agreed on the main source of COVID-19 is animal in comparing with disagreed respondents about 73 (20.6%) and 7 (2%) respondents had no idea. Table 2 also showed that washing of hands frequently for at least 30 seconds can prevent transmission of the disease out of 355 about 310 (87.3%) agreed, about 38 (10.7%) disagreed and 7 (2.0%) had no idea. From the above Table it was revealed that the COVID-19 vaccine is available in the market out of 355 about 78 (22.0) supported, about 265 (74.6%) were not in support and 12 (3.4%) have no idea. 269 (75.8%) were in support that polymerase chain reaction (PCR) can be used to diagnose COVID-19 whereas about 55 (15.5%) were not in support and 31 (8.7%) were totally clueless. 338 (95.2%) out of 355 believed that special caution must be taken when persons from Asia regions present with symptoms of COVID-19, about 13 (3.7%) differed the statement and 4 (1.1%) had no idea. Table 2 revealed that antimicrobial is the first-line treatment of COVID-19 about 249 (70.1) were in support, about 26 (7.3%) disagreed and 80 (22.5%) had no idea. 322 (90.7%) believe COVID-19 can be fatal, about 29 (8.2%) disagreed and 4 (1.1%) were unknown.

Table 2: Respondent Responses to Knowledge Related Question

S/N	*Questions*	*Yes*	*No*	*IDK*
		No.	**n (%)**	**n (%)**
1	COVID-19 patients develop severe acute respiratory symptoms	290 (81.7)	43 (12.1)	22 (6.2)
2	Coughing high fever and fatigue are the hallmark of the infection symptoms	317 (89.3)	32 (9.0)	6 (1.7)
3	Incubation period for COVID-19 virus is1-14 days	285 (80.3)	37 (10.4)	33 (9.3)
4	Mode of transmission is by close contact with infected persons	304 (85.6)	18 (5.1)	33 (9.3)
5	Animal is the main source of COVID-19	275 (77.5)	73 (20.6)	7 (2.0)
6	Frequent washing of hands at least 30 seconds can prevent transmission of disease	310 (87.3)	38 (10.7)	7 (2.0)
7	COVID-19 vaccine is available in the market	78 (22.0)	265 (74.6)	12 (3.4)
8	Polymerase Chain Reaction (PCR) can be used to diagnose COVID-19	269 (75.8)	55 (15.5)	31 (8.7)
9	Special caution must be taken when persons from Asia regions present with symptoms of COVID-19	338 (95.2)	13 (3.7)	4 (1.1)
10	Empirical antimicrobial is the first line treatment of COVID-19	322 (90.7)	29 (8.2)	4 (1.1)
11	COVID-19 can be fatal	322 (90.7)	29 (8.2)	4 (1.1)

Table 3 explained the opinion on how the transmission of COVID-19 can be prevented by using universal precautions given by WHO, NIH, and CDC. Out of 355 sample of health students' respondents about 206 (58.0%) were strongly agreed, 126 (35.5%) agreed, 6 (1.7%) disagreed, 9 (2.5%) strongly disagreed and 8 (2.3%) were undecided. Item one in the above table had the mean value of 4.45 which was up to 3.00 and above which was interpreted as accepted that is most of the health students strongly believed that the transmission of COVID-19 can be prevented by using universal precautions given by WHO, NIH, and CDC.

Table 3: Respondent Responses to Attitude related questions

	Strongly agree	Agree	Disagree	Strongly disagree	No idea
	n (%)	n (%)	n (%)	n (%)	n (%)
1.Transmission of COVID-19 can be prevented by using universal precautions given by WHO, NIH, CDC, etc.					
	206 (58.0)	126 (35.5)	6 (1.7)	9 (2.5)	8 (2.3)
2.Prevention of COVID-19 can be reduced by active Participation of health care workers in hospitals infection control program					
	179 (50.4)	139 (39.2)	14 (3.9)	10 (2.8)	13 (3.7)
3.Any related information about COVID-19 should be disseminated among peers and other health care workers					
	194 (54.6)	121 (34.0)	17 (4.8)	9 (2.5)	14 (4.1)
4.COVID-19 infected patients should be quarantined					
	235 (66.7)	79 (22.3)	14 (3.9)	14 (3.9)	13(3.7)
5.Intensive and emergency treatment should be given to diagnose Patients					
	252 (71.0)	85 (23.9)	5 (1.4)	6 (1.7)	7 (2.0)
6.Health care workers must acquaint themselves on information about COVID-19					
	237 (66.8)	97(27.3)	7 (2.0)	6 (1.7)	8 (2.2)
7.Personal protective equipment must be used when dealing with COVID-19 patients					
	277 (78.0)	63 (17.7)	3 (0.8)	9 (2.5)	3 (1.0)

Table 3 also carefully examined how the prevention of COVID-19 can be reduced by the active participation of health care workers in hospital infection control programs. Out of 355 samples of health care students received about 179 (50.4%) were strongly agreed, 139 (39.2%) agreed, 14 (3.9%) disagreed, 10 (2.8%) strongly disagreed and about 13 (3.7%) were undecided. Item two (2) from the above table had the mean value of 4.30 greater than or equal to 3.00 which was found within an accepted range representing that majority of the health students strongly agreed that the prevention of COVID-19 can be reduced by the active participation of health care workers in hospitals infection control program.

Item three (3) from the above table discusses how any related information about COVID-19 should be disseminated among peers and other health care workers. Out of 355 samples collected about 194 (54.6%) were strongly agreed, 121 (34%) agreed, 17 (4.8%) disagreed, 9 (2.5%) strongly disagreed and about 14 (3.9%) were undecided. A calculated mean value of 4.33 was obtained and found within an accepted range (3.00 and above) which was interpreted as most of the health students strongly believed that any related information about COVID-19 should be disseminated among peers and other health care workers

Item four (4) from Table 3 showed whether COVID-19 infected patients should be quarantined. Out of 355 samples of health students about 235 (66.7%) were strongly agreed, 79 (22.3%) agreed, 14 (3.9%) disagreed, 14 (3.9) strongly disagreed and about 13 (3.7%) were undecided. The mean value of 4.43 which was up to 3.00 and above which was interpreted that the majority of the health students strongly accepted that COVID-19 infected patients should be quarantined.

Out of 355 respondents about 252 (71%) were strongly agreed, 85 (23.9%) agreed, 5 (1.4%) disagreed, 6 (1.7%) strongly disagreed and about 7 (1.9%) were undecided. From the above statement in table 3, the mean value of 4.60 was obtained and greater than the acceptable value of 3.00 indicating most health care students were strongly agreed that intensive and emergency treatment should be given to diagnose Patients.

Item (6) revealed that Health care workers must acquaint themselves with information about COVID-19. Out of 355 sample collected about 237 (66.8%) strongly agreed, 97 (27.3%) agreed, 7 (2.0%) disagreed, 6 (1.7%) strongly disagreed and about 8 (2.2%) were undecided. A calculated mean value of 4.55 was obtained and found within an accepted range (3.00 and above) which was interpreted that the majority of the health students strongly accepted that health care workers must acquaint themselves with information about COVID-19.

The table also presented on how personal protective equipment must be used when dealing

with COVID-19 patients. Out of 355 sample received about 277 (78%) were strongly agreed, 63 (17.7%) agreed, 3 (0.8%) disagreed, 9 (2.5%) strongly disagreed and about 3 (0 .9%) were not decided. The mean value of 4.70 which was up to 3.00 and above which was interpreted most of the health students strongly believed personal protective equipment must be used when dealing with COVID-19 to reduce the spread of the virus.

Table 4 showed the mean responses on knowledge of the health care students as regards COVID-19. The mean knowledge of the positive respondents was 8.55±2.19, the average percentage score for knowledge was 8.55/11 points 77.7%; while the mean attitude of the positive respondents was 41.33±6.30, and the average percentage score for attitude was approximately 41.33/91 points 45.4%.

Table 4: Mean Difference between Respondents Knowledge with respect to Attitude of the health care students.

Assessment (Total Score)	Mean±SD	Min-Max
Knowledge (11)	8.55 ±2.19	(1-16)
Attitude (7)	41.33±6.30	(1-13)

DISCUSSION

The findings revealed that 33.8% of the total respondents were male, 65.4% were female while 0.8% were found missing, majority were from dental technology department (Table 1).

The findings on whether patients with COVID-19 usually develop severe acute respiratory symptoms, most of the respondent health care students agreed concerning COVID-19 patients usually develop severe acute respiratory symptoms, showing that majority of the participants are well-informed about COVID-19. This is in line with research by WHO (2020), has stated that Developed by a multidisciplinary panel of health care providers with experience in the clinical management of patients with COVID-19 and other viral infections, including severe acute respiratory virus (SARS) and the Middle East respiratory virus (MERS), as well as sepsis and Clinical management of COVID-19: interim guidance acute respiratory distress syndrome (ARDS), this directive should help in the foundation of getting best clinical care to ensure optimize the possible chance for survival.[14]

More than 85% of the respondents affirmed that coughing, high fever, and fatigue are the hallmark of the infection symptoms. This is an indication that most of the participants believed that COVID-19 patients usually develop the above symptoms and medical care should be sought immediately if someone has hallmark warning signs of COVID-19.[15]

The present study confirmed 80.3% of the respondents accorded that the incubation period for the covid-19 virus is 1-14 days. This is in line with research conducted by the world health organization suggested that the average serial interval of COVID-19 is shorter than the average incubation period, which suggests that substantial numbers of COVID-19 cases will be attributed to pre-symptomatic transmission.[16-17]

The current study sheds light that 85.6% of participants disclosed on the mode of transmission of the contagious disease, is usually by close contact with an infected person. COVID-19 is mainly transmitted from human to human through oral, respiratory aerosols and droplets of infected individuals of the virus can contaminate the environment. Healthcare providers and the elderly with co-morbidities are especially susceptible to the infection.[18] Thus, there is a need for rigorous surveillance and testing to prevent further expansion of the pandemic. Protective devices must be applied especially when there is possibly close in contact with a suspect case or infected person who is not putting on a surgical

mask that could drastically reduce the transmission of viruses in the environment. By adopting these specific prevention and protection measures recommended in the workplace, it will be possible to help overcome this COVID-19 pandemic.[19-21]

This study observed 77.5% prevalence that animal is the main source of covid-19. Studies have reported that coronaviruses that are causing illness for humans were originating from animals. Generally, these animals were either rodents or bats.[22,23]

Nevertheless, 95.3% of the participants were already aware that washing of hands frequently can prevent transmission of covid-19. This is in line with WHO reported hand hygiene is key to stopping the spread of COVID-19, thus, developing preventive strategies besides washing of hands frequently there is urgently needed to reduce the contagious virus through environmental measures that are capable of reducing the risk of transmission of COVID-19 to individuals through contact with infected subjects, objects, equipment, or contaminated environmental surfaces. Some specific prevention and protection measures are recommendable in the workplace that will be helpful in overcoming this COVID-19 pandemic.[21,24,25]

The current study has limited strengths on the level of awareness, more than 70% of participants are not aware whether the Covid-19 vaccine is available in the market which may be as a result of global availability and affordability of COVID-19 vaccine particularly in some "vaccine nationalism," the potentially unfair distribution of the vaccine globally, and intellectual property rights.[26]

Nearly two-third of the participants are aware that polymerase chain reaction can be used to diagnose covid-19. Roberta et al reported that PCR has the potential for identifying minute amounts of DNA or RNA contained in tissues or fluids, PCR has improved the rapidity and accuracy of diagnosing, increased the understanding of pathogenesis, and assisted in identifying the unknown causes of infective diseases. Blood antibody testing and viral antigen testing in respiratory samples, similar to the rapid influenza test.[27,28]

The findings reported 95.2% of the respondents accorded that special caution must be taken when persons from Asia regions with the symptoms of covid-19. The number of confirmed cases is constantly increasing worldwide particularly in the Asian region, a steep increase in cases is currently being observed in low-income countries.[29,30]

The findings revealed that 70.1% of the participants established that empiric antimicrobial is the first line of treatment for covid-19. This is in affirmation by Natasha 2021 et al., who reported a significant increase in the rate of empiric antibiotics received by patients with COVID-19.[30]

The study affirmed that nearly all the participants 90.7% are aware that Covid-19 can be fatal. Co-morbidities among fatal cases include hypertension, diabetes, coronary heart disease, cerebral infarction, and chronic bronchitis.[31]

The present study showed further investigation on a different perspective of health care students on the attitude of COVID-19, 58.0% of the participants posited that the transmission of covid-19 can be prevented using universal precautions given by WHO, NIH, CDC. Steady and understanding a particular training on the modes of exposure, transmission, and the use of proper personal protective equipment in order reduce the risk of the contagious virus hazards, which is essential to prevention. First aid and emergency medical assistance procedures are mostly very effective health organizations fix the standard to be practiced by all individuals encountering contagious virus hazards.[32]

This study revealed 50.4% of the participants corroborate that the prevalence of covid-19 can be reduced by the active participation of healthcare workers in hospital infection control programs. Adequate measures are important for the wellbeing and safety of

patients, families, health workers and the community of the vulnerable. Implementation of the IPC programme and hospital Infection Control Committee (HICC) at the healthcare facility should be the first step towards the prevention of transmission of the virus [33]. A hospital in the metropolitan area in a north-central state of Nigeria has also confirmed that infection control measures were not adopted by healthcare workers especially when the infection condition of patients was unknown.[34]

The present study confirmed 54.6% of the respondents established that any related information about covid-19 should be disseminated among peers and other health workers. Lack of awareness and information about COVID-19 can subvert social cohesion and inspires ferocity, favoritism, marginalization and fear.[35]

This study observed a 66.7% prevalence that Covid-19 infected patients should be quarantined. Inadequate awareness and poor knowledge were reported on isolation precaution and quarantine that could be as a result of the unavailability of constant training, health facilities such as infection prevention control guidelines and lack of personal protective equipment for health workers. This would, however, lead to an increase in the prevalence of healthcare-associated infections and quarantinable diseases.[36]

This study observed a 71.0% prevalence that intensive and emergency treatments should be given to diagnosed patients. In another study, it was revealed that in order to manage patients with serious illnesses, there is a need for urgent and adequate care such as the identification and continued observation, assessment, and treatment.[37]

The findings revealed that 66.8% of the participants established that healthcare workers must acquaint themselves with information about covid-19. The infectious disease outbreaks can it more difficult for many to receive treatment and health services. Critical health services and information about COVID-19. Accurate COVID-19 prevention and medical information should also be distributed in conflict-affected contexts to reach all individuals regardless of the communities and area of settlements. Preparing unpaid caregivers and community health workers with information, training, adequate equipment and livelihood support to respond to the COVID-19 pandemic effectively.[38]

Finally, more than 75.0% of the participants are aware that personal protective equipment must be used when dealing with covid-19 patients. There should be infection prevention and control (IPAC) best practices for use of personal protective equipment (PPE) in health care settings.[39]

This study among other things can conclude that the current COVID-19 pandemic is not only a threat in Nigeria but it's a global health problem. The study provides a picture of how health care students are knowledgeable and their various attitudes as regards COVID-19. The study was concluded there is a relationship between knowledge and attitude on COVID-19.

In conclusion, the assessment of knowledge and attitude regarding COVID-19 among healthcare students in Nigeria provides crucial insights into the preparedness and awareness within this vital demographic. The research has unveiled both strengths and areas of improvement in the understanding and perceptions of healthcare students regarding the ongoing pandemic.

The findings reveal a commendable level of knowledge among the participants, showcasing a solid foundation in key aspects of COVID-19, including transmission, preventive measures, and clinical manifestations. However, the research also identifies specific knowledge gaps and misconceptions, highlighting the need for targeted educational interventions to enhance overall awareness.

The assessment of attitudes reflects a generally positive disposition toward preventive

measures, indicating a sense of responsibility among healthcare students. Nonetheless, the identification of potential barriers to adherence emphasizes the importance of addressing not only knowledge deficits but also the underlying factors influencing attitudes.

The implications of this research extend beyond academia, with potential impacts on public health outcomes. By identifying specific areas for improvement in knowledge and attitudes, healthcare education programs and public health initiatives can be tailored to better equip future healthcare professionals in Nigeria. As the frontline defenders against infectious diseases, ensuring the robust knowledge and positive attitudes of healthcare students is paramount for effective pandemic response and control.

Moving forward, interventions should be designed to bridge the identified knowledge gaps, dispel misconceptions, and address attitudinal barriers. Continuous education, training, and reinforcement of preventive measures will contribute not only to the safety of healthcare students but also to their effectiveness as agents of public health promotion within their communities.

In the context of the global fight against the COVID-19 pandemic, the assessment of knowledge and attitudes among healthcare students in Nigeria serves as a microcosm reflecting the broader challenges and opportunities in pandemic preparedness. By refining educational strategies based on the insights gained from this research, Nigeria can strengthen its healthcare workforce's resilience and response capabilities, contributing to the collective efforts to mitigate the impact of COVID-19 and future health crises.

Disclosures

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