

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE ON IMPORTANCE OF FACE MASK AMONG CLINICAL MEDICAL STUDENTS OF CHUKWUEMEKA ODUMEGWU OJUKWU UNIVERSITY TEACHING HOSPITAL AMAKU, AWKA, ANAMBRA STATE

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Abstract: The prevalence of many communicable diseases in the modern day society has been a huge reason to worry for current and future health workers because they are at the forefront in the fight against these diseases. Hence, this study, to assess the knowledge, attitude and practice among clinical medical students of Chukwuemeka Odimegwu Ojukwu University Teaching Hospital, Awka. The study population was all clinical medical students of the hospital during the study period with sample size of 147. The questionnaire pre-test was performed on 5% of the total sample size within the teaching hospital, which is assumed to have similar traits to the targeted population. The questionnaire divided into sections that are used to evaluate the following: socio-demographic characteristics, general knowledge of the participant, participant attitudes toward the use of facemasks, and facemasks use Practice on the behavioral factors that influence face mask use. The statistical software SPSS version 28.0 was used to calculate the frequencies and odds ratio. The result of the study showed that the respondents of this study had overall good knowledge regarding facemask use against COVID-19 infection. For knowledge, most of the participants on average got their source of information through the media (TV, Radio, social media), resources material, and the hospital. Considering the vaccine, it was observed based on the responses that a greater percentage of the clinical medical students have not been vaccinated against COVID-19. Majority of the respondents had various reasons for not wearing face masks whereas some wear it out of compliance to the rules of the hospital and not because they consider it necessary. It was also observed that some students do not properly handle the face mask. In conclusion, there is still a long way to go in the case of clinical medical students practice towards the use of face masks.

Keywords: health workers, clinical medical students, COVID-19 infection, face masks.

1. INTRODUCTION

In late December 2019, a novel coronavirus disease responsible for the new cases of pneumonia in Wuhan, China was identified. The virus was initially named Novel Coronavirus 2019 (2019-nCoV) by the WHO, then later updated as SARS-CoV-2 and the name of the disease updated as Coronavirus disease 2019 (COVID-19). (10) On January 20, 2020, with the

approval of the State Council of China and in accordance with the Infectious Disease Prevention and Control of the People's Republic of China, the National Health Commission of China included COVID-19 in Category B infectious diseases and managed it in accordance with Category A infectious diseases. (7) Category A infectious diseases are compulsorily treated infectious diseases, so-called severe infectious diseases, which are highly contagious and have a high mortality rate, likely to cause a pandemic. According to the Infectious Disease Prevention and Control Law of the People's Republic of China, plague and cholera are classified as category A infectious diseases. Category B infectious diseases are strictly controlled infectious diseases, including a total of 26 diseases, such as severe acute respiratory syndrome (SARS), acquired immune deficiency syndrome (AIDS), Anthrax, Avian Influenza, COVID-19 etc, SARS, Inhalational Anthrax, Avian Influenza and COVID-19 are treated according to Category A Infectious Diseases. (11) On March 11, 2020, the WHO declared COVID-19 a global pandemic and many countries of the world, including Nigeria have recorded COVID-19 cases. (10)

The World Health Organization (WHO) pronounced the SARS-COV-2 infection disease an open wellbeing crisis of worldwide concern (PHEIC) on 30th January 2020. Almost a month later, on 27th February 2020, Nigeria diagnosed her first case of COVID-19 in an international migrant (8). This initial case of COVID-19 activated a gigantic reaction across the country, driven by the Nigerian Centre for Disease Control (NCDC) to limit the disease to the point source as close as feasible. Despite the implementation of national widespread control measures, including restrictions on movement between states, the state of Anambra in southeastern Nigeria diagnosed its first case of COVID-19 on April 10, 2020 (9). The state-level pandemic response was led by the Department of Health's (MoH) Public Health Emergency Center (PHEOC) under the technical oversight and guidance of the NCDC and the Directorate of Public Health and Disease Control at the State Department of Health. States' initial control efforts included intensive contact screening, enforcement of physical distancing, population-level hand and respiratory hygiene, risk communication, isolation of suspected cases, and case management. However, following the diagnosis of epidemiologically unrelated cases over the ensuing weeks to months, certain Local Government Areas (LGAs) of the state, including Awka South, Onitsha South (7)

The main way the virus is spread is via respiratory droplets from coughing, sneezing or contact with contaminated surfaces, therefore routine and proper use of face masks has been identified as one of the most important COVID-19 infection control measures. The face mask works by creating a physical barrier to prevent the pathogen from entering the body through the nose and mouth. The use of face masks among health workers and the general population is strongly recommended by the WHO and the Centers for Disease Control and Prevention (CDC) as the standard for transmission-based preventive measures. (1)

Face masks are a unique, affordable means of providing a mechanical barrier against irritants and contagious diseases such as airborne infections, thereby protecting against respiratory diseases. (1) It is a simple and non-pharmaceutical individual intervention that provides a physical barrier against potentially infectious droplets. (4) After the World Health Organization (WHO) declared COVID-19 a global pandemic in March 2020, universal masking was ordered to protect all healthcare participants, including workers, patients and visitors. (3) However, proper application is of the utmost importance. Standard face masks help protect healthcare workers and prevent cross transmission between patients in the hospital. The WHO states that improper use and disposal of these masks can actually increase the rate of disease transmission. Using face masks also helps prevent hand contact with the mouth and nose. When used correctly by infected people, the face mask can help prevent household transmission by limiting the spread of infectious respiratory droplets. (1)

Using a face mask is one of the effective infection control measures recommended by the World Health Organization (WHO) and many countries including Nigeria have adopted its use as part of their pandemic plans. (4) Since then, medical staff began to wear surgical masks and respirators, also known as filtering face masks FFP2 and FFP3, referred to in this study as face mask, on a daily basis. (2) The knowledge that face mask use delays transmission of SARS-CoV-2 is rapidly gaining popularity among the general population. (3) It is recommended that people wear a face mask to protect themselves when caring for sick family members with a fever or difficulty breathing, visiting clinics or hospitals, interacting with people outside of your household, and at public gatherings. (4) However, the use of face masks is not limited to the prevention of COVID-19, face masks have always been important precautionary/protective equipment for health workers. This is due to the high cases of highly contagious diseases like hepatitis B, HIV, hepatitis C, tuberculosis and so many others. Of paramount importance in the prevention of infectious diseases is strict adherence to standard precautions for all physicians. These include but are not limited to eye protection with side shields, face masks and protective clothing. Despite the great emphasis placed on standardized infection control procedures, few of them appear to have adhered to these procedures.

Proper technique for wearing a face mask involves six steps: a) Perform hand hygiene before putting on the face mask; b) ensure that the mask covers the nose, mouth and chin while tightening on the sides of the face; c) perform hand hygiene before removing the face mask; d) only touch the elastic bands when undressing; e) ensure the proper disposal of the used face mask in a paper bag or bin with a lid, f) perform hand hygiene after disposal of the face mask. (4) Healthcare workers worldwide are on the front lines of containing the COVID-19 outbreak, diagnosing and managing infected patients. Unfortunately, healthcare workers have also been the source and means of nosocomial and community transmission. The burden of disease in both developed and developing countries had worsened response and management strategies due to insufficient provision of personal protective equipment for health workers, pollution, overcrowding and insufficient provision of adequate isolation facilities. (12) And that includes medical students, who are an important part of the young generation of HCWs. They can influence the health status and perceptions of their families and friends, as they are mostly viewed by society as acceptable sources of health information

Therefore, in order to contain the rising number of COVID-19 cases, HCWs had to comply with the recommended measures to prevent transmission. These actions are primarily influenced by the knowledge, attitudes and practices (KAPs) of frontline workers. Hence, this study aimed at investigating the KAP of clinical medical students on the importance of facemasks at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Amaku, Awka, Anambra state who represent an important part of the society and whose attitude have great effects on their health and consequently the health of the general public.

2. MATERIALS AND METHODS

Study setting

This study was conducted among clinical medical students of Chukwuemeka Odumegwu Ojukwu Teaching Hospital Amaku, Awka, Anambra State. A cross-sectional study was conducted at within this Teaching hospital starting from October 3rd to 18th October 2022. The hospital is located at the capital of Anambra state which is an extension of Chukwuemeka Odumegwu Ojukwu University Anambra State.

Study population

All clinical medical students attached to the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku, Awka, Anambra state during the study period.

Inclusion criteria

Clinical medical students who were present at the time of study and were willing to respond to the questionnaire.

Exclusion criteria

Clinical student who are not present as at the time is being conducted.

Sample Size determination

The below formula below was used to estimate the sample size

$$\text{Sample size} = \frac{N}{1+N(d)(d)}$$

Where:

N= Population size (200)

d = Level of precision = 0.05

$$n = \frac{200}{1+200(0.0)(0.00)} = 133.4$$

Considering the attrition of 10%, the sample size becomes approximately 147

Data Quality

The questionnaire pre-test was performed on 5% of the total sample size within the teaching hospital, which is assumed to have similar traits to the targeted population. Based on their feedback, the necessary changes were made, and the

questionnaire was evaluated for clarity, completeness, validity, and content, and was modified accordingly. Near monitoring is also provided during data collection and appropriate feedback.

Data Collection Procedure

To collect data on all of the study's specific objectives, an English version self-administered questionnaire was adapted from various types of literature. It is divided into sections that are used to evaluate the following: socio-demographic characteristics, general knowledge of the participant, participant attitudes toward the use of facemasks, and facemasks use Practice on the behavioral factors that influence face mask use.

Data Analysis Technique

The data were first checked for completeness, consistency, and validity. After double-checking the collected data, it was entered into the statistical software SPSS version 28.0 for analysis. Data were cleaned and coded to ensure completeness, and consistency, and to reduce errors. The statistical software SPSS version 28.0 was used to calculate the frequencies and odds ratio. The findings of the descriptive analyzed statistical results were presented by texts and tables after the data was analyzed.

3. RESULTS

Socio-Demographic profile of study participants

One hundred and forty-seven (147) clinical medical students participated in this study. The mean and median age was 32.75, and 30 years (range: 18-46 years) with the majority being in the age range of 26-35 years 184 (45.2%).

Among the respondents, males had a higher proportion of 78(53.1%) responses, and the majority of respondents 64(45.0%) level of the study was in the final year, while only 31(21.1%) are in the 3rd year and only 52(35.4%) are in the 4th year. Regarding marital status, most of the study participants 78(53.1%) were single, while 69(46.9%) were married.

Table 1: Demographic profile of clinical medical students.

Variable	Category	n (%)
Gender	Male	78 (53.1%)
	Female	69 (46.9%)
Age	18-25	27 (18.4%)
	26-35	58 (39.5%)
	36-45	42 (28.6%)
	46 >	20 (13.6%)
Level of Study	3 rd year	31 (21.1%)
	4 th year	52 (35.4%)
	Final year	59 (40.1%)
Marital Status	Single	78 (53.1%)
	Married	69 (46.9%)
	Divorced	==
	Widow/Widowed	==

Knowledge of study participant

Out of the total study subjects, concerning COVID-19 infection, 22 (14.96%) of the respondents from the total were caught by COVID-19 due to their poor self-lack of proper prevention methods like not using facemasks or not adequately taking another preventive measures. Assessment of knowledge was made using nine sets of questions regarding mechanisms of COVID-19 transmissions and basic strategies outlined by WHO guidelines as means of infection prevention and control. The respondents of this study had overall good knowledge regarding facemask use against COVID-19 infection (n = 147, 81.26% [95% CI: 72.25-95.31]).

Nine participants 09 (6.12%) of the clinical medical students attested that they have had a history of COVID-19 in their family, however, a greater percentage of the study participants which is about 138 (93.88%) have not had any family history

of COVID-19 infection. Also, most of the participants on average got their source of information through the media (TV, Radio, social media), resources material, and the hospital.

The majority of the participants actually isolate themselves 133 (90.48) when they observe to have related symptoms of COVID-19 to avoid preventing the spread of the virus. Only about 14 (9.52%) of the participant do not isolate themselves when they have any symptoms related to COVID-19 infection.

Considering the vaccine, it was observed based on the responses that a greater percentage of the clinical medical students have not been vaccinated against COVID-19, however, the reason for this could not be ascertained as the majority of them who are vaccinated were not even ready to disclose the number of doses they have taken; hence they prefer not to mention.

The majority of the study subjects 121 (82.31%) knew that COVID-19 can be fatal, especially to people who already are suffering from one chronic illness or another. Exactly 147 (100%) participants who are clinical medical students demonstrated high knowledge of the transmission of the medium of COVID—19 (through close physical contact, handshake, etc.). Also, 128(87.07%) of the respondents believed that a facemask would help prevent the spread of COVID-19.

Table 2: Knowledge of the study participants about COVID-19

S/n	Variables	Category	n (%)
1	Have you been caught by COVID-19	Yes No	22 (14.96%) 125 (85.04%)
2	Have any of your family members been caught by COVID-19	Yes No	09 (6.12%) 138 (93.88%)
3	Where is your source of information about COVID-19	TV Radio station Social media Resource material Hospital All of the above	23 (15.64%) 12 (8.16%) 52 (35.37%) 08 (5.44%) 38 (25.85%) 14 (9.52%)
4	Do you isolate yourself when you have any symptom	Yes No	133 (90.48%) 14 (9.52%)
5	Are you vaccinated against COVID-19	Yes No	58 (39.46%) 89 (60.54%)
6	Doses of Vaccination taken	1 Dose 2 Dose Prefer not to mention	17 (11.56%) 41 (27.89%) 89 (60.54%)
7	Is COVID-19 a fatal disease	Yes No	121 (82.31%) 26 (17.68%)
8	Do you know the transmission medium of COVID-19	Yes No	147 (100%) ===
9	Does facemask help prevent transmission of COVID-19	Yes No	128 (87.07%) 19 (12.93%)

The Attitude of clinical medical students about wearing the facemask.

The overall proportion of positive attitudes is 55.03% [95% CI: 46.39-67.99]. Among clinical medical students in Chukwuemeka Odumegwu Ojukwu teaching hospital in Awka, The majority of responders 78(53.06%) believed that It’s difficult for others to see their facial expressions when wearing a face mask, and 41 ((27.89%) respondents responded that people would misinterpret their feeling when wearing a facemask. 54(36.73%) respondents responded that they experience breathing difficulty when wearing a face mask, and 33(22.45%) study subjects reported that a Face mask causes ear pain.

More than half of the respondents 118(80.27%) believe Facemask makes them unattractive. 147(100%) don’t believe that they don’t need to wear a face mask; other people should take care of themselves but none of them agreed with this as shown in (Table 3).

Table 3: Attitude of clinical medical students in Chukwuemeka Odumegwu Ojukwu Teaching Hospital

	Category	n (%)
It's difficult for others to see my facial expressions when wearing a facemask	True	78 (53.06%)
	False	69 (46.94%)
People will misinterpret my feelings when wearing a facemask	True	41 (27.89%)
	False	106 (72.10%)
I feel embarrassed when wearing a facemask	True	09 (6.12%)
	False	138 (93.88%)
I have breathing difficulty when wearing a facemask	True	54 (36.73%)
	False	93 (63.27%)
Facemask causes ear pain	True	33 (22.45%)
	False	114 (77.55%)
I don't need to wear a facemask; other people should take care of themselves	True	=====
	False	147 (100%)
Wearing a facemask makes me unattractive	True	118 (80.27%)
	False	29 (19.73%)

The practice of clinical medical students wearing a facemask to prevent transmission of COVID-19.

In general, for clinical medical students practicing, only 23(5.6%) always wear a face mask when working in the hospital and properly utilize their face mask. It is interesting to note that majority of respondents 166(40.8%) reported wearing their face masks because it's a major rule everyone must observe when entering the hospital premises.

Most of the participants 137(93.12%) always wash their hands before wearing a face mask while 10 (6.80%) of respondents never washed their hands after removing a face mask, and, moreover, 63(42.85%) wash their hands with soap and water/ use a sanitizer after touching the face mask, regarding the removal practice of the respondents, the report shows a good one since almost all the clinical medical students come across sick patients. The type of face mask usually used is reported chronologically in order as Surgical/medical facemasks 134(91.15%), then Cloth facemasks 13(8.85%).

When wearing a facemask some of the clinical medical students admitted keeping the used facemask in their home or bag for later use. Connected to this 53(36.05%) of the participants reported using a single-use facemask just for a single day, 41(27.89%) admitted to using a single facemask for 2 days, 33 (22.44%) agreed to use a single facemask for 3 days while 20(13.61%) of the respondents agreed to be using a single facemask for more than three working days.

Table 4: Practice of clinical medical students in Chukwuemeka Odimegwu teaching hospital

Variable	Category	n (%)
Do you always wear a face mask while in the hospital?	Yes	137 (93.12%)
	No	10 (6.80%)
What type of face mask do you usually use/ wear?	Medical/Surgical	134 (91.15%)
	Cloth Facemask	13 (8.85%)
Do you always wash your hands before wearing a face mask?	Yes	137 (93.12%)
	No	10 (6.80%)
Do you always check the inside and outside of the face mask before wearing it?	Yes	79 (53.74%)
	No	68 (46.26%)
Do you wash your hands with soap and water/ use a sanitizer after touching the face mask?	Yes	63 (42.85%)
	No	84 (57.15%)
How long do you use a single-use facemask?	1 day	53 (36.05%)
	2 days	41 (27.89%)
	3 days	33 (22.44%)
	>3 days	20 (13.61%)

4. DISCUSSION OF FINDINGS

COVID-19 has been an unending universal danger. Since the globe is still under continual waves of doubts leaving medical students at even higher risks on daily basis than the general population because of the nature of their job which involve constant treatment of sick patients. The risk of contracting the disease among clinical medical students of Chukwuemeka Odumegwu Ojukwu University Teaching hospital Awka may give additional increases if it is accompanied by deprived knowledge, attitude, and practices of personal protective equipment especially face masks to moderate the spread of this virus. This cross-sectional study was conducted with the aim of assessing the knowledge, and attitude, of these participants. The majority of participant students were from the age range of 26-35 years of age.

The current study revealed that the overall average knowledge, attitude, and practice magnitudes of students gained from this were 81.26%, 55.03%, and 62.1% regarding facemask use against COVID-19 infection respectively, and all the clinical medical students of study subjects 147 (100%) knew the transmission medium of COVID-19. This is evident from their response that a face mask will not protect from COVID-19, 147(100%) responded it is necessary to wear a face mask even if you have been caught by COVID-19.

More than half of the clinical medical students prefer using a surgical mask, especially when within the hospital premises.

5. CONCLUSION

Face mask is one of the major components of primary protective equipment (PPE). Due to the prevalence of so many air borne diseases; Covid-19, Monkey pox, tuberculosis etc. there is need for the proper use of face masks among healthcare workers. This is to reduce the transmission of disease-causing pathogens from patients to their care-givers and healthcare workers that will in turn cause the spread of the disease to the society at large. In the bid to curb the spread of covid-19 and other communicable diseases, all personnel at the hospital are expected to put on a facemask. However, not all health workers especially those in training (clinical medical students) adhere to this rule. This is due to poor knowledge, attitude and practice towards wearing of face masks by clinical medical students. And so, there is need to create more awareness on the use of facemasks.

REFERENCES

- [1] Furnaz S, Baig N, Ali S, Rizwan S, Khawaja UA, Usman MA, *et al.* Knowledge, attitude and practice of wearing mask in the population presenting to tertiary hospitals in a developing country. PLoS ONE. 2022; 17(3): e0265328. <https://doi.org/10.1371/journal.pone.0265328>
- [2] Venesoja A, Grönman K, Tella S, Hiltunen S, Koljonen K, Butylina S, *et al.* Healthcare Workers' Experiences and Views of Using Surgical Masks and Respirators, and Their Attitudes on the Sustainability: A Semi-Structured Survey Study during COVID-19. Nurs. Rep. 2021; 11: 615–628. <https://doi.org/10.3390/nursrep11030059>
- [3] Matuschek C, Moll F, Fangerau H, Fischer JC, Zänker K, Griensven M, *et al.* Face masks: benefits and risks during the COVID-19 crisis. Eur J Med Res. 2020; 25:32. <https://doi.org/10.1186/s40001-020-00430-5>
- [4] Abdulgafar LO, Bukar AG, Abdullahi KS, Godpower CM, Umar ZA, Abubakar AM. Knowledge, attitude, and practices of patients and caregivers attending a Northern Nigerian family medicine clinic regarding the use of face mask during COVID-19 pandemic: a hospital-based cross-sectional study. Pan African Medical Journal. 2022;41(60): 1-16. [10.11604/pamj.2022.41.60.31253](https://doi.org/10.11604/pamj.2022.41.60.31253)
- [5] Nemat A, Raufi N, Sediqi MF, Rasib AR, Asady A. Knowledge, Attitudes, and Practices of Medical Students Regarding COVID-19 in Afghanistan: A Cross-Sectional Study. Risk Management and Healthcare Policy. 2021;14: 1491–1497.
- [6] Singh A, M.D.S.; Purohit BM, M.D.S.; Bhambal A, M.D.S.; Saxena S, M.D.S.; Singh A, B.D.S.; Gupta A, B.D.S. Knowledge, Attitudes, and Practice Regarding Infection Control Measures Among Dental Students in Central India, Journal of Dental Education, 2011: 75(3): 421-427.
- [7] Anambra state ministry of health, 2020a. Public health emergency operations center COVID-19 Situation Report 13th July 2020.

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- [8] Nigeria Centre for Disease Control, 2020a. COVID-19 Outbreak in Nigeria Situation Report. S/N 001. Available at: <https://covid19.ncdc.gov.ng/> (Accessed: 29th November 2020).
- [9] Nigeria Centre for Disease Control, 2020b. COVID-19 Outbreak in Nigeria Situation Report. S/N 043. Available at: https://covid19.ncdc.gov.ng (Accessed: 29th November 2020).
- [10] Alzoubi H, Alnawaiseh N, Al-Mnayyis A, Abu-Lubada M, Aqel A, Al-Shagahin H. COVID-19 - Knowledge, Attitude and Practice among Medical and Non-Medical University Students in Jordan, J. Pure Appl. Microbiol., 2020; 14(1):17-24. <https://doi.org/10.22207/JPAM.14.1.04>
- [11] Jia Y, Ma S, Bai L, Xiao Q, Wu Y, Gao Y, Han Y, Xie Z, Tang X, Ge J. Health Literacy and Disparities in Knowledge, Attitude and Practice Regarding COVID-19 Among College Students During the COVID-19 Outbreak in China: A Cross-Sectional Study. Risk Manag Healthc Policy. 2021 Nov 2; 14:4477-4488. doi: 10.2147/RMHP.S319331. PMID: 34754254; PMCID: PMC8572096.
- [12] Ejeh FE, Saidu AS, Owoicho S, Nanven AM, Jauro S, Madukaji L, Okon KO. Knowledge, attitude, and practice among healthcare workers towards COVID-19 outbreak in Nigeria, Heliyon, 2020; 6(11): e05557, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon.2020.e05557>.