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Knowledge, Attitude And Uptake Of Covid-19 Vaccine Among Healthcare Workers Of University Maiduguri Teaching Hospital,Nigeria

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Abstract

Background: The COVID-19 pandemic continues to ravage the world, with Nigeria and Borno in particular being highly affected. A vaccine provides the best hope for a permanent solution to controlling the pandemic. However, to be effective, a vaccine must be accepted and used by the healthcare workers as significant individual in the community. The objectives of the study were to assess the knowledge, attitude, and uptake of COVID-19 vaccines among healthcare workers in University of Maiduguri, teaching Hospital. Data was collected from 260 healthcare workers who were sampled using stratified sampling technique with a self-developed questionnaire. The collected data was analyzed using SPSS Version 20.0 and presented in tables and charts. The result revealed a good knowledge of COVID-19 Vaccine among respondents (58.8%) with a positive attitude towards COVID-19 Vaccination (51.9%). However, uptake was low (47.69%) which was greatly affected by fear of side effects, fear of unknown and shortage of the vaccine. In conclusion, similar study can be conducted with a large sample to generalize the findings; and the same study can be conducted in different setting.

Keywords: Attitude, COVID-19 vaccine, Health care workers, Knowledge, Uptake

The corona virus Disease (COVID-19) is a global deadly disease of public health concern which continues to affect many countries around the globe including Nigeria. It is caused by the new coronavirus strain SARS-CoV-2 which was identified in 31st December 2019 (Pal, 2020). World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic on 11 March 2020 (Cucinotta, 2020). At the time of writing (6 February 2021), this pandemic has affected 223 countries, with over 104.37 million confirmed cases and 22.71 million deaths recorded globally (WHO, 2021). The incidence is higher in the Americas (46313540 cases and 1072244 deaths) and Europe (35003091 cases and 767235 deaths) than in South East Asia (12982540 cases and 199668 deaths), Africa (2616892 cases and 64473 deaths) and the Western Pacific (1466248 cases and 25526 deaths)(WHO, 2021).

However, the COVID-19 pandemic in Nigeria is part of the worldwide pandemic of coronavirus disease 2019 ©-OVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2). The first confirmed case in Nigeria was announced on 27 February 2020, (Islam, 2020). Since then, the numbers of new cases have been rising rapidly in the country. As of 6 February 2021, the country has recorded 537465 positive cases of COVID-19 and 8182 deaths domestically. The first case of COVID-19 in Borno State was reported 51 days after the country declared an outbreak of COVID-19 disease; as at 20 April 2020, in Nigeria 665 cases have been confirmed in 25 out of 36 States, including Borno, and the Federal Capital Territory (WHO, 2020).

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Moreover, to curb this pandemic, apart from effective public health measures such as social distancing, hand washing, wearing face mask, and avoidance of crowded indoor spaces, educating the general public, efficacious vaccination is emerging as essential to mitigating disease and death (Phadke, 2016); uptake of any COVID-19 vaccine is an important challenge to address.

In a recent survey, more than one-third of lay respondents were unsure or did not intend to take the vaccine (Fisher, 2020).Clinicians are an important source of information for vaccines and – urse / physician communication can improve adherence to vaccination recommendations (Wheeler, 2013; Salmon, 2005 & Omer, 2009). Thus, the role of healthcare Corkers (HCWs) becomes particularly significant in advising patients/clients and communities, and as well as through role modeling behavior. The HCWs are prioritized among the high-risk groups who are regarded as candidates for early vaccination. As such, it is paramount to consider HCWs attitudes about COVID-19 vaccination to better tackle the barriers to widespread vaccination.

Objectives

1. To assess the knowledge of COVID-19 vaccine among healthcare workers.

2. To assess the attitude towards COVID-19 vaccine among healthcare workers.

3. To assess the level of uptake of COVID-19 vaccine among healthcare workers.

Methodology

The research design employed for the study was a Cross sectional Non-experimental descriptive survey among healthcare workers working at University of Maiduguri Teaching Hospital (UMTH), Nigeria. A stratified sampling technique was employed in obtaining representative sample from the healthcare workers working at UMTH. In order to find the sample size, the sample size, the researcher use the Taro Yamane formula. The sample size of this research was 272 respondents who will be selected from the target population which are healthcare workers working at University of Maiduguri Teaching Hospital (UMTH).

The inclusion criteria were only health care workers working at University of Maiduguri Teaching Hospital, Nigeria. Health care workers who are willing to participate in the research. Health care workers who are present during data collection. While the exclusion criteria were Health care workers who are not working at University of Maiduguri Teaching Hospital, Nigeria. Health care workers who are not willing to participate in the research. Health care workers who are not present during data collection.

Instrument for data collection

The instrument for data collection was a structured self-developed questionnaire with closed ended questions based on the research objectives. The questionnaire has five (5) sections; (I) Section A consist of socio demographic variables of the respondents, (ii) Section B consist of respondents' knowledge of COVID-19 vaccine, (iii) Section C consist of respondents' attitude towards COVID-19 Vaccination, (iv) Section D consist of respondents Uptake of COVID-19 vaccine. Validity and reliability Face and content validity technique will be done to ensure the validity of the questionnaire and the instrument will be submitted to the project supervisor to assess the relevance of the content, clarity of the statement and logical accuracy of the instrument. Corrections were made and effected before data collection. The test-re-test method involves administering one test to the same group of people on two different occasions and the two scores obtained, used to compute a correlation co-efficient, which is interpreted as an estimate of reliability. The formula for calculating reliability by Pearson is given below.

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{N\sum X2 - (\sum X)2}\ \sqrt{N\sum Y2 - (\sum Y)2}}$$

Where X refers to the frequency figure on variable X, Y is a frequency figure on variable Y and N is the number of subjects measured on both variables. The tool was found reliable (r=0.85).

Procedure for data collection and analysis

The ethical clearance was obtainedfrom the institutional research committee. For the main study, prior permission was obtained from the Director of Education and Research who introduced the researcher to the respondents.Then informed consent was solicited from the healthcare workers, there after the self-structured questionnaire in a simple language were distributed to research respondents on face to face-basis. With the aid of trained research assistants, the questionnaires were collected immediately after completion. The data collected were analyzed electronically in line with the research objectives with the aid of SPSS software (taking account of both descriptive and inferential statistics) of version 20, manufactured by IBM.

Results

Table 1: Demographic Information of the Respondents (n =260)

Variables	Frequency	Percentage (%)
Age		
18-25 years	39	15.00
26-33 years	97	35.30
34-40 years	75	28.85
>=40	49	18.85
Gender		
Male	141	54.23
Female	119	45.77

Religion		
Islam	167	64.23
Christianity	87	33.46
Others	6	2.31
Ethnicity		
Hausa	31	11.92
Kanuri	61	23.46
Fulani	29	11.15
Igbo	13	5.00
Yoruba	10	3.85
Others	116	44.62
Level of Education		
Diploma	25	9.62
Degree	181	69.62
Masters	36	13.84
Others	18	6.92
Occupation		
Nurse	153	58.85
Medical Doctor	67	25.77
Medical Laboratory Scientist	16	6.15
Radiographer	8	3.08
Physiotherapist	5	1.92
Pharmacist	11	4.23
Have you received all necessary immunization in your lifetime?		
Yes	161	61.92
No	99	38.08
Total	260	100.0

Table 1 described the demographic information of the respondents; 260 respondents.

Participated in this study, out of which 15.00% were between the ages of 18-25 years, 35.30% were between the ages of 26-33 years, 28.85% were between the ages of 34-40 years, 18.85% were >40 years, 54.23 were male respondents, 45.77% were female respondents, 36.15% were unmarried, 63.85 were married, 64.23 were Muslims, 33.46% were Christians, while 2.31% were other religions. 11.92% were Hausa, 23.46% were Kanuri, 11.15% were Fulani, 5.00% were Igbo, and 3.85% were Yoruba, while others were 44.62%. 9.62% were diploma holders, 69.62% were degree holders and 13.84% were master holders while 6.92% were others. 58.85% were nurses, 25.77% were medical doctors, 6.15% were medical laboratory scientists, 3.08% were radiographers, and 1.92% were physiotherapists while 4.23% were pharmacists. 61.92% were able to receive all necessary immunization in their lifetime while 38.08 were not, making a total number of 260 (100%) respondents.

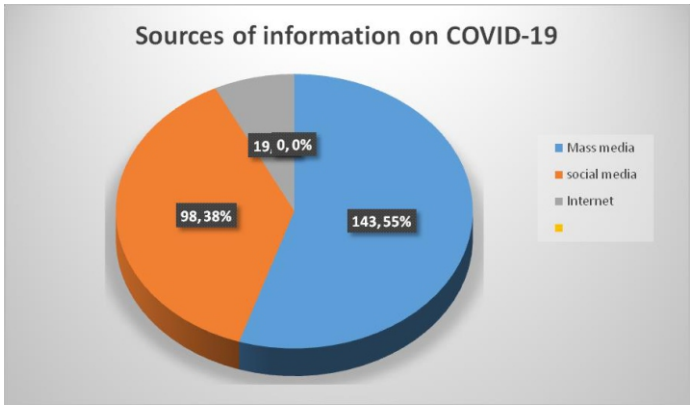
Table 2: Respondents knowledge on COVID-19 Vaccine (n=260)

S/N	Statements	Response of HCWs			
		Yes	No	Don't know	Total f(%)
1.	Do you know about the covid-19 vaccine?	200 (72.9%)	35 (13.5%)	25 (9.6%)	260 (100.0%)
2.	Do you know about the effectiveness of covid-19 vaccine?	145 (55.8%)	65 (25.0%)	50 (19.2%)	260 (100.0%)
3.	Is it dangerous to use overdose vaccine?	160 (61.5%)	30 (11.5%)	70 (26.9%)	260 (100.0%)
4.	Does vaccination increase allergic reaction?	98 (37.7%)	96 (36.9%)	66 (25.4%)	260 (100.0%)
5.	Does vaccination increase autoimmune disease?	37 (14.2%)	112 (43.1%)	111 (42.7%)	260 (100.0%)

Source: Field Survey, 2021

Table 2: above shows the response for knowledge of COVID-19 Vaccine. Majority 58.8% has good knowledge on COVID-19 vaccine while 41.2% have poor knowledge on COVID-19 Vaccine according to Reuben's scale where a score of 0-49 is poor, 50-59 is good, 60-69 is very good and 70-100 is an excellent knowledge.

Figure 1: Respondents sources of information on COVID-19 Vaccine (n=260)



Source: Source of information on COVID-19

Figure 1 above shows the respondents' sources of information on COVID-19 vaccine, 55.0% get to know about COVID-19 vaccine through mass media, 37.7% through social media, while 7.3% through internet.

Table 3: Attitude towards COVID-19 Vaccine (n=260)

S/N	Statements	Response of HCWs			
		Disagree	**Undecided**	**Agree**	**Total**
1.	To what extend do you agree that the newly discovered COVID-19 vaccines are safe?	51(19.6%)	103(39.6%)	106(40.8%)	260(100.0%)
2.	The covid-19 vaccines are essential for us?	37(14.2%)	60(23.1%)	163(62.7%)	260(100.0%)
3.	I will take the COVID-19 vaccine without any hesitation once it is available in UMTH?	45(17.3%)	112(43.1%)	103(39.6%)	260(100.0%)
4.	I will also encourage my family/friends/relatives to get vaccinated.	41(15.8%)	73(28.1%)	146(56.2%)	260(100.0%)
5.	It is not possible to reduce the incidence of COVID-19 without vaccine.	95(36.5%)	48(18.5%)	117(45.0%)	260(100.0%)
6.	The COVID-19 vaccine should be distributed fairly to all of the population. ?	33(12.7%)	52(20.0%)	175(67.3%)	260(100.0%)

Source: Field Survey, 2021

Table 3 shows the respondents attitude towards COVID-19 Vaccine. The instrument consisted of 6 statements. Using Reuben's scale, the score of 0-49 indicates poor attitude and 50-100 score is for positive attitude, therefore any score below 49% is negative attitude while a score above 50 is positive attitude. Majority of the respondents 51.9% had positive attitude while 48.1% had – egative attitude towards COVID-19 Vaccine.

Table 4: Uptake of COVID-19 Vaccine (n=260)

Response		**Yes**	**No**
S/N	**Variables**	**F (%)**	**F (%)**
1	Did you take the COVID-19 vaccine?	124 (47.7%)	136 (52.3%)
2	If yes, how many doses did you take?		
	One dose	72 (27.7%)	
	Two doses	52 (20.0%)	
3	Did you encourage your friends and families to complete the doses?	114 (43.9%)	146 (56.2%)
4.	As a healthcare worker, you should spread the information that COVID-19 is safe.	162 (62.3%)	98 (37.7%)
5.	You will convince those who have not decided to take the vaccine.	146 (56.2%)	114 (43.8%)

Source: Field Survey, 2021

Table 4 shows the respondents level of uptake of COVID-19 vaccine. In total 47.7% received the vaccine but in varying doses where 27.7% received only one dose while 20.00% received two doses and majority 52.3% did not take the vaccine 43.9% were able to encourage their families and friends to complete the doses while 56.2% were not. Majority 62.3% agreed to spread the information that COVID-19 vaccine is safe as health care worker, 37.7% disagree, 56.2% agreed to convince those who have not yet decided to take the vaccine while 43.8% disagreed.

Discussion

The aim of this study is to assess the knowledge, attitude, uptake and uptake of COVID-19 vaccine among healthcare workers in University of Maiduguri Teaching Hospital, Nigeria. Majority of the respondents are nurses 153(58.9%) and followed by medical doctors 67(25.8) who fall within the age range of 26-33. Having degree as the highest level of education attended with few others with masters. The research findings are discussed in three parts:

(1) knowledge of COVID-19 vaccine; (2) Attitude towards COVID-19 vaccine; (3) Uptake of COVID-19 vaccine.

1.Findings related to knowledge of COVID-19 vaccine among healthcare workers in University of Maiduguri Teaching Hospital, Borno State.

The findings of this study revealed that majority (58.8%) of the healthcare workers in UMTH have good knowledge on COVID-19 vaccine. This high level of knowledge on COVID-19 vaccine could be that majority of the respondents are nurses (58.9%) and medical doctors (25.8%) who might have sought information on COVID-19 vaccine, and are also educated about COVID-19 Vaccine and the HCWs major source of information on COVID-19 vaccine was mass media (n=143, 55.0%) and social media (n=98, 37. 7%).

This finding in conformity with a study conducted by Tombolomi et al (2020) on Knowledge, Attitude and disinformation regarding vaccination and immunization practices among healthcare workers. The results revealed that majority of healthcare workers possess good knowledge of COVID-19 vaccine. Therefore, the research hypothesis (H1.1) was accepted.

2.Findings related to attitude of healthcare workers towards COVID-19 vaccine in University of Maiduguri Teaching Hospital, Borno State.

The findings of this study regarding attitude of healthcare workers towards COVID-19 vaccine.

The findings revealed that majority (51.9%) of the healthcare workers in UMTH possess positive attitude towards COVID-19 vaccine. The positive attitude could be attributed to the high level of knowledge on COVID-19 vaccine. This finding is in conformity with a study carried out by Shaw et al (2021) on assessment of United State healthcare personnel attitudes towards COVID-19 vaccination in a large university healthcare system. The findings revealed that majority of the respondents (57.5%) who received COVID-19 vaccine believed that it has a positive effect on building herd immunity and protection. Therefore, the research hypothesis (H2.2) was accepted.

3.Findings related to uptake of COVID-19 vaccine among healthcare workers in University of Maiduguri Teaching Hospital, Borno State.

Out of 272 of the healthcare workers who participated in the study, the findings revealed that only (n=124, 47.7%) were able to receive the COVID-19 vaccine while more than half (n=136, 52.3%) didn't received which shows a low level of uptake among the healthcare workers. The low level of uptake could be attribute to the fear of the side effects, fear of unknown and the shortage of COVID -19 Vaccine despite the good knowledge and positive attitude. This finding is in conformity with a research conducted by Agyekum et al (2021) on acceptability of COVID-19 vaccination among healthcare workers in Ghana where out of 234 HCWs (n=92, 39.3%) of the participants indicated acceptance of COVID-19 vaccines if available while (n=142, 60.7%) indicated non-acceptance of COVID-19 vaccines if available.

The result revealed few of the healthcare workers that receive the vaccine. Therefore, the research hypothesis (H3.3) was accepted.

Conclusion

A cross-sectional non-experimental descriptive survey was conducted to assess the knowledge, attitude, uptake of COVID-19 among healthcare workers in University of Maiduguri Teaching Hospital, Nigeria using a stratified sampling technique with a structured and self-administered questionnaire. The studies revealed that the HCWs have good knowledge of COVID-19 vaccine, positive attitude towards COVID-19 vaccination with low uptake of COVID-19 vaccine among HCWs in UMTH, adverse effect, fear of unknown and shortage of COVID-19 vaccine is the major factors affecting the uptake of COVID-19 among HCWs in UMTH.

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