

Knowledge of Covid-19 Prevention and Attitude Towards Vaccination among Health Workers in Ogu/Bolo Local Government Area, Rivers State

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DOI: <https://doi.org/10.51584/IJRIAS.2023.8610>

Received: 23 February 2023; Revised: 23 March 2023; Accepted: 29 March 2023; Published: 06 July 2023

Abstract: - This is a descriptive study that assessed the knowledge of COVID-19 vaccine and attitude towards vaccination among health workers in Ogu/Bolo Local Government Area, Rivers State. The study comprised of 148 health workers in the LGA. Self-structured questionnaire used for data collection was validated and tested for internal consistency using Crombach's Alpha with reliability index of 0.82. Data for the study was generated through face to face administration of the instrument and analysed by descriptive and inferential statistics. Study revealed that all the health workers in Ogu/Bolo Local Government Area, Rivers State know that COVID-19 has preventive measures. Majority of them (95.3%) know that there is vaccine for the prevention of COVID-19. All those that know that there is vaccine for COVID-19 know about Astrar Zeneca Vaccine and a good number (63.5%) know about Moderna Spikevax, Pfizer-BioNTech Comirnaty Vaccine but lesser number (25.7%) know about Johnson and Johnson vaccine. Greater number of the health workers (66.0%) knows that the vaccine should be taken from 18 years and above. Majority of the health workers (78.0%) believe that the vaccines are effective in the prevention of COVID-19. Majority of the participants showed a positive attitude towards COVID-19 Vaccination with mean score=2.71; SD=±0.650. Study also revealed that there is a significant relationship between level of knowledge on preventive measures and attitude of health workers towards COVID-19 vaccination ($t = 17.23$; $P < 0.5\%$). The researchers concluded that continuous health education on COVID-19 and its emergence must have aided the knowledge of these health workers which should be sustained. The study recommends that health workers should be retrained periodically to sustain their knowledge and improve their attitude on the subject matter.

Keywords: knowledge, attitude, vaccination, health workers

I. Introduction

The emergence of previously unknown disease usually brings about panic and uncertainty among people especially, if such disease was classified by the World Health Organization (WHO), as deadly with wider spreading ability. This was the case of Corona Virus Disease (COVID-19). COVID-19 is a deadly disease which continues to affect many countries. This is caused by the new Corona virus strain severe acute respiratory syndrome corona virus-2 (SARS-CoV-2) which has become a serious public health concern worldwide (Pal, et al, 2020)). Corona virus disease 2019 (COVID-19) is an infectious disease which is caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) (WHO, 2021). Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) is highly transmissible and pathogenic (Hu, et al, 2021).

The WHO (2020) declared the COVID-19 outbreak as a pandemic on 11 March 2020. As at 17th February 2022, the pandemic has affected 223 countries, globally there have been 416,614,051 confirmed cases of covid-19, including 5,844,097 deaths, reported to World Health Organization. As at 15th February 2022, a total of 10,279,668,555 vaccine doses have been administered (WHO, 2022). In Africa, over 4 million COVID-19 cases have been confirmed, which represented about 3.4 percent of the infections worldwide (Safaddin, 2021).

The incidence is highest in Europe with 168,854, 487 confirmed cases and lowest in Africa with 8,264,588 confirmed cases (WHO, 2022). In Nigeria as at 18th February 2022 there was a total of 254, 137 confirmed cases recorded, 20,524 active cases, 230,472 discharged cases and 3,141 deaths recorded (NCDC, 2022). Rivers state, one of the states in Nigeria, is the fifth most affected state in the country, with over 6,867 confirmed cases and over 90 deaths (NCDC, 2021).

The COVID-19 virus is primarily transmitted through person to person contact (direct contact) through the respiratory route; when an infected person sneezes, coughs, talks or sings or breathes, there are several ways by which this mode of transmission can occur such as through respiratory droplets, aerosols, and fomite transmission. Another mode of transmission is through indirect contact with infected surfaces in the immediate environment or with an object used on an infected person (WHO, 2020).

At least a third of people who develop the disease, are asymptomatic Gilbert, et al (2020). Transmission can also occur through secondary source from human to human in close contact (Li, Guan, WU, Wang, Zhou & Tong, 2020). Contact-based surveillance may likely reduce the duration of an infected individual transmission in community. Symptoms of COVID-19 can range from mild to severe and varies from person to person. Common symptoms of the disease include cough, fever, sore throat, loss of sense of smell and taste, nasal congestion, headache, and breathing difficulties (European Center for Disease Prevention and Control (ECDC), 2023).

Worldwide, healthcare workers are at the forefront in the active containment of the spread of COVID-19, its diagnosis and management of infected patients and this puts them at a high risk of contracting the disease. The infection of healthcare workers during outbreaks has been shown to occur more frequently in healthcare facilities and involves transmission either from a patient to the healthcare worker or from a healthcare worker to another healthcare worker. Nurses while providing care are vulnerable to infection due to the maintenance of close contacts with patients, direct contacts with droplets from patients and inadequate supply of personal protective equipments (Cohen & Rodgers, 2020).

Globally several nurses have become infected while caring for COVID-19 patients. A report by the International Council of Nurses (ICN) (2021), shows that the cumulative number of COVID-19 related deaths among nurses in 59 countries is over 2,000. In Nigeria, data have shown that there have been about 2,175 infections of healthcare workers (WHO, 2020).

To reduce the increasing number of COVID-19 cases, it requires that health workers adhere to the recommended measures required in prevent the transmission including vaccination. The application of these measures may likely be influenced by the attitude of health workers towards it and the prevention practices (Albahri, et al, 2021). Currently practiced preventive measures for COVID-19 include; active surveillance, early detection, isolation and case management. At community and individual levels other preventives measures includes restricted public gatherings, social distancing, the use of face mask, regular hand washing with soap and water, use of hand sanitizers and vaccination (WHO,2020).

Since SARS-CoV-2 is a highly contagious virus and affects populations globally, vaccines seem to be most important public health measure and most effective strategy to protect the population from COVID-19. The competition for covid-19 vaccine invention and development against the spread and catastrophic effects of the disease has been ongoing (Wibawa, 2021) and new, more effective vaccines are likely to be developed as we move through the pandemic.

With the distribution of vaccines for prevention of COVID-19, it is very important to examine community acceptance of the vaccination. The novel nCoV-19 corona virus vaccine (recombinant) Covishield vaccine was introduced in Nigeria in March, 2021 with vaccination conducted by the National Primary Health Care Development Agency (NPHCDA). The vaccine was monitored for safety through enhanced passive Adverse Events Following Immunization (AEFI) surveillance at vaccination centres around the country by NAFDAC staff (NAFDAC, 2021). As at the end of March, 2021, a total of 1,119,371 people were vaccinated with a total of 1611 AEFIs reported. Of the reported AEFIs, the most common side effects were headache, fever, malaise, dizziness, pain in the arm, chills, general body pains which generally resolved within 48hours post vaccination (NAFDAC, 2021). The second dose of covishield started off late May to June, 2021 with a total of 889,128 being vaccinated so far by 19th June 2021 and a total of 284 AEFIs reported (NAFDAC, 2021).

The frontline health workers were the first to be vaccinated due to their level of exposure to infected cases. Though some are yet to be vaccinated, many who took the vaccine did so because their employers threatened to sack them; others took because they had no choice since they were already exposed. Still, many declined but preferred rather to continue with the non-pharmaceutical measures. The doubts further increased when people who took the vaccine became infected or died. According to findings by Saiful, et al, (2021), a global survey of potential COVID-19 vaccines acceptance shows that 48% of their study population were confused about the COVID-19 vaccination and remained unsure about whether they would have the vaccination. Similarly, in a Chinese study cited by Saiful, et al. (2021) only over half of their participants (54%) said that they intended to have the vaccination. This relatively low proportion of people willing to have the vaccine is worrisome despite the fact that it is effective measure of controlling the spread of the virus. In the opinion of Gilbert, et al (2020), health workers' attitude toward COVID-19 vaccines are important determinant of their own vaccine uptake and the likelihood of recommending the vaccine to others. Nevertheless, Health Care Workers (HCWs) are not a homogenous group and most are not experts in the field of vaccination.

Elechi and Ezekiel (2021) in a study found out that negative attitude towards COVID-19 vaccination were high among health workers. Dong, et al, (2020) in a web-based, cross-sectional study using convenience sampling in Libya found an adequate level of knowledge, attitude, and acceptance regarding COVID-19 vaccinations. A cross-sectional study by Yesse, et al, (2021) revealed that 74.9%, 84.2% and 68.9% prevalence of adequate knowledge, positive attitude and good practice of preventive measures respectively against COVID-19. The study also revealed that their attitude is significantly associated with their knowledge of COVID-19 vaccine. In view of the possible transmission modes, the need to be abreast with the preventive measures against COVID-19 and the attitude towards the measures to achieve this remain indispensable. A study by Hajure, et al, (2021) revealed

that about two-third of the study population demonstrated positive attitude towards COVID-19 vaccination. Verger, et al, (2021) in a cross-sectional in France found out that hesitancy in taking COVID-19 vaccine was mostly driven by vaccine safety concerns.

Concerns of people sometimes have so much to contribute in health related decisions including acceptance of vaccination. Theory of Reasoned Action (TRA), by Martin, Fishbein and Ajzen was used to support this study. Literature revealed several studies on knowledge, and attitude of health workers towards COVID-19 and the preventive measures but to the best of knowledge of the researchers, no related study has been conducted in this study area which serves majority of the population in the Local Government Area, hence this study. This study is therefore set to bridge this gap.

Statement of the Problem

In the event of devastating effect of COVID-19, the researchers observed with dismay the manner by which the health workers in Ogu/Bolo, Rivers State tend to demonstrate careless attitude towards issues revolving around COVID-19 such as the vaccination, the application of preventive measures against the disease and others. This generated question on whether these health workers are aware of the devastating effects of COVID-19, the need to prevent the spread through different measures including the use of vaccine. If they do, do they have knowledge of prevention of the disease and what attitude do they have towards the use of vaccine for the prevention of the disease. Again, the researchers observed that some of the health workers seem to have traces of fear of the vaccine which also demands the need to ascertain the knowledge they have about the prevention of COVID-19 and their attitude towards the vaccine.

Objectives of the Study

This study is aimed at assessing the knowledge of COVID-19 infection and attitude towards vaccination among health workers in selected health facilities in, Rivers State, Nigeria

1. Determine the knowledge of use of vaccine as preventive measures against COVID-19 among health workers in Ogu/Bolo, Rivers State.
2. Determine the attitude of health workers towards COVID-19 vaccination in Ogu/Bolo, Rivers State.

Hypothesis

Ho: There is no relationship between the level of knowledge of health workers in Ogu/Bolo, Rivers State on preventive measures and their attitude towards COVID-19 vaccination.

II. Materials and Methods

Study Design

Descriptive survey design was adopted for this study. This design is preferred because it helps to generate data to make inference about a population with virtually no control. Albahri, et al. (2021) applied this design in their study on the knowledge, attitude and practice regarding COVID-19 among healthcare workers in PHCs in Dubai.

Area of the Study/Setting

This research was carried out in Modern Primary and Secondary health facilities in Ogu/Bolo Local Government Area, in Rivers State. There are Modern Primary and Secondary health facilities that take care of about 80% of the inhabitants in the area. Being the major health institutions in the area, they have ever-ready workforce that serve the generality of the population.

Population for the Study

Population for the study was made up of one hundred and fifty-two (152) health workers in the institution comprising of medical doctors, nurses, pharmacists, medical laboratory scientists, and Community Health Extension Workers,.

Sample

In view of the population size, the researchers did not sample from the population but some workers who did not meet the inclusion criteria were not allowed to participate in the study.

Inclusion and Exclusion Criteria

Every health care worker in the study population who has worked for three months and above before the emergence of COVID-19 and were willing to participate in the study were included in the study, while those who have not worked for the stated period of time were excluded from the study.

Instrument for Data collection

A validated researcher-structured questionnaire that was tested for internal consistency through Cronbach’s Alpha, with reliability index of 0.82, was used for data collection. The objectives of the study and the hypothesis with in-depth literature search guided the researchers in the structuring of the instrument.

Procedure for Data Collection

Data collection was achieved through face-to-face, on-the-spot administration method. The purpose and objectives of the study were explained to the respondents before they gave their responses

The questionnaire was administered and retrieved within four weeks and the researcher ensured that information obtained from the respondents was treated with utmost confidentiality. A total of 148 copies of questionnaire were administrated, retrieved and analysed.

Method of Data Analysis

Data generated from the study were presented in tables with frequencies and percentages while descriptive and inferential statistics were applied for the analysis using Statistical Package for Social Sciences (SPSS) version 25. Hypotheses were tested using Analysis of Variance at 0.05 level of significance.

Ethical Considerations

The Permanent Secretary and the Medical Officer of Health (MOH) in Ogu/Bolo Local Government Area gave permission and approval to conduct the study. Consent was obtained from the participants and only those that were willing participated in the study. Also offensive, discriminatory or other unacceptable languages were avoided in the structuring of questionnaire.

Information from the respondents were treated with utmost confidentiality and used only for the study.

III. Results

Demographic variables of the respondents

Table 1: Socio-Demographic Characteristics of the respondents (n= 148)

Variables	Frequency	Percentage
Age (Years)		
20-29	32	21.6
30-39	61	41.2
40-49	47	31.8
50 and above	8	5.4
Sex		
Male	21	14.2
Female	127	85.8
Profession		
Nurses	3	2.0
Doctors	2	1.4
Comm. Health Ext Workers	57	38.5
Lab Technicians	14	9.5
Pharmacy Technicians	3	2.0
Health Record Officers	9	6.1
Environmental Health Officers	36	24.3
Dental Technician	6	4.1
Others	18	12.2

Table 1 shows that greater number of the health workers 61(41.2%) are within the age bracket of 30-39 years and major of the participants 127(85.8%) are females, 127(85.8%). Table 1 also shows that majority of the respondents 57(38.5%), are Community Health Extension Workers.

Table 2: Knowledge of use of vaccine as preventive measures against of COVID-19 (n =148)

Variable	Frequency	Percentage (%)
Do you know that COVID-19 can be prevented?		
a. Yes	148	100
b. No	0	0
Do you know that COVID-19 infection has a preventive vaccine?		
a. Yes	141	95.3
b. No	7	4.7
If your response to item three above is YES, which of these is/are preventive vaccines for COVID-19? (Choose as many as you know)		
a. Astra Zeneca Vaccine	141	100
b. DPT Vaccine	90	60.8
c. Moderna Spikevax	94	63.5
d. Pfizer-BioNTech Comirnaty Vaccine	94	63.5
e. HPV Vaccine	2	1.4
f. Johnson and Johnson Vaccine	38	25.7
If your response to item three above is YES, at what age can COVID-19 vaccine be taken?		
a. 5 years and below	6	4.3
b. Within 5-11 years of age	15	10.6
c. Within 12-18 years of age	27	19.1
d. 18 years of age above	93	66.0
If your response to item three is YES, do you think that these vaccines are effective?		
a. Yes	110	78.0
b. No	31	22.0
What are other preventive measures against COVID-19 you know? (choose as many as you know)		
a. Hand washing	148	100
b. Use of nose mask	148	100
c. Social distancing	141	95.3
d. Use of Personal Protective Equipment	38	25.7
e. Use of herbs	1	.7
c. No	38	25.7

Table 2 shows that majority of the respondents 148 (100%), believe that COVID-19 can be prevented. Out of this, majority 141 (95.3%) indicated that it can be prevented through vaccine. A good number 94 (63.5%) know Moderna Spikevax and Pfizer-BioNTech Comirnaty Vaccine respectively. Those that know about the vaccine had majority 97(65.5%) stating that COVID-19 vaccine can be taken within 18 years and above even as greater number 110 (78.0%) believe that vaccine can work effectively to prevent COVID-19. The respondents still pointed out other preventive measures apart from vaccine as preventive measures to COVID-19.

Majority of the respondents 93 (66.0%) said that the vaccine is better taken from 18 years and above and 110 (78.0%) believe that the vaccine is effective.

Table 3: Attitude of Health workers towards COVID-19 Vaccination

	Descriptive Statistics				N	Mean	Std. Dev.
	SD 1	D 2	A 3	SA 4			
Presenting self for vaccination is time wastage	37	44	47	20	148	2.34	1.000
All health workers should be vaccinated	3	36	69	40	148	2.99	.774
Health workers should be available to administer COVID-19 vaccination	2	6	120	20	148	3.07	.476
Health workers should promote and educate patients on COVID-19 vaccination	6	8	101	33	148	3.09	.659
COVID-19 vaccines are very effective	7	18	113	10	148	2.85	.599
The safety of the vaccine cannot be guaranteed because it was produced within a short period	4	3	124	17	148	3.04	.493
The vaccine is a biological weapon	26	84	24	14	148	2.18	.831
COVID-19 vaccination worsens any pre-existing medical condition	9	7	88	44	148	3.13	.758
Vaccination is of no benefits as it does not prevent covid-19 infection	2	2	136	8	148	3.01	.350
COVID-19 vaccine has done a lot in saving humanity from the disease	26	88	34	-	148	2.05	.637
Vaccination can infect one with disease	17	111	16	4	148	2.05	.575
Valid N (listwise)					148		

Average Mean Score=2.71; SD=±0.650

Table 3 shows elements of mixture of attitude towards COVID-19 vaccine among the respondents as seen in high mean score rates of negatively structured items in the instrument such as ‘the vaccine is a biological weapon ($\chi = 2.18; SD = \pm 0.831$). Also that presenting self for vaccination is time wastage ($\chi = 2.34; SD = \pm 1.00$) and that COVID-19 vaccination can infect one with disease ($\chi = 2.05; SD = \pm .575$). COVID-19 vaccination worsens any pre-existing medical condition ($\chi = 3.13; SD = \pm 0.758$). Despite the mixed attitude there is average mean score and SD of Average Mean Score=2.71; SD=±0.650 indicating a positive attitude towards COVID-19 vaccine.

Hypothesis

Ho: Association between the level of knowledge of COVID-19 vaccine and attitude of health workers towards the vaccination

Table 5: Analysis of variance on the association between knowledge of COVID-19 and attitude of health workers toward the vaccination

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4188.661	2	2094.330	525.534	.000 ^b
	Residual	577.846	145	3.985		
	Total	4766.507	147			

The F-value (525.5) showed that the model is fit for the regression analysis; the variable of the study such as knowledge of COVID-19 vaccine has significant influence on the attitude towards health worker’s vaccination.

IV. Discussion

Study revealed that majority of the health workers in Ogu/Bolo, Rivers State (95.3%) have knowledge of COVID-19 prevention vaccine. Majority of them know about Moderna Spikevax and Pfizer-BioNTech Comirnaty Vaccines. Majority of them (66.0%) know that the vaccine is better taken from 18 years and above and 78.0% believe that the vaccines are effective.

A previous study in Pakistan reported significant ($p > 0.05$) difference among age groups for the COVID-19 mean knowledge score (Ladiwala, et al, 2021). A study among internet users in Bangladesh reported a high mean knowledge score among age groups 30 years and above compared to other age categories. The knowledge about COVID-19 preventive measure was high.

The findings on attitudes towards health workers towards COVID-19 vaccination revealed a positive attitude towards vaccination with average mean score of 2.71; $SD = \pm 0.650$. Their attitude was not high scaled as seen in the level of mean score and responses to some items in the instrument. This notwithstanding, it could be that several trainings on COVID-19 and the sensitization on the devastating effect of the disease influenced the knowledge of the health workers on the vaccine and their attitude towards the same.

This in line with the findings of Dong, et al (2020) carried out a web-based, cross-sectional study using convenience sampling in Libya from December 1 to 18, 2020 among the general population and healthcare workers and found an adequate level of knowledge, attitude, and acceptance regarding COVID-19 vaccinations. In their study approximately, 60.6% of the study population were willing to receive the COVID-19 vaccine with an efficacy of 70% or more and 79.6% with an efficacy of 90%. According to their results, the general public in Libya had a clear understanding of COVID-19 and a favourable attitude toward it. This finding agrees with that of Shanti, et al. (2021), who indicated that their study population had a positive attitude towards.

Study also revealed that there is a significant relationship between level of knowledge of vaccine as preventive measures and attitude of health workers in Ogu/Bolo Local Government Area, of Rivers State towards COVID-19 vaccination.

Implications of findings to nursing

In view of the findings there is need to determine the possible causes of the observed indifference in the attitude of the health workers in Ogu/Bolo Local Government Area, Rivers. Several factors such as culture, religion and workplace environment may need to be explored to determine the possible role they play in their observed and expressed attitude towards COVID-19 vaccination. These will in no small measure assist in the reduction of the spread, and possible termination of the disease. The knowledge of the vaccine and the positive attitude towards the vaccination will play a great role in the rendering adequate health education to the public on the necessary measures to prevent the disease including presenting self for the vaccination.

Limitations of the study

This study was based in a smaller setting and is descriptive in nature, therefore it cannot be generalized. It was conducted at a time when majority of health workers have been educated on the disease and its prevention which might have influenced the outcome.

V. Conclusion

Assessing the knowledge and behaviour of HCWs is of crucial importance in preventing transmission as the world continues to battle the COVID-19 pandemic directly or indirectly.

Based on the findings, it can be concluded that health workers may be more willing to make themselves available to be vaccinated with COVID-19 vaccine and possibly champion the campaign for the vaccination among the citizens.

VI. Recommendations

From the findings of this study, the following recommendations were made by the researcher.

Training and retraining is recommended for continuous increase in the knowledge base of health workers on COVID-19 vaccine and its acceptance among the populace to improve the healthcare outcomes of the in the country.

The wide media coverage of information on COVID-19 by World Health Organization, Federal and State Ministry of Health in Nigeria for better control measures against the disease.

The need for more teachings on the the numerous dangers of COVID-19 vaccine and possible ways of dealing with them is very essential to reduce on the job risks associated with such infectious diseases.

Acknowledgements

The researchers acknowledge the management of the Primary Health Care Centre in Ogu/Bolo Local Government Area of Rivers State for the approval to use their staff facility for the study. We also acknowledge the researchers and authors whose works were consulted in the course of this study.

Conflict of Interest

The researchers hereby declare that the study was conducted without conflict of interest and financial benefit.

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