



Research Article

# The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic

Matthew Igwe Nwali<sup>1\*</sup>, Nneka Immaculata Nwali<sup>2</sup>, Joseph Agboeze<sup>1</sup>, John Okafor Egede<sup>1</sup>, Peace Chinyere Igwe<sup>1</sup>, Nelson Uchenna Nwedu<sup>1</sup>, Nnabugwu Alfred Adiele<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynaecology, Alex Ekwueme Federal University teaching Hospital Abakaliki, Ebonyi State, Nigeria

<sup>2</sup>Department of Public Health, Ebonyi State Ministry of Health, Abakaliki, Ebonyi State, Nigeria

\*Corresponding author: Nwali Matthew Igwe, Department of Obstetrics and Gynaecology, Alex Ekwueme Federal University teaching Hospital, PMB 102, Abakaliki, Ebonyi State 480001, Nigeria

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. J Community Med Public Health 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

**Received Date:** 17 September, 2023; **Accepted Date:** 29 September, 2023; **Published Date:** 06 October, 2023

## Abstract

**Background:** Abakaliki metropolis is inhabited by mainly civil servants, some famers, artisans and traders. **Aim:** The study is to ascertain their behavior and acceptance of vaccination against COVID-19 pandemic. To find out the precautionary measures taken during the pandemic, number infected and the acceptance of vaccine and the reason for non-acceptance for those that did not accept the vaccine. **Methods:** A questionnaire/data sheet was developed for the study. Information on sociodemographic characteristics, behaviors in terms of spread and prevention as well as vaccination were obtained. The study details were explained to the clients and only those that signed informed consent were recruited. The data were fed into the computer using SPSS version 25, Illinois USA and analysis done. **Results:** Four hundred and twenty-two persons were recruited. The mean age of 34±10.6 and ranged between 16 to 74years. There was high knowledge of COVID 19 existence in the group but with very poor knowledge of spread 19.6% and preventive measures 21.4%. Awareness of availability of vaccine was also high 92.3% but the uptake was low 21.4%. Fear of side effect was the major reason for the low uptake. Some also believe vaccine is a scam. Most of the vaccinated ones received just a dose. Some of the respondents had COVID 19 but survived. **Conclusion:** The knowledge of the existence of the disease in the population studied was high but the knowledge of spread and prevention was very low including very low uptake of vaccines against the pandemic.

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. *J Community Med Public Health* 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

**Keywords:** COVID 19; Behavior; Vaccine acceptance; Vaccination

## Introduction

The outbreak of coronavirus started in Wuhan, China on December 8<sup>th</sup> 2019 but the first report to the World Health Organization (WHO) was on 31<sup>st</sup> December 2019 [1]. The causative organism “Severe Acute Respiratory Syndrome Coronavirus 2 (SARS Cov-2) was later referred to as Coronavirus disease 2019 (COVID-19). The acronym COVID-19 was used to avoid stigmatization in the population [2]. From there the disease spread to other countries of the world. On January 30<sup>th</sup> 2020, the WHO declared the disease a public health emergency of international concern and rolled out measures to slow down the disease transmission [3]. On March 1<sup>st</sup> 2020, the disease was declared a pandemic and by WHO. By June 7<sup>th</sup> the same year there was 7 million cases globally [4]. As at 26<sup>th</sup> of April 2023, the WHO reported 764,474,387 confirmed cases with 6,915,286 deaths [5].

Nigeria reported the first case by Nigerian Center for Disease Control (NCDC) on the 27<sup>th</sup> of February 2020 on an Italian traveler. It then spread across the country mostly imported by travelers and returnees, affected mostly people aged 31-50 years and males more than females [6]. NCDC on April 27<sup>th</sup> 2023 reported confirmed cases of 266,665, active cases 3,559, discharged cases 259,951 and number of deaths 3,155 [7].

Ebonyi State Governor on April 26<sup>th</sup> 2020 announced the first case in the state. The disease then spread fast in the state mostly carried by returnees. The interstate restriction of movement at the borders by security personnel was undermined by allowing free movement at night. Others took alternative routes into the state [8]. The state recorded 2,064 confirmed cases, 28 cases on admission, 2,004 discharged and 32 deaths by April 27<sup>th</sup>, 2023 [7]. Precautionary measures were relied upon to prevent the spread as there was no cure yet. Measures like frequent hand wash with soap and water, use of hand sanitizers, social distancing were introduced and wearing of face mask, Quarantine of infected or suspected cases. In Nigeria, including Abakaliki, Ebonyi state, the existing facilities/equipment including ventilators and Personal Protective Equipment (PPE) were grossly inadequate to handle the medical emergency due to COVID-19 which affected the health care workers coping strategies and resilience during the pandemic [9]. Adherence to Infection Prevention and Control (IPC) were influenced by institutional and personal factors. Government and health administrators were required to ensure availability and adherence to IPC resources and measures in order to curb the spread [10]. Among the populace, many did not believe the protective measures will work hence did not observe them. The residents of Abakaliki metropolis were forced to use face masks but only very

few used it correctly. Many used porous materials, some put their face mask around their neck leaving the mouth and nose open. Social distancing was also not strictly adhered to especially in the Banks and other public places. This made the government to close down churches and markets which brought so much hardship on the people. Because of the contagious nature of the disease more drastic measures were put in place to curb the spread. Total and or partial lockdown was enforced in many countries and states, boarder closure, travel as well as social gathering ban [11]. This restriction brought untoward hardship on the socio-economic life of the people. This confinement had significant impact on family life, especially on men and urban dwellers. It created hysteria especially among adults which may require some interventional program like psychosocial healthcare services among adults against future epidemic [12,13]. There was disruption in medical supply, blood transfusion services, diagnosis and management of diseases, people’s livelihood, health and food systems [14-18].

Vaccine was rapidly developed. Nigeria received a total of 3.94 million doses of vaccine in March 2021. Vaccination however faced the challenges of non-acceptance hence coverage remained low in the country. There was general hesitancy to and negative perception on vaccine uptake with some ‘NO VACCINE’ advocates believing that it is unwholesome and tool of the government to have control over the masses [19-21]. Global vaccination reported by WHO as at 24<sup>th</sup> April 2023 was 13,325,228,015 and total vaccination for Nigeria was 116,606,863 as at 19<sup>th</sup> March 2023 [5]. Ebonyi State government received a delivery of 46,088 of Moderna and 10,616 doses of AstraZeneca COVID 19 vaccines. Mass immunization campaign was kicked off in Ebonyi state and set a target of 1,500,000 people on 21<sup>st</sup> December 2021.

Most of the stringent measures against the transmission of this disease have been relaxed by most government irrespective of the fact that there is still sporadic diagnosis of this disease in many countries including Nigeria. This study is therefore set out to ascertain the behavior, knowledge of the existence of the disease, observance of safety precautions, availability, acceptability of vaccines among the Abakaliki metropolis dwellers in Ebonyi State, Southeast Nigeria.

## Materials and Method

This is a cross-sectional prospective study conducted in Abakaliki metropolis, the capital city of Ebonyi state in June 2023. The study population comprised of consecutive recruitment of participants in Abakaliki metropolis. An open-ended questionnaire was administered to them. Socio-demographic information including the age, occupation, educational status, parity, religion and marital status were obtained. The details of behavior, knowledge of existence, spread, precautionary measures and vaccination were recorded.

The participants that do not practice precautionary measures or did it wrongly were adequately counseled on the importance while those that used it wrongly were thought the correct way to use them as this will also help in the control of other infections prevalent in the state like Lassa Fever.

The population of Abakaliki metropolis was 134,102 according to World Population Review 2020. According to Singh and Masuki (2014), the sample size of 400 is adequate for a population above 100,000 hence the sample size was fixed at 400 respondents.

The data was recorded in the data sheet and the coded data were fed into the computer using SPSS program version 25

of Illinois USA and analysis done. A P value less than 0.05 was considered significant.

## Results

Four hundred and twenty-two respondents 166 (44.1%) males and 236 (55.9%) females who consented were recruited. Mean age of the 34.4 (10.6) and ranged between 16yrs to 74 years. The highest age group was 30-39years (38.6%) followed by those aged 2-29 years (37.7%). The median parity for the female respondents was 2.0 (2.0) and ranged between 0 – 7. Majority were civil servants (29.6%) followed by traders (24.6%). Most (98.3%) were Christians while 73.7% had tertiary education (Table 1).

Socio-demographic Variables	Respondents (n=422)	Percentage (%)
<b>Age (years)</b>		
<20	15	3.6
20-29	159	37.7
30-39	163	38.6
40-49	49	11.6
≥50	36	8.5
Mean ±SD (Range)	34.4±10.6 (16-74)	
<b>Gender</b>		
Male	166	44.1
Female	236	55.9
<b>Parity (n=236)</b>		
0	39	16.5
1-4	178	75.4
≥5	19	8.1
Median ±SD (Range)	2.0±2 (0-7)	
<b>Marital status</b>		
Single	64	44.1
Married	236	55.9
<b>Occupation</b>		
Health workers	26	6.2
Farmer	21	5.0
Students	55	13.0
Teacher	33	7.8
Civil/ Public Servant	125	29.6
Trading	104	24.6
Self-employed	46	10.9
Others	37	8.8
<b>Religion</b>		
Christian	415	98.3
Muslim	7	1.7
<b>Level of Education</b>		
Primary education	17	4.0
Secondary education	94	22.3
Tertiary education	311	73.7

**Table 1:** Socio-demographic characteristics of respondents.

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. *J Community Med Public Health* 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

Knowledge of the disease existence was high (98.1%) and 69.1% of the respondents believe the disease still exists while 30.9% believe the disease no longer exists, however 8 (1.9%) respondents were not aware of the existence of the pandemic (Table 2). There was very poor knowledge (19.6%) of how the disease is spread among the respondents (Table 3).

COVID-19 knowledge	Respondents (n=422)	Percentage (%)
<b>Do you know of the disease called COVID-19</b>		
No	8	1.9
Yes	414	98.1
<b>Does it still exist (n=414)</b>		
No	128	30.9
Yes	286	69.1

**Table 2:** Knowledge of COVID-19.

Spread of COVID-19	Respondents (n=414)	Percentage (%)
<b>How does it spread?*</b>		
By air droplets	231	55.8
Close contact with infected person	272	65.7
Contact with corpse of a person killed by the disease	216	52.2
Contact with body fluid of infected person	264	63.8
Hand shake with the infected person	229	55.3
<b>Knowledge of the spread</b>		
Poor	333	80.4
Good	81	19.6
**Multiple responses allowed		

**Table 3:** Knowledge of spread.

Majority (98.3%) knew that the disease can be prevented but there was very poor knowledge of preventive measures among them (21.4%) (Table 4). Majority (92.6%) agreed that the preventive measures were strictly observed during the pandemic. The preventive measures mainly practiced now is frequent hand wash/hand sanitizers (82.5%) and use of face mask (59.4%). About 13.2% of the respondents no longer practice any of the preventive measures (Table 5).

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. J Community Med Public Health 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

Prevention of COVID-19	Respondents (n=414)	Percentage (%)
<b>Can it be prevented</b>		
No	7	1.7
Yes	407	98.3
<b>Preventive measures used (n=407)**</b>		
Frequent hand was with soap and water and or use of hand sanitizer	347	82.3
Social distancing	294	72.2
No body contact including hand shake	220	54.1
Stoppage of social gathering	213	52.3
Use of face masks	300	73.7
Safe burial methods	203	49.9
Quarantine of diagnosed/suspected cases	240	59.0
Border closures/travel ban	170	41.8
Partial or total lockdown	184	45.2
Vaccination	260	63.9
<b>Knowledge of prevention</b>		
Poor	320	78.6
Good	87	21.4
**Multiple responses allowed		

**Table 4:** Knowledge of prevention.

Preventive Measures of COVID-19 in Practice	Respondents (n=407)	Percentage (%)
<b>Were the preventive measures strictly observed during the pandemics?</b>		
Yes	377	92.6
No	30	7.4
<b>Which of the preventive measures do you still practice now**</b>		
Frequent hand was with soap and water and or use of hand sanitizer	311	82.5
Social distancing	76	20.2
No body contact including hand shake	44	11.7
Use of face masks	224	59.4
Safe burial methods	40	10.6
Quarantine of diagnosed/suspected cases	64	17.0
Vaccination	136	36.1
None	50	13.2
**Multiple responses allowed		

**Table 5:** Preventive measures in practice now.

Majority (92.3%) were aware of availability of vaccine but only 101 (24.4%) were vaccinated. A good number of those vaccinated, had only one dose giving development of side effects and unavailability of the vaccine as the reason for not continuing. The major reason for not getting vaccinated was fear of side effect (25.8%) though 27.5% of the respondents did not give any reason. Some believed that vaccine was a scam by government (5.8%). Only 11.2% of the respondents completed the required number of doses. Fifteen (3.6%) of the respondents were infected with COVID 19 disease, 7 of them had self- isolation in their houses, 5 were managed in the government isolation/treatment center while the remaining 3 were managed in the tertiary hospital isolation area (Table 6).

Vaccination	Respondents (n=414)	Percentage (%)
<b>Are you aware of COVID-19 vaccine</b>		
No	32	7.7
Yes	382	92.3
<b>Have you been vaccinated</b>		
No	313	75.6
Yes	101	24.4
<b>How many doses did you receive? (n=101)</b>		
Once	36	35.6
Twice	30	29.7
Thrice	35	34.7
<b>Reasons given</b>		
Vaccine not available	34	8.2
Developed side effects	15	3.6
Afraid of side effects	107	25.8
Does not want vaccine	74	17.9
Vaccine is a scam by government	24	5.8
Completed	46	11.2
No reason	114	27.5
<b>Where were you vaccinated? (n=101)</b>		
Hospital	50	49.5
Health centre	51	50.5
<b>Did you see anyone that developed side effect after taking the vaccine?</b>		
Yes	26	6.3
No	388	93.7
<b>Have you seen anyone that died of COVID-19?</b>		
Yes	64	15.5
No	350	84.5
<b>Were you infected with COVID-19?</b>		
Yes	15	3.6
No	399	96.4
<b>Where were you treated or managed? (n=15)</b>		
Self-isolation	5	33.3
Isolation/Treatment center	7	46.7
Hospital	3	20.0

**Table 6:** Vaccination and COVID infection among the respondents.

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. J Community Med Public Health 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

There was strong correlation between knowledge of spread and age ( $\chi^2 = 17.150$ ,  $P_v = 0.001$ ), Gender ( $\chi^2 = 12.904$ ,  $P_v = 0.001$ ), Occupation ( $\chi^2 = 25.801$ ,  $P_v = 0.001$ ) and educational level ( $\chi^2 = 10.503$ ,  $P_v = 0.005$ ) (Table 7).

Socio-demographic Variables	Knowledge of Spread		$\chi^2$	P-value
	Poor	Good		
<b>Age group</b>				
<20	13 (100.0)	0 (0.0)	17.150*	0.001
20-29	136(86.1)	22(13.9)		
30-39	131(80.9)	31(19.1)		
40-49	32 (66.7)	16(33.3)		
$\geq 50$	21(63.6)	12(36.4)		
<b>Gender</b>				
Male	132(72.5)	50(27.5)	12.904	0.001
Female	201(86.6)	31(13.4)		
<b>Parity</b>				
0	32 (88.9)	4 (11.1)	0.357*	0.889
1-4	153(86.4)	24(13.6)		
>4	16 (84.2)	3 (15.8)		
<b>Marital Status</b>				
Single	49 (80.3)	12 (19.7)	0.001	0.982
Married	284(80.5)	69(19.5)		
<b>Occupation</b>				
Health workers	15(60.0)	10(40.0)	25.801	<0.001
Farmer	13(76.5)	4 (23.5)		
Students	48(88.9)	6 (11.1)		
Teacher	28(84.8)	5 (15.2)		
Civil/ Public servant	88(70.4)	37(29.6)		
Trader	90(87.4)	13(12.6)		
Self employed	42(93.3)	3 (6.7)		
Others	9 (75.0)	3(25.0)		
<b>Level of Education</b>				
Primary education	7 (63.6)	4(36.4)	10.503	0.005
Secondary education	85 (91.4)	8 (8.6)		
Tertiary education	241(77.7)	69(22.3)		
*Fisher's exact test used				

**Table 7:** Relationship between the socio-demographic variables and the level of knowledge of spread of COVID-19.

Knowledge of prevention was also significantly related to age ( $\chi^2 = 17.038$ ,  $P_v = 0.001$ ), Gender ( $\chi^2 = 12.560$ ,  $P_v = 0.001$ ), Occupation ( $\chi^2 = 33.942$ ,  $P_v = 0.001$ ) and educational level ( $\chi^2 = 18.821$ ,  $P_v = 0.005$ ) (Table 8).

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. J Community Med Public Health 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

Socio-demographic Variables	Knowledge of the Prevention		$\chi^2$	P-value
	Poor	Good		
<b>Age group</b>				
<20	13 (100.0)	0 (0.0)	17.038*	<0.001
20-29	134(84.8)	24(15.2)		
30-39	130(80.2)	32(19.8)		
40-49	26 (54.2)	22(45.8)		
≥50	23(69.7)	10(30.3)		
<b>Gender</b>				
Male	126(69.2)	56(30.8)	17.560	<0.001
Female	200(86.2)	32(13.8)		
<b>Parity</b>				
0	32 (88.9)	4 (11.1)	0.293*	0.893
1-4	151(85.3)	26(14.7)		
>4	17 (89.5)	2 (10.2)		
<b>Marital status</b>				
Single	44 (72.1)	17(27.9)	1.869	0.172
Married	282(79.9)	71(20.1)		
<b>Occupation</b>				
Health workers	14(56.0)	11(44.0)	33.942	<0.001
Farmer	15(88.2)	2 (11.8)		
Students	47(87.0)	7 (13.0)		
Teacher	27(81.8)	6 (18.2)		
Civil/ Public servant	82(65.6)	43(34.4)		
Trader	93(90.3)	10 (9.7)		
Self employed	39(86.7)	6 (13.3)		
Others	9 (75.0)	3 (25.0)		
<b>Level of education</b>				
Primary education	7 (63.6)	4(36.4)	18.821	<0.001
Secondary education	88 (94.6)	5 (5.4)		
Tertiary education	231(74.5)	79(25.5)		
*Fisher's exact test used				

**Table 8:** Relationship between the socio-demographic variables and the level of knowledge of prevention of COVID-19.

There was weak correlation between COVID 19 infection with sex, men being more affected than women but this was not statistically significant ( $\chi^2 = 1.704$ ,  $P_v = 0.792$ ) (Table 9).



Gender	Were you infected with COVID-19		$\chi^2$	P-value
	Yes	No		
Male	9 (5.1)	168(94.9)	1.704	0.192
Female	6 (2.6)	223(97.4)		

**Table 9:** Relationship between infection with COVID-19 and gender.

## Discussion

There was high knowledge of COVID-19 disease among the respondents 414/422 (98.1%). This may be as a result of high level of health education, advocacy, sensitization about the disease and its case fatality rate. There was a lot of public advocacy and talks using the mass media, radio/television, the print media as well as the social media and visitation to the villages, churches schools by health personnel. A previous study among pregnant women in the tertiary hospital also reported high knowledge [22]. Many of the respondents 128/414 (30.9%) believe the disease does not exist any longer. This may be due to reduction in awareness creation, advocacy and means of information to educate the people. Apart from that, most government had relaxed most of the strict measure like border closure and travel ban, Ban of social gathering and market closure. There is also a marked reduction in screening/ testing, contact tracing, diagnosis and quarantine of diagnosed or suspected cases. The government had also closed the isolation/ treatment centers. The last confirmed case in the state was on 20<sup>th</sup> of September, 2022 while the last suspected case was on the 20<sup>th</sup> of April, 2023. (Information from the Virology Center, Abakaliki, Ebonyi State). This may not mean non-existence of the disease but shows markedly reduced testing and contact tracing. It may also mean that new variant of the disease may not be easily detected by the available kit. The development and use of vaccines may also have contributed to their opinion of none existence of the disease anymore. However, 69.1% still believe that the disease still exists.

Majority knew that the disease can easily spread from one person to another but the knowledge of spread is very poor. About 80.4% has poor knowledge of spread. This may be as a result of the method we used where anyone that does not know one or more out of the methods of spread is classified as poor knowledge. Only 19.6% had good knowledge of spread of the disease. There was strong correlation between age, gender, occupation and level of education and knowledge of spread. Marital status and parity do not have any significant correlation to knowledge of spread. This

may be due to the fact that those at the extreme of ages used in the study are less likely to use the media both audio/visual print and social media for information. The men are more likely to go for outing hence may get more information than the ladies in our setting. Occupation played a role because the civil servants are more likely to leave and work in the city where there is easier access to information than the farmers in the villages and some health workers also participated in the study. The more educated ones are more likely to have access to information hence will know more about the spread of the disease.

Majority 98.3% knew that the disease can be prevented but knowledge of prevention was poor as 78.6% had poor knowledge using the method of all or none as explained above. Many (92.6%) said that the preventive measures were strictly observed during the pandemic. This was also noted in a previous study, 8 in the state. Most of the preventive measures still practiced by some include; frequent hand wash with soap and water/hand sanitizers (82.5%), followed by face mask (59.4%) and thirdly vaccination (36.1%). About 13.2% of the respondents do not use any preventive measure any longer. There was strong correlation between age, gender, occupation and level of education and knowledge of prevention. Marital status and parity do not have any significant correlation to knowledge of prevention. The reasons may be the same as outlined above about of spread.

Majority were aware of availability of vaccine against the disease (92.3%) but vaccine uptake was low (24.4%). Among those that took the vaccine, majority only took once. The reasons for this poor uptake were; fear of or development of side effects (29.4%), though about 27.5% did not give any reason. About 11.2% however completed the required number of doses while 5.8% claimed that vaccine is a scam by government. These challenges about the vaccines had been reported in previous studies [19-21]. Most of the reported side effects were fever, pain at injection site, headache, muscle ache, fatigue, nausea, diarrhea and chills. There was no report of allergic reaction among the group but some

**Citation:** Nwali MI, Nwali NI, Agboeze J, Egede JO, Igwe PC, et al. (2023) The Behavior and Acceptance of Vaccination against Covid 19 among the Inhabitants of Abakaliki Metropolis, Ebonyi State Southeast Nigeria, Four Years on of the Pandemic. *J Community Med Public Health* 7: 372. DOI: <https://doi.org/10.29011/2577-2228.100372>

reported death of some even after taking the vaccine, though the cause of death was not known.

Fifteen (3.6%) of the respondents were survivors of COVID 19 disease. 5 of them had self - isolation in their houses while 7 of them were managed in the government isolation/treatment center and 3 were treated in the tertiary hospital isolation area. The people that had self-isolation did not like the crowd at the treatment center and also had a comfortable separate room in their compound where they were isolated.

The study also showed weak correlation with gender with men more likely to be infected than the female as was shown in previous study<sup>6</sup> but the difference is not statistically significant.

### Conclusion

The knowledge of the existence of the disease in the population studied was high but the knowledge of spread and prevention was very low including very low uptake of vaccines against the pandemic.

### Ethical Issue

The research and ethics committee of Alex Ekwueme Federal University Teaching Hospital approved the study protocol, purpose and methods of the study were explained to the participants in details and informed consent obtained prior to recruiting them into the study and given the option to opt out at any time if they do not wish to continue. Confidentiality was ensured. The exclusion criteria were those that refused consent.

### Acknowledgement

We are deeply grateful to the research and ethics committee of the Alex Ekwueme Federal University Teaching Hospital, Abakaliki for approving this study protocol. We also express our profound gratitude to our research assistants who helped us in data collection.

### References

1. World Health Organization (2020) Novel Coronavirus (2019-nCoV) Situation Report-1. 21 January 2020. Geneva, Switzerland: WHO Bulletin; p. 1-7.
2. World Health Organization (2020) Naming the Coronavirus Disease (COVID-19) and the Virus that Causes It.
3. World Health Organization (2020) Rolling Updates on Coronavirus Disease (COVID-19).
4. World Health Organization (2020) WHO Director-General's Opening Remarks at the Media Briefing on COVID 19 – 11 March 2020.
5. World Health Organization COVID-19 Dashboard, WHO, Geneva.
6. Okoroiwu HU, Uchendu IK, Ogar CO, Okafor IM (2020) COVID-19 in Nigeria: situation update and combative measures taken by the government. *Germs* 10: 274-278.
7. Nigerian Center for Disease Control.
8. Azuogu BN, Onah CK, Ogah EO, Utulor CA, Iyare O, et al. (2021) Containing COVID-19 in Nigeria: An appraisal of lockdown and surveillance at inter-state borders to control disease spread. *Niger J Med* 30: 293-299.
9. Lukong AMY, Jafaru Y (2021) Healthcare Workers Demographic Variables and relationship with Covid-19 Pandemic Challenges, Coping Strategies and Resilience in a State in Northern Nigeria. *IOSR Journal of Nursing and Health Science* 10: 29-36.
10. Mohammed A, Abubakar JD, Danimoh MA, Kwami AM, Bile N, et al. (2021) Barriers and Facilitators of Health Care Workers Adherence to IPC Measures during Covid-19 Pandemic in Gombe LGA, Gombe State, Nigeria: A Qualitative Assessment. *IOSR Journal of Dental and Medical Sciences* 20: 40-45.
11. Iorfa SK, Ottu IFA, Oguntayo R, Ayandele O, Kolawole SO, et al. (2020) COVID-19 Knowledge, Risk Perception, and Precautionary Behavior among Nigerians: A Moderated Mediation Approach. *Front Psychol* 11: 566773.
12. Obande-Ogbuinya NE, Ohuruogu BN, Omaka-Omari LN, David EI, Afoke EN, et al. (2022) Assessment of the Psychosocial Effect of Covid-19 Among Adults in Ebonyi State During the Outbreak of the Pandemic in Nigeria. *Int J Collab Res Intern Med Public Health* 14: 001-005.
13. Okafor UG, Olalaye MA, Asobara HC, Umeodinka EF (2021) Global impact of COVID-19 pandemic on public health supply chains. *IntechOpen*.
14. Ogar CO, Okoroiwu HU, Obeagu EI, Etura JE, Abunimye DA (2021) Assessment of blood supply and usage pre- and during COVID-19 pandemic: a lesson from non-voluntary donation. *Transfus Clin Biol* 28: 68-72.
15. Okoroiwu HU, Okafor IM, Asemota EA, Ogar CO, Uchenna IK (2021) Coping with COVID-19 pandemic in blood transfusion services in West Africa: the need to re-strategize. *Hematol Transfus Cell Ther* 43: 119-125.
16. Pley CM, McNaughton AL, Matthews PC, Lourenço J (2021) The global impact of COVID-19 pandemic on the prevention, diagnosis and treatment of hepatitis B virus (HBV) infection. *BMJ Glob Health* 6: e004275.
17. World Health Organization (2020) Impact of COVID-19 on people's livelihoods, their health and our food systems: Joint statement by ILO, FAO, IFAD and WHO.
18. World Health Organization (2021) COVID-19 vaccines shipped by COVAX arrived Nigeria.
19. Enitan SS, Oyekale OA, Akele RY, Olawuyi KA, Olabisi EO, et al. (2020) Assessment of knowledge, perception and readiness to participate in COVID-19 vaccine trial. *Int J Vaccine Immun* 4: 1-13.
20. Eniade OD, Olarinmoye A, Otovwe A, Akintunde FE, Okedare OO, et al. (2021) Willingness to accept COVID-19 vaccine and its determinants among Nigerian citizens: a web based cross sectional study. *J Adv Med Res* 33: 13-22.
21. Anikwe CC, Ogah CO, Anikwe IH, Okoro-chukwu BC, Ikeoha CC (2020) Coronavirus disease 2019: Knowledge, attitude, and practice of pregnant women in a tertiary hospital in Abakaliki, southeast Nigeria. *Int J Gynaecol Obstet* 151: 197-202.