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Knowledge, Perception and Acceptance of COVID-19 Vaccination among Healthcare Personnel in Osun State University Teaching Hospital Osogbo, Osun State

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Abstract

Background: The global COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, has led to an economic shutdown and wreaked unprecedented havoc on health systems worldwide. Despite the Utilisation of vaccines as part of the aggressive efforts to curb its spread, limitations in the acceptance of vaccines, and the mindset of people about its efficacy, safety and are yet to be answered among health personnel. This study aimed to comprehensively assess the knowledge, perception, and acceptance of COVID-19 vaccination among healthcare professionals in Osun State University Teaching Hospital, Osogbo, Nigeria. **Methods:** A descriptive cross-sectional survey was conducted and the sample size comprised 124 healthcare workers. A structured questionnaire was used for data collection and data collected was analyzed using descriptive statistics of frequency and percentage while inferential statistics of chi-square was used for stated hypotheses at 0.05 level of significance. **Results:** The findings revealed a high level of knowledge 63 (51.0%), poor perception 69 (56.0%), and acceptance of COVID-19 vaccination 84 (67.7%). However, a very low number of 33 (26.6%) proportions had been vaccinated with the COVID-19 vaccine. The findings further showed a statistically significant relationship between knowledge ($x^2 = 23.731$; df = 1; p-value = 0.000), perception ($x^2 = 6.796$; df = 1; p-value = 0.009), and acceptance of COVID-19 vaccination at a 0.05 level of significance. Factors such as the genuineness of the vaccine 112 (90.3%), fear of getting infected with COVID-19 109 (87.9%) and death, uncertainty of the effectiveness of the vaccine 121 (97.6%), as well as untoward information on social media about the vaccine 106 (85.5%). **Conclusion:** The study concluded that there is a high level of knowledge about COVID-19 vaccination and, an increased rate of acceptance but there was a poor perception of the vaccination among the respondents. Therefore, there is a need to address concerns and foster vaccine confidence among healthcare professionals, which is essential to achieving extensive vaccination coverage and ultimately aiding in the global fight against the COVID-19 pandemic.

Keywords: COVID-19, SARS-CoV-2, Vaccination, Healthcare Personnel, Knowledge, Perception, Acceptance
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Introduction

Beyond imagination, the novel coronavirus SARS-CoV-2 that produced the COVID-19 pandemic has had an unprecedented effect on society and public health around the world, by impacting millions of lives and livelihoods

(WHO), 2020). The world has witnessed a dramatic reduction in the number of her health workforce ever since the battle against the highly contagious and potentially fatal virus's appearance in late 2019. According to Lovelace (2020), the WHO declared a global shortfall of 5.9 nurses during the COVID-19 pandemic. During this battle, healthcare systems and experts have been on the front lines, providing cutting-edge research to curb its spread and delivering care, with more emphasis on putting in place preventive measures (Smith *et al*., 2020).

The consistent efforts of health providers to mitigate the spread of the virus have led to the discovery of safety measures like the use of nose masks, social detachment, and extensive testing, which were recorded as parts of the ongoing efforts to slow the spread of the illness (Deressa *et al*., 2021). Nevertheless, vaccination is still a vital weapon in the war against the pandemic. It has been demonstrated that immunization against COVID-19 is successful in preventing the severity of symptoms, hospitalization, and fatalities associated with the illness. According to Dhama *et al* (2021), the COVID-19 vaccine has been proven to be efficacious in preventing the spread of the disease by 70-95%.

Evidence revealed that several vaccines were developed, and subsequently approved by the WHO, many of which generated some controversies regarding their efficacy and safety of human life. For instance, Pfizer, Moderna, Astra-Zeneca, and Pomezia were developed globally to achieve herd immunity widely and were widely accepted worldwide (Mascellino et.al, 2021; WHO, 2023). However, some of these vaccines present challenges that oppose their effective uptake among various population groups such as the report of thrombosis with thrombocytopenia that mostly occurs in the first three to thirty days after vaccination with the AstraZeneca and Janssen vaccines (WHO, 2023). Aside from the associated side effects of these vaccines, some people hold a personal view regarding the uptake of the vaccine. According to Adedeji-Adenola, *et al*. (2022), most Nigerians' perceptions have been negatively impacted by myths and beliefs, making it difficult for them to accept the COVID-19 vaccination. Several people and organizations continue to oppose the use of vaccines despite the widespread availability of vaccines and the enormous success achieved in the control of the disease.

A significant proportion of the population, including members of the health profession, are expected to receive vaccinations to build herd immunity and put an end to the pandemic (Williams *et al*., 2020). Additionally to being crucial in handling COVID-19 cases, healthcare professionals, including doctors, nurses, pharmacists, laboratory technicians, administrative staff, and numerous other professions, also have a position of trust and influence within their communities (Al-Alawi *et al*., 2019). However, according to Raimi *et al*. (2021), vaccine hesitancy has been a global obstacle to effective actualization in curbing the spread of COVID-19 in most health institutions. Given that the success of vaccination initiatives is in jeopardy due to the growth in vaccine reluctance and false information (Dhama *et al*., 2021). Accurate information regarding COVID-19 vaccinations can be promoted and misinformation addressed by better understanding the knowledge and perceptions of healthcare personnel who are directly involved in patients' care regarding the uptake of COVID-19 vaccine. Therefore this study aimed to assess the knowledge, perception, and acceptance of COVID-19 vaccination among Healthcare personnel in Osun State University Teaching Hospital Osogbo, Osun State.

Methodology

Study Design

A descriptive cross-sectional research design was adopted for the study. The study was conducted among healthcare providers at Osun State University, Teaching Hospital, Osogbo, Nigeria between May and June 2021. Osun State University Teaching Hospital is a

State-owned tertiary health institution in Nigeria with approximately 12 units, over 300 bedded wards and 1100 staff. The hospital serves as a referral centre for other neighbouring hospitals, especially primary health centres and private hospitals.

Sample and Sampling Technique

The sample size for the study was calculated using the Taro Yamane formula $n = N/1+N(e)^2$ where N is the total population (180); e is; the level of precision (0.05) and the value obtained was 124 healthcare professionals including nurses, medical doctors, pharmacists, medical laboratory scientist, physiotherapists and occupational therapist in Osun State University Teaching Hospital, Osogbo. Proportionate sampling technique was used to select healthcare providers based on the population in each profession while convenience sampling technique was used for selection of the participants that were available during the time of data collection.

Instrument for Data Collection

A structured questionnaire was used for the study which consisted of five sections viz: Section A: elicited information on demographic data of the respondents; Section B was on knowledge of covid 19 vaccination: Section C elicited data on perception towards COVID-19 19 vaccination: Section D was on acceptance of covid 19 vaccination and Section E gathered data on factors influencing covid 19 vaccination acceptance: The instrument was pretested to determine its reliability among 12 respondents (constituting 10% of the sample size) selected from a facility not included in the main study. The result revealed a Cronbach's alpha score of 0.82.

Data Collection

The questionnaire was administered by the researcher, same completed and retrieved immediately from the participants after completion. Respondents were guided on how to fill in the questionnaire. Collected data were secured for proper data management and analysis. Data collection was for 6 weeks.

Data Analysis

Data entry was done using Statistical Package for Social Sciences version 23. Variables were analysed using descriptive statistics of frequency and percentages. The Pearson chi-square test was used to determine the association between the variables with a statistical significance level of $P \leq 0.05$.

Ethical Consideration

Permission to carry out the study in the facility was approved by the ethical committee of Osun State University Teaching Hospital with reference number UTH/EC/2021/10/539 informed consent was obtained from all the participants before the administration of the questionnaire. Confidentiality of the information provided was ensured.

Results

Table 1 showed that the majority 98 (79.0%) of the respondents were aged 31 years and above, female 95 (76.6%) by gender, with a BSc 67 (54.0%) level of education. Almost 119 (96.0%) all the respondents were from the Yoruba ethnic group, Christians by religion 69 (55.6%) and they were nurses and midwives 53 (42.7%) by profession.

Table 1: *Frequency Distribution of Demographic Variables (N=124)*

Demographic variables	Frequency	Percentage %
Age (Years)		
Less than 30 years	5	4.0
31-40 years	21	16.9
41-50 years	78	62.9
50 years and above	20	16.1
Sex		
Male	29	24.2
Female	95	76.6
Education Attainment		
Diploma	41	33.1
Bachelor Degree	67	54.0
Postgraduates	16	12.9
Tribe		
Yoruba	119	96.0
Hausa	1	.8
Igbo	4	3.2
Religion		
Christian	69	55.6
Muslims	55	44.4
Traditional	0	0.0
Category		
Nurses &Midwives	53	42.7
Medical Doctors	24	19.4
Medical Lab Scientist	15	12.1
Physiotherapist	11	8.9
Radiologist	14	11.3
Pharmacist	7	5.6

Table 2 shows that the majority 104 (83.9%) of the respondents agreed that vaccination against COVID-19 disease would prevent the spread of the disease, 110 (88.7%) agreed that, vaccination against COVID-19 disease would be in phases of administration, 82(66.2%) disagreed that COVID-19 vaccine would be distributed based on sentiment. However, majority of the respondent disagreed that vaccination does not stop wearing of facemask/shield after vaccination 114(.9%), 100(80.6%) disagreed that AstraZeneca is not made from attenuated virus like other vaccine and an effective vaccine can't be produced within a year 93(75.0%), provision of Personal Protective Equipment (PPE) to all staff who have direct contact with all patients is better off than vaccination 97(78.2%). Results also revealed that 86(69.4%) agreed that the COVID-19 vaccine trial based was successful. More than half 86(55.2%) agreed that whoever is vaccinated cannot spread the virus anymore while 98(79.0%) disagreed that whoever is vaccinated can no longer contact COVID-19 infection.

Table 2: *Knowledge of Covid-9 Vaccination*

Items	Agree		Disagree	
	F	%	F	%
Vaccination against Covid-19 disease would prevent the spread of the disease among people	104	83.9	20	16.1
Vaccination against Covid-19 disease would be in phases of administration	110	88.7	14	11.3
COVID-19 vaccine would be distributed based on sentiment	42	33.8	82	66.2
Vaccination does not stop wearing of facemask/shield after vaccination	114	91.9	10	8.1
AstraZeneca is not made from attenuated virus like other vaccine	24	19.4	100	80.6
An effective vaccine can't be produced within a year	31	25.0	93	75.0
Provision of Personal Protective Equipment (PPE) to all staff who have direct contact with all patients is better off than vaccination	27	21.8	97	78.2
The COVID-19 vaccine trial based was successful	86	69.4	38	30.6
Whoever is vaccinated cannot spread the virus anymore	66	55.2	58	46.8
Whoever is vaccinated can no longer contact Covid-19 infection	26	21.0	98	79.0
Vaccination will increase the rate of thrombosis	52	41.9	72	58.1
Anyone on an anticoagulant can receive the COVID-19 vaccine.	38	30.6	86	69.4
Individuals with underlying co-existing medical conditions should consult their physician before taking the vaccine	94	75.8	30	24.2
COVID-19 vaccine causes irreversible side effects	45	36.3	79	63.7

Figure 1 presents the summary of the respondents' knowledge of COVID-19 vaccination, the results showed that 63(51%) had a low level of knowledge about COVID-19 vaccination.

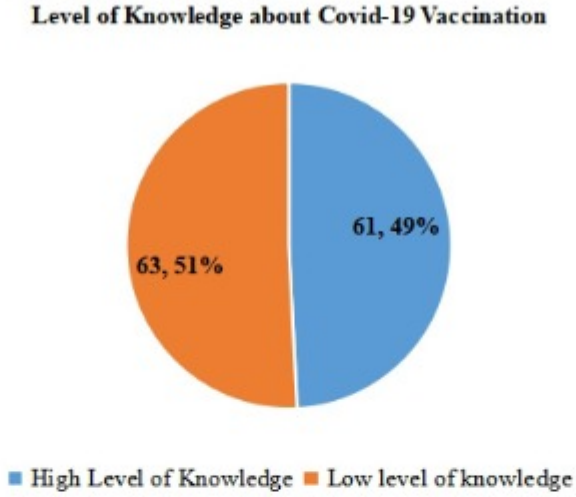

Figure 1: Summary of Knowledge of the Respondents on COVID-19 Vaccination

Table 3 showed that the majority of the respondents disagreed the shot of covid-19 vaccination would hurt or make them sick with symptoms like, nausea, vomiting, excessive eating, fever/chill, tiredness/body weakness developing after vaccination

58(46.8%), and everyone that accept the vaccine develops rear blood coagulation disorder/thrombosis 86 (68.0%). More than half 70 (56.5%) strongly agreed that the vaccine can affect breastfeeding mothers and babies, 109 (87.9%) disagreed that covid-19 vaccine contains luciferous enzymes firefly glow, and the vaccine is a way of tracking people through microchip or mind control 82 (66.2%). Almost two-thirds of the respondents disagreed that training and retraining of heath care personnel on other preventive measures is better off compared to vaccination, 70 (56.5%) agreed that vaccination against COVID-19 disease would help boost health workers' confidence, 47 (37.9%) also agreed that natural immunity to COVID-19 is better than immunity from a vaccine, 56 (45.2%) agreed that COVID-19 infection will be successfully controlled with vaccination, an antibody that are produced will cross with placenta protein, 73(58.9%) disagreed that Covid-19 vaccine alter human genetic information (DNA),

Furthermore, results show that the majority 57(54.0%) agree that, several COVID-19 vaccines are being developed which would help curtail the spread, every health workers are at risk of the infection, so government should make the vaccine compulsory for them 63(50.8%), and all eligible adults are to receive COVID-19 vaccination 63(50.8%), However, less than half 60 (48.8%) agreed that the benefit of COVID-19 vaccination outweighs potential complications. It was also disagreed by the respondents that COVID-19 vaccine ingredients are not lawful 64(51.5%), the vaccine will have long-term effect on the individual 67(54.1%), the vaccine is not likely to be effective, COVID-19 vaccines contains foetal cells 83(66.9%), COVID-19 vaccine can cause COVID-19 infection 71(57.3%), younger person in the profession are at low risk of getting COVID, so the COVID vaccine is not meant for them 54(57.3%), and vaccination of health care workers prevents the spread of the COVID virus 52(42.0%).

Items	SA	A	D	SD
	F (%)	F (%)	F (%)	F (%)
The shot will hurt or make me sick with Symptoms like nausea, vomiting, excessive eating, fever/chill, tiredness/body weakness develop after vaccination.	48(38.7)	12(9.6)	58(46.8)	6(4.8)
Everyone who accepts the vaccine develops rare blood coagulation disorder/thrombosis	6 (4.8)	3 (2.4)	86(68.0)	31(25.0)
Vaccines can affect breastfeeding mothers and baby	70(56.5)	3(2.4)	26 (20.9)	25(20.2)
Vaccines contain Luciferous enzymes that fireflies glow	0(0.0)	3(2.4)	109(87.9)	12(9.7)
Vaccine is a way of tracking people through microchips or mind control	6(4.8)	6(4.8)	82(66.2)	30(24.2)
Training and retraining of healthcare personnel on other preventive measures is better off compared to vaccination	9 (7.3)	18(14.5)	79(63.7)	18(14.5)
Vaccination against Covid-19 disease would help boost health workers' confidence	36(29.0)	70(56.5)	12 (9.6)	6 (4.8)
Natural immunity to COVID-19 is better than immunity from a vaccine	33(26.6)	47(37.9)	41 (33.1)	3 (2.4)
COVID-19 will be successfully controlled with vaccination	39(31.5)	56(45.2)	26(21.0)	3(2.4)
An antibody that is produced will cross with the placenta protein	15(12.1)	30(24.2)	73(58.9)	6 (4.8)
Covid-19 vaccine alters human genetic information (DNA)	6(4.8)	16(12.9)	75(34.7)	27(21.8)
There are several COVID-19 vaccines being developed which would help curtail the spread	24(19.4)	57(54.0)	30(24.2)	3(2.4)
Every health worker is at risk of the infection, so the government should make the vaccine compulsory for them	24(19.4)	63(50.8)	34(27.4)	3(2.4)

All eligible adults are to receive COVID-19 vaccination.	30(24.2)	79(63.7)	12(9.7)	3(2.4)
The benefits of COVID-19 vaccination outweigh the potential complications	24(19.4)	60(48.4)	34(17.4)	6(4.8)
COVID-19 vaccine ingredients are not lawful	9(7.3)	21(16.9)	64(51.5)	30(24.2)
The vaccine will have long-term effects on the individual	21(16.9)	30(24.2)	67(54.1)	6(4.8)
The vaccine is not likely to be effective	3(2.4)	3(2.4)	91(73.4)	27(21.8)
COVID-19 vaccines contain foetal cells	6(4.8)	3(2.4)	83(66.9)	32(25.8)
The COVID vaccine can give you COVID	0(0.0)	10(8.1)	71(57.3)	43(34.7)
I am young in the profession and at low risk of getting COVID, so the COVID vaccine is not meant for me	18(14.5)	10(8.1)	54(43.6)	42(33.9)
Vaccination of healthcare workers prevents the spread of the COVID-19 virus	21(16.9)	42()33.9	52(42.0)	9(7.3)

Table 3: *Perception of the Respondents towards COVID-19 Vaccination*

A score below 50% (1-43) was considered poor perception while an average score and above (44 and above) were considered good perception

Figure 2 showed that more than half 69 (56.0%) of the respondents had a poor perception of covid-19vaccination

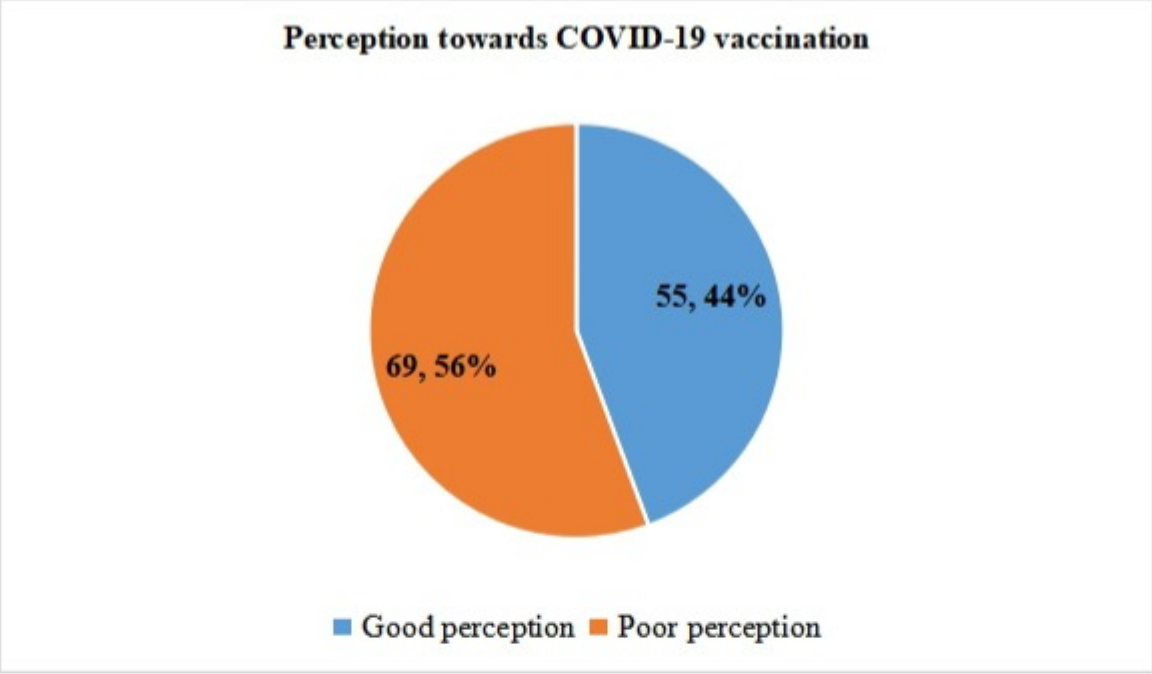

Figure 2: *Perception of the Respondents towards COVID-19 Vaccination*

Table 4 showed that the majority of the respondents agreed that COVID-19 vaccine administration should start among health workers 95(76.6%), 98(79.0%) desired the COVID-19 vaccine for self-protection, and to prevent illness in family or friends. The vast majority 102(82.3%) of the respondents agreed that they desire the COVID-19 vaccine for the effectiveness of vaccination, severity and risk of the disease. Results also revealed that most of the respondents 92(74.2%) desired the COVID-19 vaccine to reduce the spread of the virus, for confidence while on duty 108(87.1%), 102(82.3%) agreed that, If COVID-19 vaccine is available, they would show interest,

However, more than half 69(55.6%), disagreed that, If they are adequately vaccinated, will they will be willing to attend to COVID-19 patients anytime and anywhere. It was also agreed by the respondents that, since there is no serious side effect to the vaccine, they will still want to take the vaccine 65 (52.4%), benefits of COVID-19 vaccination strongly outweigh any potential complication 105 (87.7%), desire to wait for herd immunity 65 (52.4%), and there is no liability for anyone if there is a problem after vaccination 98 (79.0%). The majority disagreed that there is no point in getting vaccinated due to new COVID-19 strains 89 (71.8%), and there is no liability for anyone if there is a problem after vaccination 91 (73.4%).

Table 4: *Acceptance of COVID-19 Vaccination*

Items	Agree		Disagree	
	F	%	F	%
COVID-19 vaccine administration should start among health workers	95	76.6	29	23.4
I desire the COVID-19 vaccine for self-protection	98	79.0	26	21.0
I desire the COVID-19 vaccine to prevent illness in family or friends,	98	79.0	26	21.0
I desire the COVID-19 vaccine for the effectiveness of vaccination	102	82.3	22	17.7
I desire the COVID-19 vaccine because of the severity and risk of the disease,	102	82.3	22	17.7
I desire the COVID-19 vaccine to reduce the spread of the virus	92	74.2	32	25.8
I desire the COVID-19 vaccine for confidence while on duties	108	87.1	16	12.9
If a COVID-19 vaccine is available, I would show interest have it	102	82.3	22	
If you are adequately vaccinated, will you be willing to attend to COVID-19 patients anytime and anywhere	55	44.4	69	55.6
Since there are no serious side effects to the vaccine, will you still want to take the vaccine	65	52.4	59	47.6
The benefits of COVID-19 vaccination strongly outweigh any potential complication	105	87.7	19	15.3
I desire to wait for herd immunity	65	52.4	59	47.6
There is no point in getting vaccinated due to new COVID-19 strains.	35	28.2	89	71.8
There is no liability for anyone if there is a problem after vaccination	98	79.0	26	21.0
There is no liability for anyone if there is a problem after vaccination	33	26.6	91	73.4

Figure 3 shows that the majority 84(68.0%) accepted the COVID-19 vaccination but the vast majority have not been vaccinated with the COVID-19 vaccine 91 (73%).

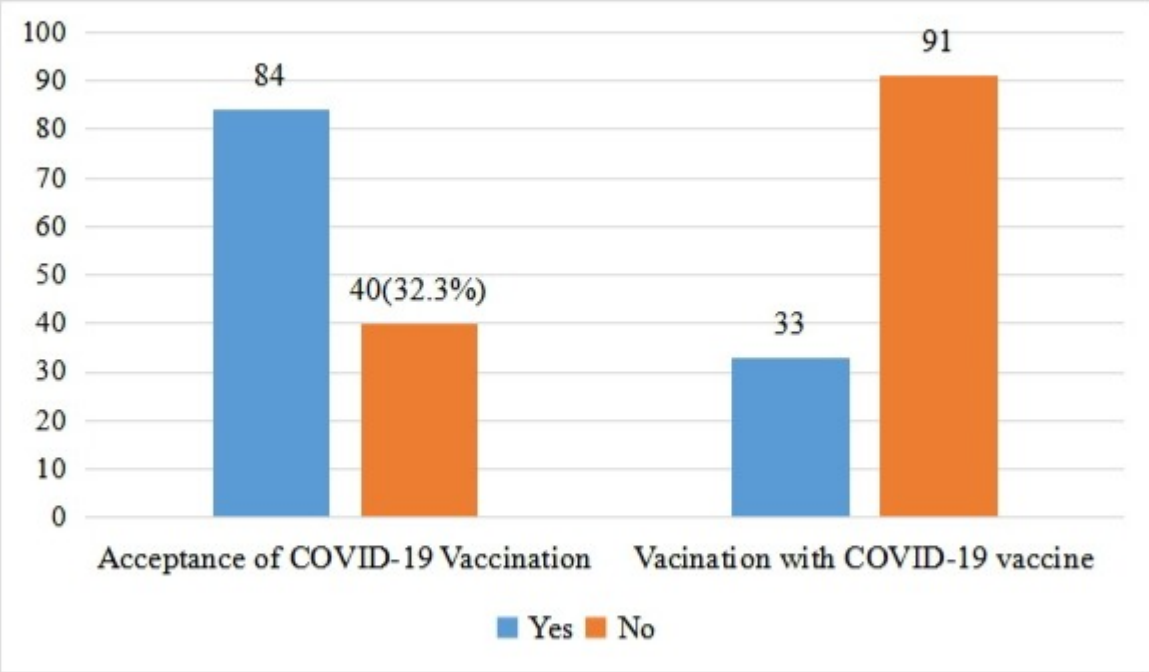

Figure 3: *Acceptance of and Vaccination with COVID-9 Vaccine*

Table 5 showed that the majority of the respondents agreed that, their belief would allow them to accept COVID-19 vaccination 109(87.9%), COVID-19 vaccination would be accepted if information is disseminated transparently and accurately 109 (87.9%), COVID-19 vaccination without proper payment of hazard allowance would not be accepted 94 (75.8%), and if the process of production or vaccines is not transparent, they would not be interested in it 112 (90.3%). It was also agreed that most health workers would not accept the vaccine, if information on social media declined its efficacy 106 (85.5%), if senior health workers reject the vaccine, juniors would do the same 112 (90.3%), and genuineness of the vaccine is to be ascertained before accepting the vaccine 112 (90.3%). The majority of the participants agreed that fear of death from the COVID-19 vaccine will hinder their acceptance of getting vaccination 112 (90.3%) as getting infected with COVID-19 after vaccination is proof that the vaccine does not work 109 (87.9%). Most participants stated that rejection of the COVID vaccine by health workers hinders acceptance 112 (90.3%), and the effectiveness of the vaccine will influence its acceptance 121 (97.6%), however, 100 (80.6%) disagreed that If their husband/ wife reject the vaccine, they would not accept it either.

Table 5: *Factors Influencing Covid-19 Vaccination*

Items	Yes	%	No	%
	F	%	F	%
My belief would allow me to accept COVID 19 vaccination	109	87.9	15	12.1
COVID-19 vaccination would be accepted if the information is disseminated transparently and accurately	109	87.9	15	12.1
COVID-19 vaccination without proper payment of hazard allowance would not be accepted	94	75.8	30	24.2
If my husband/ wife rejects the vaccine, I won't accept it either	24	19.4	100	80.6
If the process of production or vaccines is not transparent, I won't be	112	90.3	12	9.7

interested in it				
Most health workers won't accept the vaccine if the information on social media declines its efficacy	106	85.5	18	14.5
If senior health workers reject the vaccine, juniors would do the same	112	90.3	12	9.7
The genuineness of the vaccine is to be ascertained before accepting the vaccine	112	90.3	12	9.7
Fear of death from the COVID-19 vaccine will hinder my acceptance of getting vaccinated.	112	90.3	12	9.7
Getting infected with COVID-19 after vaccination is proof that the vaccine doesn't work	109	87.9	15	12.1
Rejection of COVID vaccine by health workers hinders acceptance	112	90.3	12	9.7
The effectiveness of the vaccine will influence its acceptance.	121	97.6	3	2.4

Table 6 showed a statistically significant relationship between knowledge and acceptance of COVID-19 vaccination (x^2 = 23.731; df = 1; p-value = 0.000) at a 0.05 level of significance. Participants with a high level of knowledge showed a high level of acceptance 54 (64.3%) while participants with a poor level of knowledge showed non-acceptance of the vaccine 33(82.5%).

Table 5: *Relationship between Knowledge and Acceptance of Covid-19 Vaccination*

Knowledge of COVID-19 vaccination	**Acceptance of COVID-19 Vaccination**			**Chi-square**	**df**	**p-value**
	Yes F (%)	**No F (%)**	**Total F (%)**	23.731	1	0.000
High level of knowledge	54 (64,3)	7 (17.5)	61 (49.0)			
Low level of knowledge	30 (35.7)	33 (82.5)	63 (51.0)			
Total	**84 (67.7)**	**40 (32.3)**	**124 (100)**			

Table 7 showed a statistically significant relationship between perception and acceptance of COVID-19 vaccination (x^2 = 6.796; df = 1; p-value = 0.009) at 0.05 level of significance as participants with a high level of good perception showed a high level of acceptance 44 (52.4%) while participants with poor perception showed non-acceptance of the vaccine 29(72.5%).

Table 7: Relationship between Perception and Acceptance of Covid-19 Vaccination

Perception of COVID-19 vaccination	**Acceptance of COVID-19 Vaccination**			**Chi-square**	**df**	**p-value**
	Yes F (%)	**No F (%)**	**Total F (%)**	6.796	1	0.009
Good perception	44 (52.4)	11 (17.5)	**55 (44.0)**			
Poor perception	40 (47.6)	29 (72.5)	**69 (56.0)**			
Total	**84 (67.7)**	**40 (32.3)**	**124 (100)**			

Discussion

The findings of this study provide valuable insights into the knowledge, perception and acceptance of COVID-19 vaccination among healthcare professionals. The COVID-19 pandemic is one of the international crises and WHO recognizes vaccines as a strategy to curtail its spread. Our study found that the majority of respondents were aged 31 years and above, female with a BSc level of education. Almost all the respondents were from the Yoruba ethnic group, Christians by religion and they were nurses and midwives by profession. The study highlighted varying

levels of knowledge among healthcare personnel regarding COVID-19 and the available vaccines. The majority of the respondents agreed that vaccination against COVID-19 disease would prevent the spread of the disease, and would be in phases of administration. However, it was disagreed that the COVID-19 vaccine would be distributed based on sentiment. This is in agreement with various studies that have repeatedly demonstrated that adequate knowledge about the virus and vaccines are essential factors for informed decision-making regarding vaccination (Ung, Hu, Hu & Bian, 2022). Nonetheless, many of the respondents agreed vaccination holds to be a promising approach in the prevention of disease outbreaks. However, its acceptance thereof can be very challenging due to inadequate information, harmful views, lack of trust in the processes, and adherence to false beliefs regarding vaccine development and application (Detoc, 2019) These results indicated that more than half of the respondents like other similar Nigerian study had low level of knowledge about covid-19 vaccination. As reported by, Enitan, *et al.* (2020). About 96% of their respondents have poor knowledge of Covid 19 and 39% had a poor perception of Covid 19 vaccination. This finding is in contrast with another African study conducted where the level of knowledge, attitude and intention to accept the COVID-19 vaccine were reportedly 74%, 45% and 63% respectively (Abebe, Shitu, & Mose, 2021). The poor knowledge reported in our study is undoubtedly a major reason why many of the respondents hold erroneous beliefs that more than half 70 (56.5%) strongly agreed that vaccines can affect breastfeeding mothers and babies. The gaps observed in this study highlight the need for focused training programs to improve healthcare workers' comprehension, as accurate knowledge is the basis for successful public health initiatives (Hahn & Truman, 2015).

Additionally, participants displayed diverse perceptions regarding the safety, efficacy, and potential side effects of COVID-19 vaccines. The majority perceived the vaccines as safe and effective in preventing severe illness and 57(54.0%) agreed that several COVID-19 vaccines are being developed which would help curtail the spread, thus suggesting that the government should make the vaccine compulsory for health professionals 63(50.8%). The vast majority of the respondents agreed that COVID-19 vaccine administration should start among health workers who desired the Covid-19 vaccine for self-protection and prevention of illness among family and friends. Many desire the Covid-19 vaccine to curtail the severity and risk of the disease. However, less than half 60 (48.8%) agreed that the benefit of COVID-19 vaccination outweighs potential complications. This is in agreement with Matarneh (2021), who opined that as more patients get access to the coronavirus 2019 (COVID-19) vaccines, neurologists are concerned about neurological side effects. Given that perception plays a critical role in vaccine acceptance, Biswas *et al* (2021) revealed that a higher perceived risk of getting infected with COVID-19 could influence vaccine uptake. On the other hand, misconceptions or fears can deter individuals from getting vaccinated (Kib *et al*., 2023). Nevertheless, it was perceived by the majority that younger persons in the profession are at low risk of getting the COVID-19 vaccine, with the concern that the vaccine was not meant for them 54(57.3%). This is in contrast with the work findings of Elhadi *et al*. (2021) who reported that acceptance was statistically associated with younger age groups between 31-40 years of age. Addressing issues and providing healthcare professionals with proper information can have a substantial impact on general public opinions and, in turn, vaccination rates (Handy *et al*., 2017).

Our findings revealed that the level of acceptance of vaccination is still below the optimum. Some respondents showed hesitation, mostly because they were worried about possible side effects Furthermore, there is no statistically significant association between knowledge and acceptance of COVID-19 vaccination (p-value = 0.000). The

mechanism behind the association could be explained by the concept of health literacy which clearly states that an individual's ability to engage in process information to make informed decisions is not the same as being literate. This contradicts the findings of Imediegwu, 2023), who revealed that there is no significant association between education and the level of acceptance of vaccines Findings from this study call for an all-inclusive strategy to improve knowledge and uptake of vaccines among health professionals as a measure to achieving herd immunity.

Conclusion

Healthcare providers in Osun State University Teaching Hospital had a high level of knowledge about COVID-19 vaccination and were ready to accept the vaccination but there was still a poor perception towards covi-19 vaccine among the respondents. A statistically significant relationship between knowledge and acceptance of covid-19 vaccination was observed from the study, likewise, perception towards the vaccine was associated with the acceptance of the covid-19 vaccination. Therefore, it is imperative to continually sensitize healthcare workers on the importance of vaccination against communicable diseases most especially COVID-19. There is also a need to debunk myths and misconceptions associated with covid-19 vaccine as this could hesitancy among the population.

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Conflict of Interest

None

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