



COVID-19 VACCINE HESITANCY AMONG HEALTH WORKERS IN SURGICAL DEPARTMENTS IN PORT HARCOURT, NIGERIA

Promise N. Wichendu¹, Rex Friday Ogoronte A. Ijah^{2*} and Friday E. Aaron³

¹Department of Surgery, University of Port Harcourt Teaching Hospital, and Senior Lecturer, University of Port Harcourt, Port Harcourt, Nigeria.

²Department of Surgery, Rivers State University Teaching Hospital, Port Harcourt, and Lecturer, PAMO University of Medical Sciences, Port Harcourt, Nigeria.

³Consultant Orthopedic and Trauma Surgeon, Department of Surgery, Rivers State University of Port Harcourt Teaching Hospital, Port Harcourt, and Senior Lecturer, Rivers State University, Port Harcourt, Nigeria

*Corresponding Author Email: rexijah@gmail.com; Tel: +2348033953290

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ABSTRACT: *Background: COVID-19 is a communicable respiratory tract disease caused by a new strain of coronavirus that causes disease in humans. Its status rose to that of a pandemic leading to many fatalities all over the world. Due to its devastation, COVID-19 vaccine production was fast tracked and granted emergency use authorisation. This process has evoked worldwide fears about its safety in the mind of the public, leading to vaccine uptake hesitancy even among healthcare workers. The aim of this study was to ascertain COVID-19 vaccine hesitancy among health workers in surgical departments of public tertiary healthcare facilities in Port Harcourt, Nigeria. Materials and Methods: A cross-sectional descriptive study was carried out among healthcare workers in public tertiary healthcare facilities. A total sample was aimed at administering questionnaires, and data was collated and analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0. Results: Two hundred and ninety-three (97.0%) respondents were aware of COVID-19 vaccination of health workers and others in Port Harcourt, and only 161 (53.3%) claimed to have taken the vaccine. To improve COVID-19 vaccination uptake rate, 133 (44.0%) respondents suggested that the government should improve citizens' trust in them by being transparent and using traditional and religious leaders for public enlightenment (23 = 7.6%), etc. Conclusion: There is significant COVID-19 vaccine hesitancy among workers in the surgical departments of the public tertiary hospitals in Port Harcourt, Nigeria. Lack of trust between the government and the citizens is a hindrance against COVID-19 vaccination.*

KEYWORDS: COVID-19 Vaccine Hesitancy, Health Workers, Surgical Departments, Teaching Hospitals, Port Harcourt, Nigeria.



INTRODUCTION

The coronavirus (COVID-19) pandemic has swept and is still sweeping through the world in its second wave, leaving behind unpleasant foot-prints of its passage.¹⁻⁶ Continents, nations, communities and families have been hard-hit by the horror of this pandemic.⁷⁻¹² Health professionals have also not been spared by the pandemic.^{13, 14} Control measures have been advocated and implemented with some global benefits¹⁵ and challenges.¹⁶⁻¹⁸ Some positive impacts of the pandemic have also been reported,¹⁹⁻²¹ with notable long-lasting lifestyle changes. Business and educational activities during this pandemic have witnessed a boost in online audio and visual real-time meetings, teachings and conferences described as the new normal.^{22, 23}

Studies have reported mutations and consequently many variants of COVID-19 virus in different countries over time,²⁴⁻³⁰ and in some cases different strains in the same country.^{31, 32} The second and third waves of the COVID-19 virus infection have been reported in some countries,³³ with some reported to have increased virulence.³⁴ Efforts have therefore been made in developing COVID-19 vaccines to mitigate the coronavirus pandemic.³⁵⁻³⁸ Some countries have started vaccinating their citizens with the COVID-19 vaccines, and some side effects have been reported following the use of some of the vaccines.³⁹⁻⁴¹ Concerns have been raised about issues of misinformation particularly through the social media about coronavirus and its vaccine.⁴²⁻⁴⁶ This has unfortunately fueled skepticism about the vaccines' safety and consequently the acceptability.

When individuals display doubt about vaccine usefulness and safety, delay or outright refusal of acceptance, it is described as vaccine hesitancy.⁴⁷⁻⁴⁹ There are reported COVID-19 vaccine hesitancy described in some populations.⁵⁰⁻⁵⁴ In the Nigerian setting, there are deep-seated misconceptions,⁵⁵⁻⁵⁸ also fueled by religious beliefs.^{59, 60} There is also the concern of public trust following some government postures on COVID-19 related issues.^{61, 62} This study will evaluate the response of health workers in the surgical departments to the ongoing vaccination exercise with a view to ascertaining vaccine COVID-19 hesitancy, reasons for hesitancy, and what can be done to improve vaccination efforts among our people.

MATERIALS AND METHODS

A cross-sectional descriptive study was carried out among healthcare workers who were residents or practicing in Port Harcourt, the capital of Rivers State, being one of the Niger Delta states in the Federal Republic of Nigeria. The surgical departments of the two public tertiary healthcare facilities (teaching hospitals) were used as study sites. These teaching hospitals are multi-specialty centers that offer surgical services in general surgery, neurosurgery, otorhinolaryngologic surgery, dental/oral-maxillo-facial surgery, plastic surgery, cardiothoracic surgery, orthopedic surgery, obstetric and gynecologic surgery, urology, pediatric surgery, and laparoscopic surgery.

Semi-structured self-administered questionnaires were distributed to survey participants (all categories of health workers) aiming at a total sample. Information on socio-demographics, hesitancy among health workers, the proportion of COVID-19 vaccinated health workers, reasons for COVID-19 hesitancy, and suggestions on how to improve COVID-19 vaccination



rate, were collated and analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0.

RESULTS

A total of three hundred and two (302) respondents were recruited for the study. Three hundred and twenty questionnaires were distributed, and 302 were retrieved, giving a response rate of 94.4%. The demographic characteristics of the respondents presented in Table 1 show that 165 (54.6%) were males and 137 (45.4%) were females. More than half (56.3%) were between 25 and 40 years of age and only 6 (2.0%) respondents were over 60 years old. 96 respondents (31.8%) were single while 204 (67.5%) were married. Ninety-nine respondents (32.8%) had spent between six and ten years in service, while 6.3% had spent less than a year in service. Resident medical doctors were 105 (34.8%), nurses were 55 (18.2%), consultants were 51 (16.9%), and administrative staff were 14 (4.6%). One hundred and ninety-three (63.9%) respondents were recruited from the University of Port Harcourt Teaching Hospital, while 109 (36.1%) were from the Rivers State University Teaching Hospital.

Table 2 shows COVID-19 vaccination awareness and hesitancy among study participants. Two hundred and ninety-three (97.0%) respondents were aware of COVID-19 vaccination of health workers and others in Port Harcourt, and only 161 (53.3%) claimed to have taken the vaccine. Out of the 141 (46.7%) who had not taken the vaccine, 24 (7.9%) opined that they would never receive it, while 71 (23.5%) were undecided. Out of the 24 (7.9%) who never wanted to take the vaccine, 13 (4.3%) claimed that the side effects of the vaccine were deadly and 9 (3.0%) said the AstraZeneca brand in Nigeria was not genuine. One hundred and ninety-one (63.2%) respondents were of the opinion that they would be willing to take the vaccine if it was made compulsory by their employer, while 44 (14.6%) said they would never take the vaccine compulsorily but rather seek legal redress (29 = 9.6%), resign (6 = 2.0%), seek God's face (11 = 3.6%) or do nothing (18 = 6.0%).

Table 1: Socio-demographic Characteristics of Respondents (n = 302)

Variables	Frequency	Percentage
Sex		
Male	165	54.6
Female	137	45.4
Age		
Less than 25 years	14	4.6
25 - 40 Years	170	56.3
41 - 60 years	112	37.1
More than 60 years	6	2.0
Marital Status		
Single	96	31.8
Married	204	67.5
Divorced	1	.3
Widowed	1	.3



Religion		
Christianity	298	98.7
Islam	1	.3
Others	3	1.0
Number of Years in Service		
Less than a year	19	6.3
1 - 5 years	39	12.9
6 - 10 years	99	32.8
11 - 15 years	64	21.2
16 - 20 years	33	10.9
More than 20 years	48	15.9
Category of respondents		
Student (Undergraduate)	13	4.3
Consultant	51	16.9
Resident Doctor	105	34.8
Medical Officer	26	8.6
Pharmacist	5	1.7
Nurse	55	18.2
Medical Laboratory Scientist	3	1.0
Physiotherapist	3	1.0
Administrative Staff	14	4.6
Others	19	6.3
Optometrist	8	2.6
Institution of service		
UPTH (Federal Teaching Hospital)	193	63.9
RSUTH (State Teaching Hospital)	109	36.1

Table 2: COVID-19 Vaccination Hesitancy Among Health Workers (n = 302)

Variables	Frequency	Percentage
Awareness of COVID-19 vaccination of health workers and others in Port Harcourt		
Yes	293	97.0
No	9	3.0
Received COVID-19 vaccination		
Yes	161	53.3
No	141	46.7
If "No", have intention of being vaccinated		
Yes	46	15.2
Never	24	7.9



May be	71	23.5
Received	161	53.3
Why never wanting to get vaccinated		
The side effects are deadly	13	4.3
The AstraZeneca brand in Nigeria is not genuine	9	3.0
There is low risk of contracting the COVID-19 virus	1	.3
It is related to antichrist/mark of the beast	1	.3
Received	161	53.3
None	117	38.7
Will take COVID-19 vaccine if made compulsory by employer		
Yes	191	63.2
Never	44	14.6
May be	67	22.2
What to do if COVID-19 vaccine is made compulsory by employer		
Nothing	18	6.0
Seek legal redress	29	9.6
Resign	6	2.0
Seek the face of God	11	3.6
No response	238	78.8

To improve COVID-19 vaccination uptake rate (see Table 3), 133 (44.0%) respondents suggested that the government should improve citizens' trust in them by being transparent. Other suggestions proffered include reduction of physical barriers to access the vaccine (65 = 21.5%), improvement in public enlightenment (57 = 18.9%), use of traditional and religious leaders rather than politicians for enlightenment (23 = 7.6%), etc. Besides, 91 (43.0%) respondents were worried about the speed of the vaccine approval process, and 129 (42.7%) expressed concern on safety of the vaccines used in Port Harcourt.

Table 3: Improving COVID-19 Vaccination Uptake Rate (n = 302)

Variables	Frequency	Percentage
Opinion on ways to improve COVID-19 vaccination uptake rate		
Reduction of physical barriers to access the vaccine	65	21.5
Government should improve citizens' trust in them by being transparent	133	44.0
Use traditional and religious leaders rather than politicians for enlightenment	23	7.6



Through improved public enlightenment	57	18.9
Government should make it compulsory	14	4.6
No opinion	10	3.3
Opinion on AstraZeneca vaccine use in Port Harcourt		
The efficacy is low	39	1.4
I have safety concerns about it	129	42.7
Worried about the speed of the vaccine approval process	91	43.0
No opinion	43	38.2

The relationship between age of respondents in years and acceptance of COVID-19 vaccination is presented in Table 4. It shows that the percentage of acceptance of COVID-19 vaccine increases with the age of the respondents. However, this relationship was not significant ($p > 0.05$).

Table 4: Relationship Between Age of Respondents and Acceptance of COVID-19 Vaccination

Age of respondents in years	Received COVID-19 vaccination			(X ²)	p-value
	Yes	No	Total		
Less than 25 years	4 (28.6%)	10 (71.49%)	14	4.596	0.204
25 - 40 Years	89 (52.4%)	81 (47.6%)	170		
41 - 60 years	64 (57.1%)	48 (42.9%)	112		
More than 60 years	4 (66.7%)	2 (33.3%)	6		
Total	161	141	302		

The relationship between number of years in service and receiving COVID-19 vaccination is shown in Table 5. The proportion of those who had received the COVID-19 vaccine was highest among those who had spent more than 20 years in service compared to others and this relationship was statistically significant ($p < 0.05$).

Table 5: Relationship Between Years in Service and Acceptance of COVID-19 Vaccination

Years in service/school	Received COVID-19 Vaccination			(X ²)	p-value
	Yes	No	Total		
Less than a year	4 (21.1)	15 (78.9%)	19		
1 - 5 years	17 (43.6%)	22 (56.4%)	39		
6 - 10 years	62 (62.6%)	37 (37.4%)	99		



11 - 15 years	27 (42.2%)	37 (57.8%)	64		
16 - 20 years	18 (54.5%)	15 (45.5%)	33	20.674	0.001
More than 20 years	33 (68.8%)	15 (31.2%)	48		
Total	161	141	302		

DISCUSSION

The demographics showed an almost equal number of respondents among the sexes, with a wide spread among categories of the workforce, showcasing the scope of coverage of the workers in the study. Majority of the respondents were of younger age (between 25 and 40 years) and married. Most respondents had spent at least 6 years in service in the surgical departments, with the majority working with the Federal Teaching Hospital. The teaching hospitals in the state are the places to find workers with the highest quality of knowledge about the ongoing coronavirus pandemic. The actions and opinions of the workers in the tertiary healthcare centres should provide a guide as to what the attitude of the workers in the primary and secondary healthcare centres would be. It should also act as a guide to the general public, most of whom are uninformed, and get their information largely from the unregulated social media. The findings of this study should therefore be an eye-opener to the realities of COVID-19 vaccine hesitancy in the healthcare setting in Port Harcourt.

Almost all respondents were aware of the vaccination exercise for health workers for the COVID-19 pandemic, and only about half of the respondents had been vaccinated. It is curious to note that despite the almost 100% awareness, only about 50% had received the vaccination after at least three months of the vaccination exercise by July 2021. The findings of hesitancy is similar to what was described among ethnic minorities in the United Kingdom, predominantly among blacks.^{51, 63, 64} The vaccine acceptance rate in our study is similar to reports from Italy, Russia, France, Poland and United States, but less than the values of over 90% quoted for Ecuador, Malaysia, Indonesia and China.⁵³ Although a small proportion of the health workers who had not received the vaccine were still insistent that they would never take the vaccine, it should be noted that most others were undecided. This implies that a pool of health workers was still tilted towards accepting the vaccines, with the right efforts. Also, the majority were willing to accept the vaccination under employer compulsion, while a few opted for resignation and legal redress. Civil societies and trade unions have expressed opinions against coercion for COVID-19 vaccination in England; however, a subtle implementation of policy has been reported to have been carried out.⁶⁵ Misinformation has been reported as a key factor in lowering the acceptance of COVID-19 vaccine.⁶⁶

The need for the government to improve citizens' trust by being transparent in dealing with COVID-19 issues was emphasized by the majority of respondents as a significant measure to improve vaccination uptake rate. This finding of our study is similar to reports elsewhere as COVID-19 pandemic is one disease in human history, among others, that has evoked sentiments and trust issues among the public in most societies.⁶⁷⁻⁷³ Reduction of physical barriers to access the vaccine, improvement in public enlightenment, and use of traditional and religious leaders rather than politicians for enlightenment were some of the measures advocated



by respondents to improve COVID-19 vaccine uptake. The use of religious leaders/organizations in advocacy or enlightenment of the public has been recommended in other climes.^{67, 74}

Although there is no statistically significant relationship between age and acceptance of COVID-19 vaccination, our study shows that the older the respondent, the more likely they are to accept the vaccine. The finding of our study was relatively similar to that reported in other studies where older individuals had higher acceptance rate compared to the younger population.^{36, 75} A likely explanation for this finding could be the risk of higher morbidity and mortality described among people of older age group who naturally are more likely to have comorbidities than the younger population. This fear is real as the unvaccinated have been reported to have seventeen times higher chances of being hospitalised due to COVID-19 virus infection.⁷⁶ In another study, complete vaccination and younger age were associated with the likelihood for survival.⁷⁷ Additionally, our study shows that respondents who had spent more years in the health service were more inclined to take the vaccine, as evidenced by a statistically significant relationship between acceptance of COVID-19 vaccine and working more than 20 years in service, compare to others. It stands to reason here that persons who have spent more than 20 years in the health service are more likely to belong to the older population.

CONCLUSION

The awareness of health workers on COVID-19 vaccination was high but the acceptance rate was not optimal. There is significant COVID-19 vaccine hesitancy among workers in the surgical departments of the public teaching hospitals in Port Harcourt, Nigeria. The foremost reason responsible for this finding is the lack of trust that exists between the government and the citizens in terms of the way policies on COVID-19 issue have been handled so far. Vaccine acceptance rate was higher among individuals who have been in the health service for twenty years or more.

RECOMMENDATION

A large pool of health workers was still undecided on whether to accept the vaccine or not. This population could be targeted with the right information to improve acceptance rate. Traditional institutions and religious leaders are recognized potential agents of change recommended for use in improving COVID-19 acceptance rate. The federal and state governments should review their relationship with the public with a view to improving trust among members of the public on COVID-19 issues.

Footnote

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Ethical Considerations: The approval of the Research Ethics Committee of the two teaching hospitals was obtained before the commencement of the study.



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Conflict of Interest: None.

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