

Perception of COVID-19 Vaccine among Lecturers and Healthcare Workers in University of Port Harcourt

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Abstract

Original Research Article

Background: The University of Port Harcourt is the first Federal tertiary institution in Rivers State. Rivers State is in the South-South region and a major economic city known for crude oil exploration in the country has had its share of the pandemic, in Rivers State there are currently 9,365 confirmed cases, number of cases on admission 1193, number discharged 8,063, and the number of deaths 109 as at August 22, 2021. The cases are still rising especially with the new string and the third wave. The University of Port Harcourt will not be spared in the distribution of the cases as such, perception of vaccine is important in convincing people to take the vaccine which will prevent new infection and keep the prevalence value low. Hence, this study was done to survey the perception of covid-19 vaccine uptake amongst lecturers and healthcare workers in the University of Port Harcourt. **Materials and Methods:** The study was cross-sectional carried out in the entire three senatorial districts of Rivers State. The study population was the healthcare workers in some selected hospitals in Rivers State, University staff both teaching and non-teaching staff and some selected establishment in Rivers State. The sample size used for the study was five hundred, sampling technique used was simple random sampling. The data collection tool used for the study was a self-structured closed-ended questionnaire. **Results and Discussions:** The results of the study showed that other civil servants who have taken vaccine before had the rate 20.0%, UNIPORT staff members 32.4%, and healthcare workers 44.1%; those that know about the availability of vaccine: Other civil servants 20.0%, UNIPORT staff members 32.8%, healthcare workers 42.0%; an analysis of participants who were willing to pay for the vaccine showed thus: 2.0% civil servants, 5.0% UNIPORT staff members, 5.0% healthcare workers. **Conclusions:** The results of the study showed that 2/3rd of the participants have heard about vaccination before this study, 2/3rd of the participants have taken any kind of vaccine before, the study also revealed that about 2/3rd of the participants are aware of COVID 19 vaccine availability; Survey of the willingness of participants to pay for the vaccine showed that less than a quarter of the participants were willing to pay for the vaccine. The most prevalent reasons for which the participants would not take the COVID 19 vaccine are thus: the lack of trust in vaccines, fear of side effects, and not being sure of its effectiveness.

Keywords: Perception, COVID 19, Vaccine, UNIPORT Staff, Healthcare workers, & Civil servants.

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INTRODUCTION

The coronavirus disease 2019 (COVID-19) is a communicable respiratory disease caused by a new strain of coronavirus that causes illness in humans [1]. Scientists are still learning about the disease, and think that the virus began in animals. At some point, one or more humans acquired infection from an animal, and those infected humans began transmitting infection to other humans [1]. The disease spreads from person to person through infected air droplets that are projected during sneezing or coughing. It can also be transmitted when humans have contact with hands or surfaces that contain the virus and touch their eyes, nose, or mouth

with the contaminated hands. COVID-19 was first reported in China, but it has now spread throughout the world [2]. Currently, there are vaccines that could prevent the infection and spread of the disease. Vaccine is a product that stimulates a person's immune system to produce immunity to a specific disease, protecting the person from that disease [1, 3]. Vaccination is the administration of a vaccine to help the immune system develop protection from a disease. Vaccines contain a microorganism or virus in a weakened, live or killed state, or proteins or toxins from the organism [2, 3]. In stimulating the body's adaptive immunity, they help prevent sickness from an infectious disease. When a

sufficiently large percentage of a population has been vaccinated, herd immunity results. Herd immunity protects those who may be immunocompromised and cannot get a vaccine because even a weakened version would harm them [4, 5]. Some vaccines that are available for use are: BioNTech, Pfizer vaccine; Johnson & Johnson vaccine; Moderna vaccine; Oxford, AstraZeneca vaccine; Sputnik V vaccine.

Safe and effective vaccines are a game-changing tool: but for the foreseeable future we must continue wearing masks, cleaning our hands, ensuring good ventilation indoors, physically distancing and avoiding crowds. Being vaccinated does not mean that we can throw caution to the wind and put ourselves and others at risk, particularly because research is still ongoing into how much vaccines protect not only against disease but also against infection and transmission. [1, 3, 6] Perception of COVID 19 Vaccine simply means is the process of taking in, picking, organizing, and understanding the whole process of the vaccine. The perception of COVID 19 vaccine is very important in being vaccinated.

The University of Port Harcourt is the first Federal tertiary institution in Rivers State. Rivers State is in the South-South region and a major economic city known for crude oil exploration in the country has had its share of the pandemic, in Rivers State there are currently 9,365 confirmed cases, number of cases on admission 1193, number discharged 8,063, and the number of deaths 109 as at August 22, 2021. The cases are still rising especially with the new string and the third wave. The University of Port Harcourt will not be spared in the distribution of the cases as such, perception of vaccine is important in convincing people to take the vaccine which will prevention new infection and keep the prevalence value low. Hence, this study was done to survey the perception of covid-19 vaccine uptake amongst healthcare workers and lecturers in the University of Port Harcourt.

There are enormous literatures on the perception of COVID 19 vaccine globally, in Africa, Nigeria and Rivers State specifically [7-13].

MATERIALS AND METHODS

The study was cross-sectional carried out in the entire three senatorial districts of Rivers State. The study population was the healthcare workers in some selected hospitals in Rivers State, University staff both teaching and non-teaching staff and some selected establishment in Rivers State. The sample size used for the study was five hundred calculated using Taro Yamane formula for a population less than ten thousand, sampling technique used was simple random sampling. The data collection tool used for the study was a self-structured closed-ended questionnaire. The tool was structured with the following headings;

Section A-socio-demographic characteristics, Section B-Perception of the vaccine and Section C- Vaccine acceptability. The questionnaires were interviewer administered. The data was analyzed using IBM Statistical Package for Social Sciences (SPSS) version 25. The categorical variables were analyzed using a simple descriptive tool and chi square to test for association of variables. The confidence interval set at 95%, p-value at 0.05. Ethical clearance was obtained from the University of Port Harcourt Research Ethics Committee before commencement of the study.

RESULTS

Table-1: Sociodemographic characteristics

Variable	Frequency	Per cent
Age category		
18 – 28 yrs	28	6.1
29 - 39 yrs	150	32.6
40 – 49 yrs	151	32.8
50 – 59 yrs	91	19.8
60 – 69 yrs	37	8.0
≥70 yrs	3	0.7
Total	460	100.0
Occupation		
Other civil servants	92	20.0
UNIPOINT staff members	213	46.3
Health Care Workers	155	33.7
Total	460	100.0
Sex		
Male	252	54.8
Female	200	43.5
Don't want to disclose	8	1.7
Total	460	100.0
Marital status		
Married	314	68.3
Single	130	28.3
Don't want to disclose	16	3.4
Total	460	100.0
Religion		
Islam	44	9.6
Christianity	404	87.8
Catholic	5	1.1
Others	7	1.5
Total	460	100.0
Level of Education		
No formal education	1	2.4
Completed primary	8	1.7
Completed junior secondary	7	1.5
Completed senior secondary	128	27.8
Completed tertiary	306	66.5
Total	460	100.0
Health insurance		
Government	320	69.6
Private	49	10.7
No insurance	91	19.8
Total	460	100.0

Table-2a: Descriptive statistics on the perception of COVID 19 vaccine

Variable	Frequency	Per cent
Have you heard of vaccination ?		
Yes	454	98.7
No	6	1.3
Total	460	100.0
Have you taken vaccine before ?		
Yes	444	96.5
No	16	3.5
Total	460	100.0
Have you administered vaccine before as a health care worker ?		
Yes	103	22.4
No	357	77.6
Total	460	100.0
Have you, family or neighbour had COVID 19 ?		
Yes	28	6.1
No	419	91.1
Not sure	13	2.8
Total	460	100.0
Availability of COVID 19 vaccine		
Yes	436	94.8
No	24	5.2
Total	460	100.0
Are you willing to be vaccinated ?		
Yes	116	25.2
No	117	25.4
Have been vaccinated	206	44.8
Not decided	21	4.6
Total	460	100.0
Are you willing to pay for the vaccine ?		
Yes	55	12.0
No	319	69.3
Don't know	86	18.7
Total	460	100.0
Reasons for not taking the vaccine		
Not sure of safety	15	3.2
Not sure of effectiveness	29	6.3
Fear of side effects such as fever & pain	33	7.2
No trust in vaccine	35	7.6
Religious belief	5	1.1
Not applicable	343	74.6
Total	460	100.0

Table-2b: Descriptive statistics on the perception of COVID 19 vaccine cont'd

Variable	Frequency	Per cent
Preferable vaccine		
Oxford Astrazeneca	135	29.3
Pfizer/biotech	146	31.7
Moderna	16	3.5
Any of the vaccines	25	5.4
Not applicable	138	30.1
Total	460	100
Who would you consult before taking the vaccine ?		
Family members	93	20.2
Health worker	243	53.9
Religious leader	49	10.7
Community leader	4	0.9

Government officials	63	13.6
Others	3	0.7
Total	460	100.0
Preferable vaccine designated location for vaccination		
General hospital	261	56.7
Private hospital	106	23.0
Home delivery	50	10.9
Primary healthcare centres	43	9.4
Total	460	100.0
Would you like to get further information about COVID 19 vaccine ?		
Yes	383	83.2
No	56	12.2
Don't know	21	4.6
Total	460	100.0
How would you like to get more information about COVID 19 ?		
Social media such as Whatsapp, Facebook, Instagram, Twitter	49	10.7
Telecommunication such as SMS and calls	18	3.9
Online platforms such as zoom, skype	99	21.5
Print and Electronic media, TV, Newspaper	140	30.4
Face to face communication	154	33.5
Total	460	100.0

Table- 3a: Comparison of Perception COVID 19 vaccine amongst other civil servants, UNIPORT staff members and healthcare workers in Rivers State

Variables	Other civil servants	UNIPORT staff members	Healthcare workers	Total	χ^2	P-value
Have you taken vaccine before ?						
Yes	92(20.0)	203(32.4)	295(44.1)	444(96.5)	20.541	0.015
No	0(0)	10(2.2)	6(1.3)	16(3.5)		
Total	92(20.0)	213(46.3)	301(33.7)	460(100.0)		
Availability of COVID 19 vaccine						
Yes	92(20.0)	193(32.8)	285(42.0)	436(94.8)	22.640	0.007
No	0(0)	20(4.3)	4(0.9)	24(5.2)		
Total	92(20.0)	213(46.3)	289(33.7)	460(100.0)		
Have you, family member, friends or neighbour had COVID 19 ?						
Yes	6(1.3)	10(2.2)	12(2.6)	28(6.1)	131.201	0.001
No	83(18.0)	201(29.4)	284(43.7)	419(91.1)		
Not sure	3(0.7)	2(0.4)	5(1.7)	13(2.8)		
Total	92(20.0)	213(46.3)	305(33.7)	460(100.0)		
Are you willing to pay for the vaccine ?						
Yes	9(2.0)	23(5.0)	32(5.0)	55(12.0)	122.711	0.001
No	73(15.9)	137(29.8)	109(23.6)	319(69.3)		
Don't know	10(2.2)	53(11.5)	23(5.0)	86(18.7)		
Total	92(20.1)	213(46.3)	164(33.6)	460(100.0)		
Reasons for not taking the vaccine						
Not sure of safety	0(0)	38(8.3)	24(5.2)	62(13.5)	308.029	0.001
Not sure of effectiveness	6(1.3)	46(10.0)	64(13.9)	116(25.2)		
Fear of side effects such as fever & pain	24(5.2)	51(11.1)	55(12.0)	130(28.3)		
No trust in vaccine	50(10.9)	78(17.0)	9(1.9)	137(29.8)		
Religious belief	12(2.6)	0(0)	3(0.7)	15(3.3)		
Total	92(20.0)	213(46.3)	155(33.7)	460(100.0)		

If you have not decided yet, who would you consult before taking the vaccine ?						
Family members	16(3.5)	57(12.4)	20(4.3)	93(20.2)	258.423	0.001
Health worker	56(12.2)	114(24.8)	78(16.9)	248(53.9)		
Religious leader	13(2.8)	19(4.1)	17(3.8)	49(10.7)		
Community leader	4(0.9)	0(0)	0(0)	4(0.9)		
Government officials	3(0.7)	23(5.0)	37(8.0)	63(13.7)		
Others	0(0)	0(0)	3(0.7)	3(0.7)		
Total	92(20.0)	213(46.3)	155(33.7)	460(100.0)		
Preferable vaccine						
Oxford Astrazeneca	27(5.9)	114(24.8)	52(11.3)	193(42.0)	201.591	0.001
Pfizer/biotech	53(11.5)	83(18.0)	72(15.7)	208(45.2)		
Moderna	3(0.7)	5(1.1)	16(3.4)	24(5.2)		
Any of the vaccines	9(2.0)	11(2.4)	15(3.2)	35(7.6)		
Total	92(20.0)	213(46.3)	155(33.7)	460(100.0)		

Table-3b: Comparison of Perception COVID 19 vaccine Civil servants, UNIPORT staff members and healthcare workers in Rivers State cont'd

Variables	Other civil servants	UNIPORT staff members	Healthcare workers	Total	X ²	P-value
Preferable vaccine designated location for vaccination						
General hospital	72(15.7)	89(19.3)	100(21.7)	261(56.7)	211.181	0.001
Private hospital	14(3.0)	70(15.2)	22(4.8)	106(23.0)		
Home delivery	0(0)	36(7.8)	14(3.1)	50(10.9)		
Primary healthcare centres	6(1.3)	18(3.9)	19(4.1)	43(9.3)		
Total	92(20.0)	213(46.3)	155(33.7)	460(100.0)		
Would you like to get further information about COVID 19 vaccine ?						
Yes	83(18.0)	165(35.9)	135(29.4)	383(83.3)	113.694	0.001
No	6(1.3)	36(7.8)	14(3.1)	56(12.2)		
Don't know	3(0.7)	12(2.6)	6(1.3)	21(4.6)		
Total	92(20.0)	213(46.3)	155(33.7)	460(100.0)		
How would you like to get more information about COVID 19 ?						
Social media such as Whatsapp, Facebook, Instagram, Twitter	9(2.0)	32(7.0)	8(1.7)	49(10.7)	291.228	0.001
Telecommunication such as SMS and calls	3(0.7)	12(2.6)	3(0.6)	18(3.9)		
Online platforms such as zoom, skype	17(3.7)	63(13.7)	19(4.1)	99(21.5)		
Print and Electronic media, TV, Newspaper	41(8.9)	68(14.8)	31(6.7)	140(30.4)		
Face to face communication	22(4.8)	38(8.3)	94(20.4)	154(33.5)		
Total	92(20.0)	213(46.3)	155(33.7)	460(100.0)		

DISCUSSIONS

Summary of Findings

The results of the study showed that the most frequent age category was 40 – 49 yrs with 151(32.8%), while the least was ≥ 70 yrs with 3(0.7%); the males had the highest frequency with 252(54.8), while females had 200(43.5%) and participants that did not want to disclose their sex was 8(1.7%). The married were most

frequent with 314(68.3%), Christianity was the most frequent religion with 404(87.8%), educational level with the most frequent value was tertiary education with 306(66.5%) (Table 1).

Comparing the perception, other civil servants who have taken vaccine before had the rate 20.0%, UNIPORT staff members 32.4%, and healthcare workers 44.1%; those that know about the availability

of vaccine: Other civil servants 20.0%, UNIPORT staff members 32.8%, healthcare workers 42.0%; an analysis of participants who were willing to pay for the vaccine showed thus: 2.0% civil servants, 5.0% UNIPORT staff members, 5.0% healthcare workers; participants who would like to get further information about COVID 19 vaccine civil servants 18.0%, UNIPORT staff members 35.9%, healthcare workers 29.4%. (Table 3a & b)

Implication

The results of the study showed that 2/3rd of the participants have heard about vaccination before this study as shown in table 2a. This implies that the study population is well informed about vaccination which probably stems from the fact the University of Port Harcourt is fully involved in vaccination campaigns and has several centres where vaccination is ongoing on regular bases for other infectious diseases even before the COVID 19 pandemic.

The study showed that 2/3rd of the participants have taken any kind of vaccine before. (Table 3a) Amongst this, healthcare workers were seen to be more in proportion than UNIPORT staff members and other civil servants. (Table 3a) This may possibly be a result of the fact that the study population is enlightened, have more information seeking behaviour, and the nature of the job they do affords them more privileged information about vaccines and its role in keeping people safe from infection. This agrees with the reports of other authors who have documented similar results in their works [7-9].

Furthermore, the study revealed that about 2/3rd of the participants are aware of COVID 19 vaccine availability as seen in table 3a. Healthcare worker had the highest proportion in the awareness of vaccine availability. The difference in the awareness between the healthcare workers, UNIPORT staff members and the other civil servants was significant ($X^2=22.640$, $p\text{-value}=0.007$). This again was anticipated because they are saddled with the responsibility of creating awareness of the vaccine availability and administration. This corroborates the reports of by Sealed *et al.*[10], Garcia & Cerda [11].

Survey of the willingness of participants to pay for the vaccine showed that less than a quarter of the participants were willing to pay for the vaccine. This implies that the vaccine must remain free of charge if the state wishes to have a wide coverage in the vaccinated exercise and have a vast proportion of persons vaccinated. This finding is similar to the reports of Abu Farha *et al.* [12, 13].

The most prevalent reasons for which the participants would not take the COVID 19 vaccine are thus: the lack of trust in vaccines, fear of side effects, and not being sure of its effectiveness. This is probably because there too many uncertainties with the COVID

19 as it is new, the vaccine making and the anticipated side effects of taking the vaccine; It is understandable to have these range of concerns.

Participants who have not decided whether to take the vaccine or not opted to seek counsel from healthcare workers for clarity, the most preferred vaccine was Pfizer Biotech, followed by Oxford Astrazeneca. The reasons for this option were purely based on information from international mass media where the participants hear about the vaccines and the efforts that the biotech companies make to ensuring that the vaccines are safe. The study again showed that 83.3% of participants opted to have more information about COVID 19 via a face-to-face communication.

CONCLUSIONS

The results of the study showed that the proportion of other civil servants who have taken vaccine before was 20.0%, UNIPORT staff members 32.4%, and healthcare workers 44.1%; those that know about the availability of vaccine: Other civil servants 20.0%, UNIPORT staff members 32.8%, healthcare workers 42.0%; an analysis of participants who were willing to pay for the vaccine showed thus: 2.0% civil servants, 5.0% UNIPORT staff members, 5.0% healthcare workers; participants who would like to get further information about COVID 19 vaccine civil servants 18.0%, UNIPORT staff members 35.9%, healthcare workers 29.4%. The results of the study showed that 2/3rd of the participants have heard about vaccination before this study, 2/3rd of the participants have taken any kind of vaccine before, the study also revealed that about 2/3rd of the participants are aware of COVID 19 vaccine availability; Survey of the willingness of participants to pay for the vaccine showed that less than a quarter of the participants were willing to pay for the vaccine. The most prevalent reasons for which the participants would not take the COVID 19 vaccine are thus: the lack of trust in vaccines, fear of the side effects, and not being sure of the vaccine effectiveness.

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