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Assessment of Adult Awareness and Perception of Covid-19 Vaccines on Health Status of Urban Dwellers in Nigeria

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ABSTRACT

The outbreak of coronavirus 2019 (COVID-19) pandemic has significantly inflicted a danger on health, economy and social relations globally covering the six continents and around 2.7 million people had died after contracting the respiratory virus. The global pandemic has necessitated some drastic measures to curb its spread. It is uncertain whether these measures are known and their perception about the measures cannot be ascertained. This study assessed the awareness and perception of COVID-19 vaccine on the health status of urban adult dwellers in Nigeria. The four research questions that guided the study. The study employed correlational research type of non-experimental design. Purposive sampling technique was used to sample 300 participants that took part in the study. Only participants that had taken the COVID-19 vaccine were included in the study. One instrument, Adult Awareness and Perception of Covid-19 Vaccines on Health Status Questionnaire (APCVHSQ) with Cronbach Alpha reliability coefficient 0.85 was used for data collection. Data collected was analysed using descriptive statistic of frequency, percentages and mean as well as thematic analysis. The result revealed that majority of the adult population are aware of the various measures embarked upon to curb the spread of the virus ($2.50 < 3.07$). Moreover, adult population in Nigeria perception of covid-19 vaccine prevalence was relatively negative ($2.50 < 2.60$). In addition, majority 249 (81.6%) of the adult population believed that their health conditions were not worsened after taken Covid-19 vaccine while 261 (84.2%) of the adult population in Nigeria did not find it difficult to cope with their daily activities after the vaccination. 48.4% had the higher cases of malaria associated with Covid-19 vaccination. It is suggested that more awareness campaign should be embarked upon by the agency responsible for mobilization to reduce the negative attitude of COVID-19 vaccine among the adult population.

Keywords: COVID-19, vaccine, perception, adult population.

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1. INTRODUCTION

The emergence of coronavirus 2019 (COVID-19) pandemic has globally inflicted a danger on health, economy and social relations. Historically, plagues and epidemics have ravaged humanity throughout its existence. Jarus (2020) affirmed that such plagues often change the course of history and, at times, signaled the imminent end of civilization. Therefore, the current COVID-19 pandemic should not be seen as an isolated experience. The researcher identified major pandemics in history that include the plague of Athens during the prehistoric times around 3000B.C; the 430 B.C Antonine Plagues; that of A.D 165 – 180, the American Plague; the 16th Century Great Plague of London from 1665 to 1666. Not too long ago were the various Flu pandemics which surfaced in 1889–1890 popularly referred to as Spanish Flu; the Asian 1957–1958 Flu; the West African 2014 - 2016 Ebola; and the AIDS Pandemic that began in 1981 which had defied all cure to date throughout the world. By the end of June 2020, COVID-19 virus has been felt across 216 countries with a total of 13,150,645 confirmed cases and 574,464 deaths and as at March 22, 2021, the outbreak had spread to six continents, and around 2.7 million people had died after contracting the respiratory virus.

The first confirmed case of COVID-19 in Nigeria was on 27th February 2020 and by June 2020, 12,801 cases have been confirmed with 361 deaths. Thirty-six states including the Federal Capital Territory (FCT) have reported at least one confirmed case (NCDC, 2019). The COVID-19 global pandemic has necessitated some drastic measures to curb its spread. Several countries around the world instituted partial or total lockdown as part of the control measures for the pandemic. In response to curtail the spread of the virus, most countries of the world including Nigeria have imposed restriction measure which led to total and or partial closure of the economy. In the process, economies are grinding to a halt, jobs and livelihoods are lost on scales never experienced before. This impact is so much to the extent that the medium and low income countries in West Africa especially in Nigeria with over 202 million populations (World Bank, 2020) felt the burden in an amazing magnitude.

A noticeable observation about these pandemics was that they tend to have effects regionally but COVID-19, as a pandemic is departing from the norm, having gone global in scope and consequence (Lepan, 2020). Studies have emerged since the outbreak of coronavirus in Wuhan, China, late in 2019 to make humanity's invincible enemy comprehensible to human intelligence. Among the various studies were Lupia, Scabini. Pinna, Di Perri, De Rosa and Corcione (2020); Harapan, Itoh, Yufika, Winardi, Keam, Te, Megawati, Hayati, Wagner, and Mudatsir (2020); Wang, Ma, Zeng, Wu, and Zhang (2020), to mention a few. Most of the discussions have centered on the origin of COVID-19, infection rates, causal effects, and others. Researchers have also tried to examine the social, economic, and environmental impact and the lessons from previous coronavirus outbreaks such as MERS-CoV and SARS-CoV. From Wang et al. (2020), the secondary transmission of coronavirus among households has been a significant point toward understanding the disease's progression since the greater part of the infections has been linked to social interaction within a familial household. On the other hand, Ali's and Alharbi's (2020) interest is the management, treatment, and social impact of the infection. Based on their discovery, they advocated for more prevention as the best option since it is still difficult to say a treatment or cure has been found for COVID-19.



In Nigeria, there have been few studies attempting to understand or draw lessons that could be learnt on the many facets of COVID-19 and its impact on the people and the country. Some emerging resource include Igbokwe's (2020) "Nigerian Maritime Sector: Lessons and Way Forward," and the Lagos State Government's Post-COVID-19 Recovery Seminar. Also, the Nigeria Centre for Disease Control's [NCDC] efforts to release daily situation reports on COVID-19 amongst other contributions (NCDC, 2020). These efforts have not sufficiently addressed the disease that has severe health, economic, social, educational, and political impacts on Nigeria. As the leading Black Country in the world, how Nigeria will be able to combat many of the challenges associated with COVID-19 should naturally be of global interest.

The Nigerian Government in response to COVID-19 outbreak put a lot of interventions in place. This includes the international travel bans, domestic air travel bans, closure of schools, universities, and religious places, ban on social and cultural activities, and general restriction of movements. This culminated in a lockdown order imposed by the Federal Government on States with very high infection rates while State Governments locked down their states to control the infection rates in their states at different times as the epidemic trajectory increases. The lockdown associated with COVID-19 provided a global opportunity to study the anthropogenic contributions to air pollution in locations around the world. In response to the highlighted challenges and to ensure action that will mitigate risks, which may expose the affected populations to further harm, the World Health Organization (WHO) embraced the initiative and encouraged nations to carry out research on a vaccine that can mitigate the pandemic.

Vaccination is a simple, safe, and effective way of protecting people against harmful diseases, before they come into contact with them. It uses our body's natural defenses to build resistance to specific infections and makes our immune system stronger. Vaccines train the immune system to create antibodies, just as it does when it's exposed to a disease. However, because vaccines contain only killed or weakened forms of germs like viruses or bacteria, they do not cause the disease or put one at risk of its complications. Most vaccines are given by an injection, but some are given orally (by mouth) or sprayed into the nose. Vaccination is a safe and effective way to prevent disease and save lives. Today there are vaccines available to protect against at least 20 diseases, such as diphtheria, tetanus, pertussis, influenza and measles.

For COVID-19, a new disease causing a global pandemic, many vaccines are in development and some are in the early phase of rollout, having demonstrated safety and efficacy against disease. This is an important area of research that will likely vary according to the community, the vaccine, the populations prioritized for vaccination and other factors. Without vaccines, we are at risk of serious illness and disability from diseases like measles, meningitis, pneumonia, tetanus and polio. Many of these diseases can be life-threatening. WHO estimates that vaccines save between two and three million lives every year. Vaccines reduce risks of getting a disease by working with the body's natural defenses to build protection (Yang, Peng, Wang, Guan, Jiang, Xu, Sun, Chang, 2020). When a vaccine is received, the immune system responds. It recognizes the invading germ such as the virus or bacteria produces antibodies and remembers the disease and how to fight it. If one is then exposed to the germ in the future, the immune system can quickly destroy it before one become unwell. The vaccine is therefore a safe and clever way to produce an immune response in the body without causing illness.



Two key reasons to get vaccinated are to protect ourselves and to protect those around us. Because not everyone can be vaccinated – including very young babies, those who are seriously ill or have certain allergies – they depend on others being vaccinated to ensure they are also safe from vaccine-preventable diseases. When a person gets vaccinated against a disease, their risk of infection is also reduced – so they’re also less likely to transmit the virus or bacteria to others. As more people in a community get vaccinated, fewer people remain vulnerable, and there is less possibility for an infected person to pass the pathogen on to another person. Lowering the possibility for a pathogen to circulate in the community protects those who cannot be vaccinated (due to health conditions, like allergies, or their age) from the disease targeted by the vaccine. During the COVID-19 pandemic, vaccination continues to be critically important. The pandemic has caused a decline in the number of children receiving routine immunizations, which could lead to an increase in illness and death from preventable diseases. WHO has urged countries to ensure that essential immunization and health services continue, despite the challenges posed by COVID-19.

As immunization is one of the most successful and cost-effective health interventions to prevent infectious diseases, vaccines against COVID-19 are considered to be of great importance to prevent and control COVID-19 (Lurie, Saville, Hatchett, Halton, 2020). Countries worldwide are trying to accelerate the research and development of COVID-19 vaccines, and it has been reported that there have been more than 160 candidate vaccines to date, with around 20 candidates in clinical evaluation. Although great progress has been made, there are still important challenges regarding the public acceptance of COVID-19 vaccination. Vaccine acceptance reflects the overall perception of disease risk, vaccine attitudes and demand within the general population which is critical for the success of immunization programs to attain high vaccination coverage rates, especially for COVID-19 emerging infectious diseases (WHO, 2020).

2. THE STUDY THRUST

Previous studies on vaccine awareness, acceptance and theories of health behavior, such as the health belief model have identified many factors that influence the acceptance of a pandemic vaccine, including the risk perception of the disease, perception of vaccine safety and efficacy, general vaccination attitude, past vaccination history, recommendations from doctors, price, vaccination convenience and socio-demographic characteristics (Dubé, MacDonald, 2016).

This study assessed the awareness and perception of COVID-19 vaccine on the health status of urban adult population in Nigeria.

The four research questions that guided the study are:

1. What is the characteristic of the adult population that participated in the study in Nigeria?
2. What is the prevalence and correlates of COVID-19 vaccine risk factors associated with the health status of adult population in Nigeria?
3. To what extent is the adult population aware and perceive COVID-19 vaccine on their health status in Nigeria?
4. What is the relative contribution of age, gender, qualification, income, tribe and religion of adult population in Nigeria on health status?



The study employed correlational research type of non-experimental design. Purposive sampling technique was used to sample 300 participants that took part in the study. Only participants that had taken the COVID-19 vaccine were included in the study. One instrument, Adult Awareness and Perception of Covid-19 Vaccines on Health Status Questionnaire (APCVHSQ) with Cronbach Alpha reliability coefficient 0.85 was used for data collection. The instrument was divided into three sections. Section A contains the demographic characteristic information of the respondents with eight items.

Section B contains seven questions on COVID-19 risk factors with response option of Yes/No and section C is a 24 items which was sub- divided into two to elicit information on awareness and perception of respondents in a modified Likert format of Very True of Me (VTM) = 4, True of Me = 3, Untrue of Me = 2 and Very Untrue of Me = 1. To complement the empirical data, there was Key Informant Interview (KII) with selected respondents that participated in the study. Data collected was analysed using descriptive statistic of frequency, percentages and mean as well as inferential statistics of regression. The KII was analysed using thematic approach. Of the 300 instruments administered, only 285 were retrieved from the respondents.

3. RESULTS AND DISCUSSIONS

The result of the study revealed that most of the participants 240(80%) were within the age range of 31-47 years. In terms of gender, 162(56.8%) of the participants were male as against the female participants with 138(45.2%). Majority of the participants 169(56.3%) were Yorubas, followed by Igbos (22%) and Hausas (21.6%). The result also shows that 129(43%) of the participants are Christians, 114(38%) Moslem and 57(19%) were traditional believers. Moreover, majority 162(54%) of the participants were civil servants, 69(23%) were into business, 36(12%) were farmers while 27(9%) were unemployed. 11.6% of the participants did not respond. This characteristic description of the participants was similar to that of Dube and MacDonald (2016) on Vaccine Acceptance: Barriers, Perceived Risks, Benefits, and Irrational Beliefs.

It is not also a surprise that majority of the participants were civil servants. The demographic characteristic was also similar to that of Fuwape, Okpalaonwuka, and Ogunjo (2021) in their study of Impact of COVID-19 pandemic lockdown on distribution of inorganic pollutants in selected cities of Nigeria. However, this result was not in agreement with the result of Lurie, Saville, Hatchett and Halton (2020). This may likely be due to study area.



Table 1: Prevalence of Covid-19 vaccine awareness among Adult dwellers

S/N	Items	VTM	TM	UM	VUM	No Response	\bar{x}
1	I know that there is COVID-19	234 (82.1)	24 (8.4)	6 (2.1)	12 (4.2)	9 (3.2)	3.62
2	I am aware that the Federal government had imported vaccines for our use	150 (52.6)	105 (36.8)	18 (6.3)	3 (1.1)	9 (3.2)	3.27
3	I know I can avoid having COVID-19 if I observe social distancing	138 (48.4)	96 (33.7)	33 (11.6)	12 (4.2)	6 (2.1)	3.22
4	I know I will not be affected by COVID-19 if I regularly use my face mask	120 (42.1)	102 (35.8)	24 (8.4)	33 (11.6)	6 (2.1)	3.04
5	I know I can wash my hands to avoid COVID-19	135 (47.4)	114 (40.0)	18 (6.3)	12 (4.2)	6 (2.1)	3.26
6	I listen to news about the consequences of COVID-19	111 (38.9)	114 (35.8)	48 (16.8)	18 (6.3)	6 (2.1)	3.03
7	I observe COVID-19 protocols religiously	90 (31.6)	114 (40.0)	60 (21.1)	15 (5.3)	6 (2.1)	2.94
8	I am aware that alcohol intake can prevent COVID-19	42 (14.7)	90 (31.6)	75 (26.3)	72 (25.3)	6 (2.1)	3.32
9	COVID-19 vaccine is recommended for everybody	111 (38.9)	99 (34.7)	45 (15.8)	24 (8.4)	6 (2.1)	3.00

Criterion Mean = 2.50

Weighted Mean = 3.20

Table 1 shows the participants awareness of COVID-19 vaccines among adult population in Nigeria. It could be observed from the table that the mean values of items 1, 2, 3, 4, 5, 6, 7, 8 and 9 are higher than the criterion mean of 2.50. Therefore, it can be concluded that adult population in Nigeria were aware of covid-19 vaccine prevalence ($2.50 < 3.07$). This means that there is high level of awareness of the prevalence of the vaccine among adult population in Nigeria which may be attributed to their level of exposure and education.

The implication of this result was that many adults in Nigeria were aware that there is government effort to curb the spread of the virus through vaccination. This result agreed with Badejo, Ogunseye and Olasunkanmi (2020) in their study on "Rural Women and the COVID-19 Pandemic in Ogun State, Nigeria: An Empirical Study"



Table 2: Prevalence of Covid-19 vaccine Perception among Adult Dwellers

S/N	Items	VTM	TM	UM	VUM	No Response	(\bar{x})
1	Taking COVID-19 vaccine gets me immune	129 (45.3)	90 (31.6)	48 (16.8)	12 (4.2)	6 (2.1)	3.14
2	I know that the noise about COVID-19 vaccine is to syphon money by government officials	60 (21.1)	105 (36.8)	66 (23.2)	36 (12.6)	18 (6.3)	2.54
3	I know the vaccine being given cannot prevent COVID-19	60 (21.1)	105 (26.3)	108 (37.9)	33 (11.6)	9 (3.2)	2.51
4	I know the vaccine is to reduce the population of Nigerians	54 (18.9)	78 (27.4)	75 (26.3)	72 (25.3)	6 (2.1)	2.36
5	I know COVID-19 vaccine is safe for human being	81 (28.4)	66 (23.2)	84 (29.5)	48 (16.8)	6 (2.1)	2.59
6	COVID-19 vaccine will aggravate ones underlining ailment	87 (20.0)	84 (29.5)	78 (27.4)	60 (21.1)	6 (2.1)	2.44
7	I don't believe COVID-19 will kill me	111 (38.9)	60 (21.1)	84 (29.5)	27 (9.5)	3 (1.1)	2.87
8	Getting the vaccine is not difficult	57 (20.0)	108 (37.9)	54 (18.9)	57 (20.0)	9 (3.2)	2.52
9	After taking COVID-19 vaccine, infection will be a thing of the past	60 (31.7)	48 (25.4)	54 (28.6)	21 (11.1)	6 (2.1)	2.71
10	I know it is very expensive to get the vaccine	84 (29.5)	99 (34.7)	87 (30.5)	39 (13.7)	3 (1.1)	2.59
11	If I take the vaccine, it can cause another ailment	63 (22.1)	72 (25.3)	93 (32.6)	51 (17.9)	6 (2.1)	2.47
12	I hope the vaccine is good for everybody	75 (26.3)	93 (32.6)	75 (26.3)	33 (11.6)	9 (3.2)	2.67
13	I just can't believe there is COVID-19 in Nigeria	69 (24.2)	81 (28.4)	60 (21.1)	66 (23.2)	9 (3.2)	2.47
14	I don't think there is enough basic information about COVID-19	48 (16.8)	105 (36.8)	84 (29.5)	45 (15.8)	3 (1.1)	2.53
15	I have the conviction that by inhaling hot vapour, I can prevent COVID-19	78 (27.4)	75 (26.3)	81 (28.4)	45 (15.8)	6 (2.1)	2.61

Criterion Mean = 2.50

Weighted Mean = 2.60

Table 2 shows the perception of Covid-19 vaccine among adult population in Nigeria. It could be observed from the table that the mean values of most items are higher than the criterion mean of 2.50 except the mean values of items 4(2.36), 6(2.44), 11(2.47) and 13(2.47) which are lower than the criterion mean. From the result, it could ascertain that majority of the adult population in Nigeria has a positive perception about COVID-19 vaccines (2.50<2.60). The implication of this result is that adult population in Nigeria accepts the introduction of COVID-19 vaccine to curb the spread of the virus. This result is not in support of the report of Ali & Alharbi, (2020) who claimed that there is no vaccine for the treatment of COVID-19. However, the study is in agreement with the result of the Badejo, et al (2020).



Table 3: Prevalence of Covid-19 vaccine impact on health status

S/N	Items	Yes	No	No Response
1	Weeks after taking COVID-19 vaccine, my health condition worsened.	81 (28.4)	147 (51.6)	57 (20.0)
2	After the vaccination, I find it difficult to cope with daily activities	45 (15.8)	183 (64.2)	57 (20.0)
3	I became weak immediately I took COVID-19 vaccine	84 (29.5)	144 (50.5)	57 (20.0)
4	I experience general weakness of the body after the vaccination	54 (18.9)	174 (61.1)	57 (20.0)
5	The vaccine completely changed my body system	93 (32.5)	135 (47.4)	57 (20.0)
6	I was unconscious for many hours after the vaccination	60 (21.1)	168 (58.9)	57 (20.0)
7	The vaccine did not have any effect on me.	102 (35.8)	123 (43.2)	60 (21.1)

Table 2 presents the impact of Covid-19 vaccine on health status of the adult population in Nigeria. Majority 147 (51.6%) of the adult population believed that their health conditions were not worsened after taken Covid-19 vaccine. Also, 183 (64.2%) of the adult population in Nigeria did not find it difficult to cope with their daily activities after the vaccination. Moreover, about half (50.5%) of the adult population in Nigeria were not weak immediately they took Covid-19 vaccine. 174 or (61.1%) of the adult population in Nigeria did not experience general weakness of body after taken the vaccination. In spite of the result some 123(43.2%) of the population sampled believed that the vaccine did not have any effect on them whereas 93(32.5%) of the adult population agreed that the vaccine completely changed their body system while 60 or (31.2%) of the adult population reported being unconscious for many hours after taken the vaccine. This result shows that there was no negative implication on the adult after taken the vaccine.

Table 4: Correlation Matrix of Demographic Characteristics of Adult on Health Status

Variables	Age	Gender	Highest Qualification	Tribe	Occupation	Highest Income	Religion Affiliation	Ailments
Age	1							
Gender	-.069	1						
Qualification	.211*	-.091	1					
Tribe	-.134	.030	-.091	1				
Occupation	-.130	.008	.022	.078	1			
Highest Income	-.014	.106	.005	.248*	.063	1		
Religion Affiliation	-.234*	.005	-.089	.231*	.200	.284**	1	
Ailments	-.060	-.060	-.083	.150	.023	.167	.095	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).



Table 4 shows the correlation coefficient of the demographic information on the health status of participants. From the table, qualification has significant relationship with age with p-value $p < 0.05 (0.000)$ and religion affiliation with p-value $p < 0.5 (0.000)$ and no significant relationship between qualification and health status of respondents with p-value $> 0.05 (-0.060)$. Moreover, religion affiliation has significant relationship with health status with p-value $< 0.05 (0.000)$ and income with p-value $< 0.05 (0.000)$ and no significant relationship between tribe and health status with p-value $> 0.05 (0.167)$. With this result, the report of Mboera et al. (2020), was supported. The response of those that were interviewed attest to the fact that getting the vaccine does not aggravate the underlining ailments when they took the vaccine as there was no side effect of the vaccine on their health. In another response, almost all the respondents that were interviewed confessed that malaria 138 or 48.6% was the highest risk factor associated with the vaccine followed by headache 54(18.3%). However, very sizable number 72(25.3%) of the respondents did not believe that there is any risk factor against the vaccination.

4. CONCLUSION

In this study, I have assessed the awareness and perception of COVID-19 vaccine on the health status of adult population in Nigeria. The study revealed that majority of adult population was aware of the prevalence of COVID-19 vaccine as part of government effort to mitigate the spread of the virus and had positive disposition to the vaccine. In addition, it was revealed that majority of the adult population in Nigeria did not have adverse effect of the vaccine on their health status but malaria was found to be the highest risk factor associated with COVID-19 vaccine. It is therefore recommended that more awareness campaign be embarked upon by the agencies responsible for mobilization to reduce the negative perception of COVID-19 vaccine among the adult population in Nigeria.

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