



Awareness of COVID-19 and its Vaccine Acceptability among Young Adult Population of Agbor, Delta State, Nigeria

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ABSTRACT

There have been controversies hovering around Coronavirus disease 2019 (COVID-19). Although this disease has claimed lives, the effort is on top gear to stop or prevent the consequences of this virus infection by producing a potent antidote in the form of a vaccine. Many vaccines have been produced and distributed worldwide, yet, the awareness and willingness to accept the vaccine has become a great challenge in many countries, including Nigeria. However, this study evaluates the knowledge, awareness of COVID-19 and willingness to accept the vaccine among the young adult population of Agbor, Delta State, Nigeria. A descriptive, cross-sectional, and multistage sampling technique was adopted in this study. The questionnaire was administered to 184 consented participants who were within the targeted age range. Data obtained were subjected to inferential statistics using the chi-square test, and $P < 0.05$ was considered statistically significant. 106 female and 78 male respondents were interviewed. 78.3% of the female population showed that COVID-19 and its vaccine exist, 17% and 19.2% of respective gender neither convey that it exists or not. The respondents (male and female) agree that there is a vaccine, and 85.8% of the females and 85.9% of the males were not eager to be vaccinated. This study revealed that most respondents believe COVID-19 and its vaccine exist but don't know much about their actions. As a result, many are unwilling to accept the vaccine. Though this finding is not gender-based, more awareness programs should be done to increase the vaccine acceptance rate.

Key Words: Knowledge, Awareness, Acceptance, COVID-19 vaccine, Delta state, Nigeria

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INTRODUCTION

Previously known as SARS-CoV2, the deadly coronavirus disease 2019 (COVID-19) discovered in December 2019 in Wuhan, Hubei Province, China, is still active in causing respiratory dysfunction [1]. A large family of ribonucleic acid (RNA) viruses, including Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV), are responsible for a variety of ailments, from the ordinary cold to more severe conditions [2]. The most often reported COVID-19 symptoms are; fever, dry cough,

fatigue, myalgia, shortness of breath, and dyspnea [3, 4]. However, the World Health Organization (WHO) and pertinent public health organizations constantly update this list of symptoms. There is proof, for instance, that newborns who were once believed to be immune to serious COVID-19 issues may acquire a rare and potentially fatal inflammatory illness linked to the virus [5-7]. Several places in the United States and Europe have also reported cases of pediatric multi-system inflammatory syndrome (PMIS), with some children experiencing organ failure and a few passing away in the New York region [5]. The bodies of these kids are likely

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to be severely inflamed because of the virus, which is thought to trigger excessive immune reactions [5]. Possible symptoms include a rash, swollen hands and feet, extremely red eyes, an ache in the stomach and a rash. The ensuing clinical situation is similar to Kawasaki disease, an uncommon baby illness with equivalent symptoms that, in extreme cases, can cause heart damage and blood vessel expansion [5, 6]. Recent studies suggest that it significantly affects the cardiovascular (CV) system by direct myocardial damage, a severe systemic inflammatory response, hypoxia, right heart strain related to ARDS, lung injury, and plaque rupture secondary to inflammation [8]. Primary cardiac symptoms have included acute myocarditis, myocardial infarction, arrhythmia, and abnormal coagulation [8].

In January 2020 and March 2020, the World Health Organization classified the disease as a pandemic [9] and a Public Health Emergency of International Concern. COVID-19 has been linked to around 109 million illnesses and 2.4 million fatalities since February 16, 2021 [10]. Since the end of 2019 [10, 11], the COVID-19 pandemic, which was brought on by infection with the brand-new SARS-CoV-2 virus, has resulted in crises in the world's public health and economy. The disease's symptoms range from asymptomatic infections to mild respiratory symptoms, severe pneumonia, acute respiratory failure, and death [11]. Despite some socio-political controversies and scientific reservations, such as those related to vaccine safety, and concerns linked to antibody-dependent disease enhancement (ADE) in prior coronavirus animal vaccine studies [12], the consensus is that an effective vaccine should be developed as soon as possible to reduce morbidity and mortality [13]. In recent years, academic institutions and corporate groups from several nations have advanced research and development and achieved historic successes [14]. The bulk of COVID-19 vaccine candidates are based on DNA or mRNA vaccines based on S antigen, subunit vaccinations, viral vector vaccines, and inactivated vaccines [12]. However, the COVID-19 immunizations are shrouded in mystery.

The current mRNA-based immunizations may be viewed with skepticism due to the lack of experience or development with such an approach. The low level of acceptance may also have been caused by the vaccines' quick production and certification in less than a year. Multiple anti-vaccination movements worldwide that have been inspired by new technologies and the quick development of vaccines have also contributed to the low level. The use of imprecise and frequently misleading translations in social media campaigns feeds conspiracy theories. Also, a few locally specific factors may also be at play, including a part of the population losing faith in the government or disliking how the pandemic has been

handled generally. Despite these challenges, it is essential to comprehend public perception, behavior, expectations, reluctance, and variables affecting the decision to utilize the COVID-19 vaccine in order to adopt the most efficient public awareness and vaccination strategy. People's awareness, behaviors, readiness to use, expectations, reluctance as well as the financial capacity to pay for COVID-19 in such a circumstance has become a challenge to the health sector, and these challenges with COVID-19 and its vaccination have not yet been the subject of any adult population studies in Nigeria. This study's goal was to determine how many young adults in Agbor, Delta State, Nigeria, are aware of COVID-19 and whether they are willing to receive the vaccine.

MATERIALS AND METHODS

Participant

The cross-sectional study involved 184 young adults (78 males and 106 females) in Agbor, Delta State, Nigeria. The participants were 18-29 years old and consented and participated in this study. The results were compiled and analyzed at the Department of Physiology, PAMO University of Medical Sciences, Port-Harcourt, Rivers State, Nigeria. The study received approval from the University's research ethics committee (PUMS-REC/2021/091).

Criteria for inclusion and exclusion

The study excluded participants below the age of 17 years and above 30 years

Study design

The study was a descriptive cross-sectional survey, and a multistage sampling technique was employed. A descriptive questionnaire was administered, and data was gotten from one hundred and eighty-four (184) subjects. Only respondents willing and falling within the age range were allowed to participate.

Statistical analysis

Data was analyzed using the statistical package for social science (SPSS) software (Version 23), the chi-square test was used as inferential statistics at a 95% confidence interval, and P-value lesser than 0.05 was considered statistically significant.

RESULTS AND DISCUSSION

The age of the respondents was grouped into three classes; a class of 18- 21 years, a class of 22-25 years, and a class of 26-29 years. The age interval of 18-21 years was observed with the highest frequency, followed by the interval of 22-25 years, and the least frequency was

observed in the age interval of 26-29 years (Figure 1b). Among the population was observed of one hundred and six (106) females and seventy-eight (78) males (Figure 1a). The majority of the respondent's marital status was observed as single. Only a few were married (Figure 1c). 78.3% of the female population and 71.8% of the male population showed that COVID-19 and its vaccine are real, and 17% and 19.2% of the respective gender neither convey that COVID-19 is real or not (Table 1). In Table 2, it was observed that the majority of the respondents (male and female) agree that there is a vaccine through the knowledge of respondents towards COVID-19 and its vaccine is moderate. Only a few claimed to be highly knowledgeable about COVID-19 and its vaccine, while the least of the population has no idea about COVID-19

and its vaccines (Table 3). In Table 4 below, the highest frequency was observed, and the majority of the respondents are neither sure of the safety of the vaccine. Similarly, Table 5 also showed that the majority of the respondents don't trust any information given in regards to COVID-19 and its vaccines. 49.1% of the female disagree that it is not necessary to get vaccinated, while 42.5% agree that it is necessary and over 9.4% neither agree nor disagree. In males, 35.9% agree that vaccination is necessary, and over 47.4% disagree (Table 6). Table 6 also showed that 85.8% of females and 85.9% of males were not willing to be vaccinated. It was further observed that the current study was insignificant with gender though the test of knowledge towards COVID-19 and its vaccines was significant with gender (Table 6).

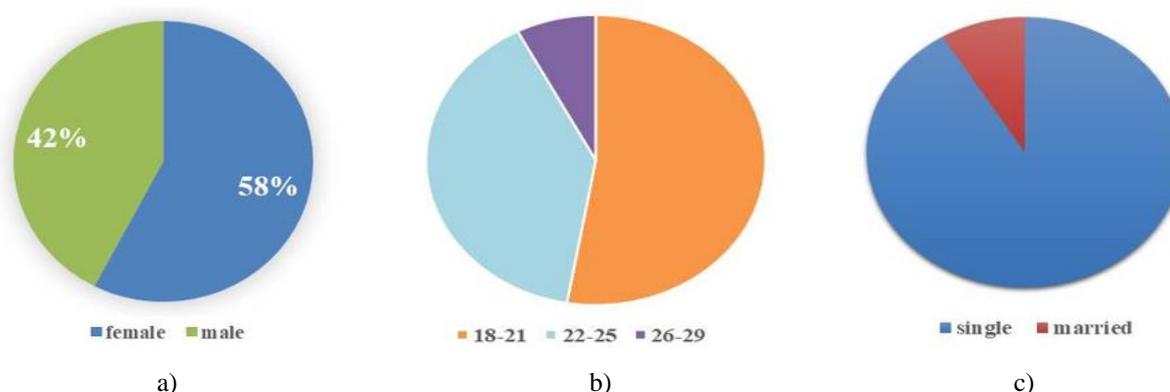


Figure 1. a) Gender distribution, b) Age in classes, c) Marital status. Values are expressed in percentage

Table 1. Association between gender and respondents' opinion on the existence of COVID-19.

Gender		Does COVID-19 exist?			Total
		Yes	No	not really	
Female		83	5	18	106
		78.3%	4.7%	17.0%	100.0%
Male		56	7	15	78
		71.8%	9.0%	19.2%	100.0%
Total		139	12	33	184
		75.5%	6.5%	17.9%	100.0%

X²= 1.62; df = 2; p value 0.44

Table 2. Association between gender and respondents' opinion on the existence of the COVID-19 vaccine

Gender		Does the COVID-19 vaccine exist?			Total
		Yes	No	not really	
Female		104	1	1	106
		98.1%	0.9%	0.9%	100.0%
Male		72	1	5	78
		92.3%	1.3%	6.4%	100.0%
Total		176	2	6	184
		95.7%	1.1%	3.3%	100.0%

X²= 4.32; df=2; p value= 0.16

Table 3. Distribution between gender and respondents' knowledge of COVID-19 and its vaccine

		How knowledgeable are you about COVID-19 and its vaccine			Total
		Highly	Moderate	No idea	
Gender	Female	28	74	4	106
		26.4%	69.8%	3.8%	100.0%
	Male	9	56	13	78
		11.5%	71.8%	16.7%	100.0%
Total		37	130	17	184
		20.1%	70.7%	9.2%	100.0%

$\chi^2=13.05$; $df=2$, p value = 0.001

Table 4. Distribution between gender and respondent opinion about the safety of the COVID-19 vaccine

		How safe is the COVID-19 vaccine			Total
		Safe	Not Safe	Not sure	
Gender	Female	19	19	68	106
		17.9%	17.9%	64.2%	100.0%
	Male	17	21	40	78
		21.8%	26.9%	51.3%	100.0%
Total		36	40	108	184
		19.6%	21.7%	58.7%	100.0%

$\chi^2=3.29$; $df=2$; p value =0.19

Table 5. Association between gender and respondent opinion on the reliability of the information concerning COVID-19 and its vaccine

		Can information about COVID-19 and its vaccine be reliable		Total
		Yes	No	
Gender	Female	31	75	106
		29.2%	70.8%	100.0%
	Male	24	54	78
		30.8%	69.2%	100.0%
Total		55	129	184
		29.9%	70.1%	100.0%

$\chi^2=0.05$; $df=1$, p value 0.82

Table 6. Distribution between gender and respondents' eagerness to receive the COVID-19 vaccine and opinion of the respondents on the importance of the COVID-19 vaccine

Gender		How eager are you to receive the COVID-19 vaccine?		Total	Do you think it is necessary to get vaccinated?			Total
		Eager	Reluctant		Yes	No	May be	
		Female	15	91	106	45	51	10
		14.2%	85.8%	100.0%	42.5%	48.1%	9.4%	100.0%
Male	11	67	78	28	37	13	78	
		14.1%	85.9%	100.0%	35.9%	47.4%	16.7%	100.0%
Total		26	158	184	73	88	23	184
		14.1%	85.9%	100.0%	39.7%	47.8%	12.5%	100.0%

$\chi^2=0.00$; $df=1$, p value 0.99

$\chi^2=2.37$; $df=2$, p value 0.31

This study showed that the majority of the respondents claim that COVID-19 and its vaccine are real, and they

believe that there is a vaccine that has been produced to help eradicate the virus from our environment. These

findings concur with Isaac *et al.* [15], who had a higher respondent awareness of the vaccines. The knowledge about COVID-19 increases rapidly across the gender as it was observed that the majority of the respondents have moderate knowledge about it. These findings agree with a report from Christopher *et al.* [16], who surveyed US adults' knowledge and attitudes regarding COVID-19. Their study showed that the increased knowledge of COVID-19 may be attributed to an increased understanding of preventive health as a result of the COVID-19 pandemic. In the report by Tamam *et al.* [17], who conducted research on the Acceptance and Attitudes toward COVID-19 Vaccines and recorded that In Jordan, public acceptance of COVID-19 vaccines was relatively poor at about 37.4%. This also conveys similarity with the current study that observed a decreased frequency of respondents who are unsure if the vaccine is safe. It is obvious that the respondents disregard any information given concerning COVID-19 and its vaccine and the tendency of the respondents who think it is unnecessary to get vaccinated. Those who see it as necessary are really at the peak. However, it was insignificant with gender differences. The findings contradicted the report of Kabamba *et al.* [18], who recorded significant gender differences in the willingness and those who received vaccines. According to Haq *et al.* [13], people shouldn't be infected before they get vaccinated because the consensus is that an effective vaccine should be produced as soon as possible to minimize morbidity and mortality [19-21]. This should be taught to everyone because the present study expresses a high frequency of hesitancy in receiving vaccines and increasing their immunity [22, 23].

CONCLUSION

Finally, this investigation may reveal some similarities and differences in previously published work which could be attributable to technique and knowledge of COVID-19 and its vaccinations in the area. All COVID-19 vaccine taskforces established by the World Health Organization and the Delta State Ministry of Health, including the public health institutes, are strongly encouraged to intensify their awareness campaigns regarding the effectiveness and safety of the COVID-19 vaccine. They can do this by working with regional and zonal health offices across the nation. By giving reliable information on the COVID-19 vaccine as well as seeking to immunize the public even before infection, health planners and policymakers should promote COVID-19 vaccine uptake behaviors in all regions of Delta State and throughout Nigeria.

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REFERENCES

- [1] Wu F, Zhao S, Yu B, Chen YM, Wang W, Song ZG. A new coronavirus associated with human respiratory disease in China. *Nature*. 2020;579(7798):265-9.
- [2] Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*. 2020;579(7798):270-3.
- [3] Chan JFW, Yuan S, Kok KH, To KKW, Chu H, Yang J. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020;395(10223):514-23.
- [4] Riou J, Althaus CL. The pattern of early human-to-human transmission of Wuhan 2019 novel coronavirus (2019-nCoV), December 2019 to January 2020. *Eurosurveillance*. 2020;25(4):2000058.
- [5] Ekron RI, Abass BL. African Cultural Concept of Death and the Idea of Advance Care Directives. *Indian J Palliat Care*. 2016;22(4):369-72.
- [6] African center for disease control and prevention. Multisystem Inflammatory Syndrome in children and adolescents temporally related to COVID-19. Available from: <https://africacdc.org/download/multisystem-inflammatory-syndrome-in-children-and-adolescents-temporally-related-to-covid-19>, 2020.
- [7] Strodel B, Olubiyi O, Olagunju M, Keutmann M, Loschwitz J. High Throughput Virtual Screening to Discover Inhibitors of the Main Protease of the Coronavirus SARS-CoV-2. *Preprints*. 2020;040161. doi:10.20944/preprints202004.0161.v1
- [8] Bandyopadhyay D, Akhtar T, Hajra A, Gupta M, Das A, Chakraborty S. COVID -19 Pandemic: Cardiovascular Complications and Future Implications. *Am J Cardiovasc Drugs*. 2020;20:311-24.
- [9] World Health Organization Coronavirus disease (COVID-19). Situation Report -140. Available from: <https://reliefweb.int/report/world/coronavirus-disease-covid-19-situation-report-140-8-june-2020>.

- [10] Orser BA. Recommendations for endotracheal intubation of COVID-19 patients. *Anesth Analg*. 2020;130(5):1109-10.
- [11] Uddin M, Mustafa F, Rizvi TA, Loney T, Suwaidi HA, Al-Marzouqi AHH. SARS-CoV-2/COVID-19: Viral Genomics, Epidemiology, Vaccines, and Therapeutic Interventions. *Viruses*. 2020;12(5):526.
- [12] Li YC, Bai WZ, Hashikawa T. The neuroinvasive potential of sars-cov2 may play a role in the respiratory failure of covid-19 patients. *J Med Virol*. 2020;92(6):552-5.
- [13] Haq EU, Yu J, Guo J. Frontiers in the development of the COVID-19 vaccine. *Exp Hematol Oncol*. 2020;9(1):24.
- [14] Xia S, Duan K, Zhang Y, Zhao D, Zhang H, Xie Z. Effect of an Inactivated Vaccine Against SARSCoV-2 on Safety and Immunogenicity Outcomes: Interim Analysis of 2 Randomized Clinical Trials. *JAMA*. 2020;324(10):951-60.
- [15] Echoru I, Ajambo PD, Bukenya EM. Acceptance and Risk Perception of COVID-19 Vaccine in Uganda: A Cross-Sectional Study in Western Uganda. *BMC Public Health*. 2020;47.
- [16] Hogan C, Atta M, Anderson P, Stead T, Solomon M, Banerjee P, et al. Knowledge and attitudes of us adults regarding COVID-19. *Int J Emerg Med*. 2020;13(1):1-6.
- [17] El-Elimat T, AbuAlSamen MM, Almomani BA, Al-Sawalha NA, Alali FQ. Acceptance and attitudes toward COVID-19 vaccines: A cross-sectional study from Jordan. *Med Rxiv*. 2020.
- [18] Nzaji MK, Ngombe LK, Mwamba GN, Ndala DB, Miema JM, Lungoyo CL, et al. Acceptability of vaccination against COVID-19 among healthcare workers in the Democratic Republic of the Congo. *Pragmat Obs Res*. 2020;11:103.
- [19] Lazarus JV, Ratzan SC, Palayew A, Gostin LO, Larson HJ, Rabin K, et al. A global survey of potential acceptance of a COVID-19 vaccine. *Nat Med*. 2021;27(2):225-8. doi:10.1038/s41591-020-1124-9
- [20] Dror AA, Eisenbach N, Taiber S, Morozov NG, Mizrahi M, Zigran A, et al. Vaccine hesitancy: the next challenge in the fight against COVID-19. *Eur J Epidemiol*. 2020;35(8):775-9. doi:10.1007/s10654-020-00671-y
- [21] Kricoran K, Turner K. COVID-19 Vaccine Acceptance and Beliefs among Black and Hispanic Americans. *PLoS One*. 2021;16(8):e0256122. doi:10.1371/journal.pone.0256122
- [22] Biswas N, Mustapha T, Khubchandani J, Price JH. The Nature and Extent of COVID-19 Vaccination Hesitancy in Healthcare Workers. *J Community Health*. 2021;46(6):1244-51. doi:10.1007/s10900-021-00984-3
- [23] Tao L, Wang R, Han N, Liu J, Yuan C, Deng L, et al. Acceptance of a COVID-19 vaccine and associated factors among pregnant women in China: a multi-center cross-sectional study based on health belief model. *Hum Vaccin Immunother*. 2021;17(8):2378-88. doi:10.1080/21645515.2021.1892432