



Knowledge, Perception, Attitude and Covid-19 Vaccine-Uptake Intention Among Older-Adult Residents In Ikenne Local Government Area, Ogun State, Nigeria

Ogbonna Amarachukwu Peace

Department of Public Health, Babcock University, Ilisan-Remo, Ogun State.

Atulomah Nnodimele

Department of Public Health, Babcock University, Ilisan-Remo, Ogun State.

Aibangbee Evarister Osas

Department of Public Health, Babcock University, Ilisan-Remo, Ogun State.

Oguntade Martin

Department of Public Health, Babcock University, Ilisan-Remo, Ogun State.

Oniga Georgina Olamiji

Department of Public Health, Babcock University, Ilisan-Remo, Ogun State.

ABSTRACT

Background of the study: Ever since COVID-19 pandemic started, there have been more than a few misconceptions across media about COVID-19 and its vaccines, which has been predicted may worsen vaccine hesitancy, hence an understanding of the level of knowledge, perception and attitudinal disposition towards COVID-19 constitute an indispensable element in COVID-19 vaccine uptake intention.

Methodology: The study was a cross-sectional survey study that utilized interviewer-administered validated 41-item questioner for data collection. The study subjects were 399 consenting older-adult selected by multistage sampling technique who are residents in Ikenne LGA. Data analysis was by computation of means and standard deviation and Pearson's correlation coefficient was used to determine the relationship between the dependent and independent variables. All statistical test were at 5% level of significance. Ethical approval was obtained from Babcock University Health Research and Ethics Committee (BUHREC) before embarking on the study

Result: The selection of gender was matched. 38.1% of the respondents had no education, while 27.3% had tertiary education. The outcome of this study shows that the mean knowledge score was 6.90 ± 1.37 on a 10-point scale with a prevalence of 55.6%, mean attitude score on a scale of 26 was 15.43 ± 3.42 , with a prevalence of 59.3%. The perception mean score is 19.44 ± 0.21 , the perception of the respondents to COVID-19 and its vaccine is satisfactory with overall score of 62.71. The result from this study shows that COVID-19 uptake intention is significantly related to perception and attitude of the respondents ($p < 0.005$).

Conclusion: The intention to get the COVID-19 vaccine were positively influenced by perception and attitudinal disposition, nevertheless, targeted health education interventions are needed to increase the uptake of the COVID-19 vaccine.

KEYWORDS: COVID-19, knowledge, perception, attitudinal, vaccine-uptake and intention

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I. INTRODUCTION

The infection from the Severe Acute Respiratory Syndrome Coronavirus-19 (SARS-Cov-19), the virus responsible for the COVID-19 pandemic is reputed to have spread in almost every country in the world causing serious global health burden owing to its rapid transmission, with high prevalence and significant morbidity and

mortality. The World Health Organization (WHO) on February 11, 2020 named the novel virus severe acute respiratory syndrome coronavirus 2 (Machhi, et al., 2020). The virus was discovered first in Wuhan a city in China in December, 2019 and since then has spread to several countries in the World. The WHO on January 30, 2020 documented Corona virus disease as the sixth Public Health Emergency of International Concern, after which the infection was confirmed a pandemic on March 11, 2020 (Baj, et al., 2020).

Vaccination remains the most effective, and affordable intervention to alleviate the increase of COVID-19 cases (Wang, et al., 2020). The invention of vaccine is one of the accomplishments of contemporary medicine. It has helped to achieve complete eradication of some diseases such as small pox, measles, and poliomyelitis in most countries (Andre, et al., 2008), hence, it's considered as one of the most significant public health measure in curbing the spread of contagious diseases. However, there has been longstanding challenge with vaccine and immunization coverage in Nigeria, yet vaccines have made massive contribution to public health in prevention and eradication of infectious diseases in Nigeria (Hardt, Schmidt-Ott, Glismann, Adegbola, & Meurice, 2013).

In 2019, hesitancy to uptake of vaccine was pinpointed by WHO as one of the top ten health challenge affecting the world. (WHO, Report of the SAGE working group on vaccine hesitancy, 2014). They also went further to Categorize the determinants for vaccine hesitancy as contextual, individual and group and vaccine /vaccination-specific influences. Since the pandemic started, there are more than a few misconceptions across media about COVID-19 and its vaccines, which has been predicted may worsen vaccine hesitancy, hence an understanding of the level of knowledge, perception and attitude of the residents towards COVID-19 constitute an indispensable element in understanding their COVID-19 vaccine uptake intention.

II. METHODOLOGY

The study was a community-based cross-sectional study design. The instrument adopted for the study was a validated 41-item questioner with internal consistency of 0.80. Data was collected about knowledge, perception, attitude and COVID-19 vaccine uptake intention among 399 consenting older-adult selected by multistage sampling technique who are residents in Ikenne LGA. Trained research assistants collected data from respondents. Data analysis was by computation of means and standard deviation and Pearson's correlation coefficient was used to determine the relationship between the dependent and independent variables. All statistical test were at 5% level of significance. Ethical approval was obtained from Babcock University Health Research and Ethics Committee (BUHREC) before embarking on the study.

Instrument development

The 41-item questionnaire developed measured the responses of participants surveyed regarding demographic characteristics, knowledge, perception, attitudinal disposition and COVID-19 vaccine uptake intentions.

Measures of Knowledge regards COVID-19 and its vaccine

A 10-item scale with 2 ratings from 0-1 was used to assess resident's knowledge of COVID-19. Each item was rated 0-1 with 1 being "yes" and 0 "no". The scores for all the 10 items was summed up and rated between lowest obtainable score, as 2 and highest obtainable score, 20. The mean, standard deviation and the prevalence were obtained too.

Measures of perception of the respondent to COVID-19 and its vaccine

The scale used was a 11-item scale measuring perception of the respondent to COVID-19 and its vaccine from 0 "strongly agree" to 3 "strongly disagree". The total of the scores for the 11 items designated the score for the level of perception of COVID-19 and its vaccine. The lowest obtainable score was 11 and the highest obtainable score was 44. The mean, standard deviation and prevalence were calculated.

Measures of Attitudinal disposition towards COVID-19 and its vaccine

The scale used was a 10-item scale measuring perception of the respondent to COVID-19 and its vaccine from 0 "strongly agree" to 3 "strongly disagree". The total of the scores for the 10 items showed the score for the attitudinal disposition towards COVID-19 and its vaccine. The lowest obtainable score was 10 and the highest obtainable score was 40. The mean, standard deviation and prevalence were obtained too.

Measures of Intention of the respondents towards the uptake of COVID-19 vaccine

The scale used was a 3-item scale measuring COVID-19 vaccine uptake intention from 0 "strongly agree" to 3 "strongly disagree". The aggregate of the scores for the 3 items revealed the score for Intention of the respondents towards the uptake of COVID-19 vaccine. The lowest obtainable score was 3 and the highest obtainable score was 12. The mean, standard deviation and prevalence were obtained too.

Data analysis

The data collected was analyzed using IBM SPSS 24 version. Descriptive statistics such as mean, standard deviation and frequency distribution were used to assess the levels knowledge, perception, attitudinal disposition and COVID-19 vaccine uptake intentions. Pearson's correlation coefficient was used to determine

the relationship between the dependent and independent variables. All statistical test were at 5% level of significance.

III. RESULTS/FINDINGS

The selection of gender was matched. 38.1% of the respondents had no education, while 27.3% had tertiary education. Almost half of the respondents 49.9% are married. Most of the respondents are of Yoruba tribe 49.1%, Igbo 36.1% and only 14.8% are Hausas. 50.4% of the respondents are of Christian religious background.

Knowledge about COVID-19 and its vaccine

The knowledge of the participants on COVID-19 and its vaccine was presented as a frequency distribution, the knowledge variable sought to identify the likely causes of COVID-19, the symptoms, and preventive practices and possible complications of the disease. . The mean knowledge score was 5.56 ± 1.37 on a 10-point scale with a prevalence of 55.6%. According to the result displayed in table 4.2, about half of the respondent 52.6% identified that COVID-19 is not disease that is caused bacteria in the blood, regarding the symptoms associated with COVID-19, 69.7% of the respondents surveyed were able to respond correctly. 57.1% indicated that they have heard of COVID-19 vaccine while 41.6% of the participants surveyed indicated that to limit the spread of the virus, face mask is necessary.

Perception of the Respondent's to COVID-19 and its vaccine-uptake

Frequency distribution for the study measuring the perception of the participants towards COVID-19 disease and its vaccine uptake sought to identify the participants perceived susceptibility and perceived severity of the virus as well as the perceived barriers and benefits associated with the vaccine uptake. The perception mean score is 19.44 ± 0.21 , the perception of the respondents to COVID-19 and its vaccine is satisfactory with overall score of 62.71. The outcome of the analysis shows that about half of the respondents (52.1%) agreed that they are susceptible to contracting COVID-19 if they come in contact with infected persons. 45.1% of the respondents surveyed indicated that the complications associated with COVID-19 are severe, while 36.8 % of the respondents perceives their chances of dying from complications of the virus is very high. Furthermore, 45.1% of the participants in the study agreed that vaccination is the most effective way to prevent the disease.

Attitudinal Disposition of the Respondents to COVID-19 disease and its vaccine uptake

Evaluating the frequency distribution for the study related to attitudinal disposition to COVID-19 disease and its vaccine among the respondents shows that 59.9% of them believe that they are immune to COVID-19, 60.9% indicates that congregation of large crowd should be allowed, only 46.1% of the participants in the study believes that the use of facemask is necessary in the prevention of the virus. 44.4% of the respondents agreed that family, friends and coworkers have convinced them to accept the novel vaccine, similarly, 51.9% stated that the physician recommend they should take the vaccine. The mean attitude score on a scale of 26 was 15.43 ± 3.42 . Our finding revealed that 59.3%% of the study participants demonstrated a positive attitude towards COVID-19 and its vaccine.

Intention of the respondents towards COVID-19 vaccine uptake.

The frequency distribution of the respondent's intention to take COVID-19 vaccine shows that 73.2% of them intend to accept COVID-19 vaccine when it is available. However, 57.6% of the respondents agreed that they have rejected a similar vaccine in the past and so didn't see the need of accepting COVID-19 vaccine. The overall score for vaccination intention of the participants of the study was also assessed based on their mean score and it was found to be 56.1%

Table 1: Summary of descriptive statistics regarding knowledge, perception, attitudinal disposition and COVID-19 vaccine uptake intention

VARIABLES	Maximum point on scale of measure	Mean and Standard Deviation		Over All
		X	±SD	%
Knowledge about COVID-19 and its vaccine	10	5.56	1.37	55.6
Perception of the Respondent's to COVID-19 and its vaccine-uptake	31	19.44	4.30	62.71
Attitudinal Disposition of the Respondents to COVID-19 disease and its vaccine uptake	26	15.43	3.42	59.35
Intention of the respondents towards COVID-19 vaccine uptake.	9	5.05	1.91	56.1

Table 2: Correlation analysis regarding relationship between knowledge, perception and attitudinal disposition to COVID-19 vaccine uptake intention

VARIABLE	Maximum points on a scale of measure	COVID-19 Vaccine Uptake Intention		
		X	(r)	p-value
Knowledge about COVID-19 and its vaccine	10	5.56	0.091	0.069
Perception of the Respondent's to COVID-19 and its vaccine-uptake	31	19.44	0.21	0.000
Attitudinal Disposition of the Respondents to COVID-19 disease and its vaccine uptake	26	15.43	0.203	0.000

Significant at $p < 0.05$

IV. DISCUSSION

The decision of people to get involved in a preventive health behavior is influenced by different psychological factors such as attitudes, beliefs, perception and intention, quite a few is embodied in major health behavior theories thereby, valuable in understanding and predicting health behaviors of individuals (Gerend & Shepherd, 2012). The outcome from this study suggests that perception and attitudinal disposition is an important factor in vaccination intention (see table 2).

The outcome of this study shows that respondents had a fair understanding of COVID-19. The mean knowledge score was 5.56 ± 1.37 on a 10-point scale. The correct overall rate of the knowledge questionnaire was 55.6%. According to the result displayed in table 4.2, about half of the respondent 52.6% identified that COVID-19 is not disease that is caused bacteria in the blood. In addition, a good number of the respondents 67.2% identified that avoiding crowded places helps limit the transmission of the virus., 30.3% of the participants could not identify the symptoms associated with COVID-19, this is consistent with a previous study by Wolf, Serper, Opsasnick, O'Conor,; Laura Curtis,; Julia Benavente; Wismer; Batio, Eifler, Zheng, Russell, Arvanitis, Ladner, Kwasny, Persell, Rowe, Linder; and Bailey (2020), where 28.3% of the participants could not identify the symptoms associated with the disease. 57.1% of the respondents indicated that they've heard about COVID-19 vaccine however, 58.4% stated that facemask does not help to prevent the spread of the virus which is similar to the study by Ejeh, Saidu, Owoicho, Jauro, Madukaji, and Okon (2020) where 40.8% of the respondents indicated that they don't wear face mask. There is no significant relationship between respondent's knowledge on COVID-19 disease and its vaccine and intention to uptake of COVID-19 vaccine ($r = 0.091$; $p > 0.05$).

The perception of the participants were evaluated based on their perceived susceptibility, perceived severity, barriers and benefits. The perception of people to a particular disease strongly affects their decision to embark on a healthy behavior to prevent the disease (Rosenstock, 1974), in this study, 79.2% of the respondents indicated that they're likely to contract the COVID-19 disease, this is in line with Gidengil, Parker, Zikmund-Fisher (2012). The outcome of the results reported cost of vaccine (70.7%), distance to the vaccination site (66.9%) and side effects of vaccine (52.8%) as possible barriers to uptake of the vaccine, dying from the novel vaccine was among the least of their barriers. In addition, most of the respondents believed that COVID-19 vaccination is the most effective to prevent the disease and can reduce the symptoms and complications associated with the disease. These results are consistent with the outcome of a previous study indicating that the correlations between perceived susceptibility, severity, and COVID-19 vaccine acceptance were statistically significant also (Marta & Erich, 2021), found that that the intention to get vaccinated or intake of the COVID-19 vaccine were positively related to the perceptions of becoming infected.

The attitudes of the respondents will affect intention to take the vaccine; the mean attitude score on a scale of 26 was 15.43 ± 3.42 . Our finding revealed that 59.3% of the study participants demonstrated a positive attitude towards COVID-19 and its vaccine. In this study, the attitudes of the participants were assessed based on their beliefs, misconceptions and acceptance of the vaccine. Such as Nigerians are immune to COVID-19, Herbal preparations are more effective than vaccines; people should be allowed to congregate in a large crowd. 59.9% of the respondents believed that they're immune to the disease, while 53.6% of the participants involved in the study thinks that the use of facemask is not important in preventing COVID-19. According to (Cialdini, Demaine, Sagarin, Barrett, Rhoads, Winter, 2006), unfavorable social influences can act as a barriers to vaccine acceptance and uptake, Such as beliefs about what others in one's social group approve or disapprove of ("social norms"), in this study, 68.2% indicated that family and friends have convinced them to take the vaccine and 72% reported that the physicians has recommended that they should take the vaccine. The outcome of this study shows attitude and vaccination intention are significantly correlated ($p < 0.005$), which is in accordant with report by Nzaji, Ngombe, Mwamba, Ndala, Miema, Lungoyo, Mwimba, Bene, Musenga (2020) and (Jiahao, et al., 2020).

The level of determination to receive COVID-19 vaccine is revealed by the people's perceived threat of the disease and their attitude towards the vaccine. The intention to execute a particular behaviour which is vaccination is also influenced by the perceived behavioural control (PBC) and the subjective norms which are perceived societal influences from family, peers, society (Schmid, Rauber, Betsch, Ldiot, & Denker, 2017). The

outcome of this result shows that 73.2% intend to take COVID-19 vaccine once it becomes available while 10.5% reported being very unlikely to be vaccinated, this is in line with a study by (Jiahao, et al., 2020), where 1879 (91.3%) of the respondents consented that they would accept COVID-19 vaccine, also in a cross-sectional survey of 1,500 UK adults in an online panel data research by (Susan, et al., 2020), 64% of participants reported being very likely to be vaccinated against COVID-19. In the present study, perceived susceptibility, perceived benefits of the vaccine, low barriers to the vaccine, subjective norm are significantly associated with vaccination intention, similarly (Guidry, et al., 2020) in their study reported positive subjective norms, high perceived behavioral control, positive attitudes toward the vaccine, as well as high perceived susceptibility to COVID-19, high perceived benefits of the vaccine, low barriers to the vaccine, as predictors for getting the vaccine, on the other hand, perceived behavioral control is not significantly related to vaccine uptake intention in this study.

Recommendations

From the findings of the study, health education intervention should be taken as a priority to increase the COVID-19 vaccine uptake behavior before mass vaccination schedule. In addition, it will also help improve their perception about the vaccine to enhance uptake of the vaccine.

Further research:

Determinants influencing adherence to COVID-19 vaccine uptake among health care workers in Ogun State, Nigeria.

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