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Factors Associated with Uptake of Covid -19 Vaccination Among Adults in Ifo Local Government Area of Ogun State

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ABSTRACT: *Rather than being celebrated, the eventual discovery of systems of vaccination against COVID-19 pandemic was otherwise greeted with pessimism, causing attrition and low uptake of the vaccines in some cultures, especially in African countries. This study assessed factors (social, ethno-cultural, and religious) associated with uptake of COVID 19 vaccines among adults in Ifo Local Government Area of Ogun State. The study adopted the descriptive survey research design to collect data from 384 adult residents living in Ifo Local Government who were selected using multi-stage sampling procedure. Relevant data was collected for the study with the use of a validated self-developed and well-structured questionnaire instrument consisting of 5 sections labelled (Sections A-E). Descriptive statistics like frequency counts, mean and standard deviation were used to analyze the research objectives while multiple regression analysis was used to test the hypothesis. The result revealed that the levels of influence of social, ethno-cultural and religious factors on the uptake of COVID-19 vaccination among adults were moderate. Also, there was significant composite influence of social, ethno-cultural and religious factors on uptake of COVID -19 vaccine among adults ($F_{3\ 383}=36.586$; $p<.05$). It was recommended among others that the entire Health Ministry and donor agencies should focus on social settings like family units, community associations, schools, social media, registered clubs and associations to spread right knowledge and awareness on the need for all to get vaccinated.*

KEYWORDS: COVID 19 Vaccine, Factors, Uptake of COVID 19 Vaccines, Social Factor, Ethno-Cultural Factor, Religious Factor

INTRODUCTION

The enormity of challenges placed on the entire world as a result of COVID-19 has necessitated the urgent need for an efficacious vaccination system, cheap and potent enough to salvage individuals from the severity of the conditions of the deadly disease. Social distancing, constant washing of hands, use of facemasks were the earliest temporal means of preventing the spread of the virus. Apart from the temporariness of these methods, the measure of efficiency and effectiveness of such methods proved they were merely physically protective and never provided any hope of an air-tight preventive approach. The next option was the quest for an effective and efficient scientifically sound biochemical approach which would not only combat the disease and its inherent risks but one that would be globally acceptable, and superimposable on factors that may limit general acceptance.

Thus, at the time, the whole world was in dire need of a vaccine that would go around in no time to stop the risk of looming extinction to the human race (El-Elimat, et al, 2021). However, rather than being celebrated, widely and incontrovertibly accepted and adopted by all for speedy circulation and total embrace, the eventual discovery of systems of vaccination against the pandemic was otherwise greeted with some sort of pessimism causing attrition and low uptake of the vaccines in some cultures, especially in African countries (Hlongwa, et al, 2022) based on a number of factors including safety of, trust in, knowledge about, belief on, and advice and information available about the vaccine (Taryam, et al, 2021)**.** Since high-level uptake of vaccines is a global pre-requisite to the attainment of the ultimate aim of vaccination which is to gradually lessen the effect of and combat mortality associated with the disease, it becomes essentially important to dissipate concerted research efforts on factors associated with vaccine uptake with a view to dispelling them for eventual curbing of spread of the disease and all connected risks.

The dangerous dimension of threat to human life, sustenance and economic survival posed by COVID-19 necessitated altering the traditional vaccine development lifespan of 10 to 15 years to something around 12 to 24 months for the production of vaccines like the BNT162 vaccine by Pfizer and BioNTechmRNA-1273 vaccine by Moderna, AZD1222 by AstraZeneca and University of Oxford, Corona Vaccine by Sinovac, COVID-19 vaccine by Sinopharm and the Wuhan Institute of Virology, China, SputnikV by the Gamaleya Research Institute, Russia, BBIBP-CorV by Sinopharm and Beijing Institute of Biological Products, China, EpiVacCorona by Federal Budgetary Research Institution State Research Center of Virology and Biotechnology, Russia and Covaxin by Bharat Biotech and National Institute of Virology, India (Kashte, et al, 2021).

Following this necessary alteration, there has been an adverse implication on the global uptake and acceptance of COVID-19 vaccines. In addition, the novelty behind technology that birthed the new mRNA-based vaccines could reasonably, be held in doubt because there has not been any record to support the use or success of such a technology in the past. Taking these two points together, it is

natural for people to nurture disbelief in and display negative attitude against a vaccine prepared they believe was 'hurriedly' prepared using what the potential beneficial think is an unknown or strange approach.

Although known COVID -19 vaccines including Pfizer-BioNTech and Moderna mRNA are reportedly, appreciably effective (up to 90) in protecting symptomatic and asymptomatic patients against SARS-CoV-2 which causes COVID-19 (Fowlkes, et al, 2021) but among the list of approved vaccines (AstraZeneca/Oxford vaccine, Johnson and Johnson, Moderna, Pfizer/BioNTech, Sinopharm, Sinovac, COVAXIN, Covovax and Nuvaxovid), none can account for absolute level of protection against the virus (World Health Organization, 2022). This implies that vaccinated persons can still contract and still test positive for the ailment. Thus, without adequate knowledge that vaccination is a sure way of substantially lowering the risk of contracting COVID -19 and the extent of severity of its attached symptoms, there may be high likelihood of aspersion on the acceptance or uptake of the vaccine.

According to WHO (2020), 68.3 Million of the world population has received at least one dose of a COVID-19 vaccine. 10.94 billion doses had been administered globally, and 17.96 million are now administered each day. Only 14 %of people in low-income countries have received at least one dose. For Africa, the aim was to vaccinate at least 20% of the population by providing 600 million doses of vaccines at the end of 2021. The first phase of 90 million of doses would support African countries to immunize 3% of the African population that are mostly in need of protection, including health workers and other vulnerable groups in the first half of 2021.

In a related development, Terefa, et al (2021) carried out a study on factors associated with COVID -19 vaccine uptake among health professionals Ethiopia, and found out that there is incidence of low COVID -19 uptake even among health professionals. Age, gender, occupation, perception of on family health perceived family health, past adulthood vaccination experience and contact history with COVID-19 patients were some of the factors found to hold predictive value for vaccine uptake among health professionals in Ethiopia. The implication of the study conducted in Ethiopia is that compulsion of all health professionals to get vaccinated may be a right step in the right direction.

With the current population of 214,321,258 as of February 2022, Nigeria plans to vaccinate about 141,224,012.3 people out of which less than 0.5% had been fully vaccinated while less than 1% had the first dose as at 14th June 2021 (National Primary Health Care Development Agency, NPHCDA, 2021). Although Trading Economics (2022) reported that, as at February, 2022, the COVID -19 vaccination figure rose to 10 doses per 100 people per day but this rate of COVID -19 uptake is obviously considerably low. Also, Nigeria's plan was to vaccinate over 140,000,000 of its population but as at February, 2022, despite the fact that number of confirmed cases is about 254,428, death over 3,000. Less than 8% of the target population has received the two recommended doses(17,646,781) and (8,145,416)only about 4%received first dose while less than 3% got the booster dose

(NPHCDA,2022).According to data from NPHCDA (2022), Ogun State having vaccinated 3.34 % of its eligible citizens is the highest in the ranking on vaccination uptake.

In another study involving students of health sciences in Northwestern Nigeria, acceptance of COVID -19 vaccination was low amongst students of health sciences while age, heads of the institution, trust in government and readiness to pay for vaccine had significant individual relationship with COVID -19 acceptance (Mustapha, et al., 2021).

Ogun State linked with the first index case of coronavirus in Nigeria is one of the States in Nigeria with highest number of coronavirus cases. As a result of this, coupled with the closeness of the State to Lagos, Ogun unsurprisingly recorded a correspondingly high number of COVID -19 cases. This notwithstanding, NPHCDA has ranked Ogun State highly as the first of five States with the highest COVID -19 vaccination rates in Nigeria. According to This Day news reports of 30th November, 2021, while Nigeria targets the vaccination of 50 %of her population, Ogun was the only State with 3.30 vaccination rates while other States like Zamfara, Oyo, Osun and Ekiti followed in succession. Although the State reportedly did so much to be the best amongst others but in absolute terms, the level of vaccine uptake is still very much low in the State, and lower for the other States and the entire country. As this generally low vaccine uptake is not tidy enough for the country, a lot of experiences can be gained from Ogun State on how it staged massive public campaign for mass vaccination to achieve the little feat it has achieved while the State itself can leverage on knowledge gathered and lessons learnt in this regard to have a sustainable increase in uptake of vaccines.

If factors associated with the uptake of COVID -19 vaccination are well dissected as it affects individual states, the magnitude and orientation of individual belief system can be understood, and given proper guidance. By this, individuals will clearly see the need to get vaccinated just as they may likely join the crusade in support of mass vaccination. When they do this, they will be contributing to their own personal health and protection against COVID -19, and the accumulation of this is a sure way of addressing and securing public health.

Nigerian Government once made known its readiness to procure Oxford/AstraZeneca and Sputnik V COVID-19 vaccines for use by her citizens with priority given to front liners in the health sector. Since the announcement was made for the purchase of COVID-19 vaccines in Nigeria, there has been a mixed response as to whether or not to accept or refuse vaccination by several people in the country. Since vaccines will not achieve any significant feat against an ailment in the face of disbelief and non-acceptance, it becomes valid to aver that for vaccination to arrest the spread and minimize the severity of COVID-19, deliberate actions must be taken against factors that may hinder the uptake of vaccines, and to do this in Nigeria, studying and understanding these factors in each peculiar setting should be the first step in order to identify and assess the workability of possibility solutions.

It is noticeable that most of the previous researches carried out on uptake of COVID -19 drew their subjects from the health sector without giving due reference to the generality of the common people. Also, demographical and institutional variables were mostly considered by previous studies without giving adequate regard to more traditional factors like culture, beliefs, orientation and level of knowledge cum awareness. One possible reason for this is because of the belief that it is only through health professionals that the common people could be reached to give public awareness, information and knowledge to the common (wo)men on the streets or in market places, forgetting that, once there is mistrust between these professionals and the people, vaccine hesitancy will continue to be prevalent, and this will continue to reduce uptake. Thus, consideration of all factors associated with uptake of COVID -19 vaccination should be holistic in terms of population, academic content and geographical scope. Unfortunately, this has been missing, and may be the link between improved uptake of COVID -19 vaccination and herd immunity.

In bridging the above gap, the present study will examine factors associated with uptake of COVID -19 vaccination among adults in Ifo Local Government Area of Ogun State with the aim of improving uptake of COVID -19 Vaccines and thereby reducing the burden of COVID -19 infection on the family, society and the nation. The specific objectives of the study were to:

1. to assess the level of uptake of COVID-19 vaccination among adults;
2. assess the social factors responsible for the uptake of COVID-19 vaccination among adults;
3. identify the ethno-cultural factors responsible for the uptake of COVID-19 vaccination among adults; and
4. assess the religious factors responsible for the uptake of COVID-19 vaccination among adults.

Hypothesis

This hypothesis was tested in this study:

$H_0$1: There is no significant composite influence of social, ethno-cultural and religious factors on uptake of COVID -19 vaccine among adults in Ifo LGA of Ogun State

METHODOLOGY

The study utilized the descriptive survey research design to collect data from the key respondents. The population of this study was vaccinated and unvaccinated adults living in Ifo Local Government. It includes residents of Ifo Local Government Area of Ogun State who are up to or above 18 years of age. According to population estimates, the total population of adults in Ifo LGA is quite more than 10,000. When a population size is more than 10,000, one can set the population estimate at 10,000. Taro Yamane formula was used to calculate the sample size of 423 adults. Multistage sampling procedure was used to select the sample size for the study.

In the first stage of the multi-stage sampling technique, the researcher used stratified sampling technique to categorize the 11 wards in Ifo community into three strata as rural, semi-urban and urban. Rural wards are Ososun and Sunren, Semi Urban wards are Coker, Ifo III, and Ibogun while Urban wards are Agbado, Ajuwon/Akute, Ifo I, Ifo II, Isheri and OkeAro. The second stage was the use of cluster sampling technique to identify all the clusters comprising all the residents of Ifo in each of the 3 strata comprising the 11 wards. At the third stage, the researcher used random sampling technique to pick 11 clusters out of all the identified clusters in each of the 3 the strata at the first stage. At this stage, there are 33 clusters randomly drawn from all the clusters of adults in Ifo LGA. The last stage was using random sampling technique to draw 13 adult residents from the first 27 clusters each and 12 adult residents from the last 6 clusters each. Therefore, the sample is 423 adult residents drawn from 11 wards in Ifo LGA using multi-stage sampling technique.

A self-developed and well-structured questionnaire instrument was used to gather relevant data on the variables of this study which was divided into five sections labelled sections A-E. Suggestions given by experts of Nursing Science and Tests & Measurement were incorporated into the drawing of the items after which they examined them for thorough scrutiny, modification and approval. These steps ensured the face and content validity of the instrument. The reliability of the instrument used for this study was determined through the application of internal consistency method. To do this, the instrument was first tried on 30 subjects selected from a population similar to but not part of the one used for the study. Reliability analysis was thereafter run for the data collected on SPSS version 23 which was used to estimate Cronbach alpha for the multidimensional instrument. The Cronbach alpha for each of the six dimensions in the instrument gave the minimum value of 0.81 which implied that the items in each of the 6 dimensions of the instrument were highly internally consistent.

Permission was sought from appropriate Community Head to enhance the cooperation of the respondents. This helped to minimize attrition and ensured 90.7% collection rate but 100% sample size achieved rate. Data gathered in this study was analyzed using descriptive and inferential statistics. All the research objectives were analyzed using descriptive statistics involving mean, standard deviation, percentage and frequency counts where necessary while the hypothesis was tested using multiple regression analysis.

RESULTS

Table 1: Demographical Information of the Respondents

		Frequency	Percentage %
Age range	18 – 30	106	27.6
	31 – 45	157	40.9
	46 – 60	81	21.1
	60 & above	40	10.4
	Total (N)	384	100.0
Gender	Male	182	50.0
	Female	182	50.0
	Total (N)	384	100.0
Marital Status	Married	179	47.6
	Unmarried	90	23.9
	Divorced	43	11.4
	Widowed	45	12.0
	Separated	19	5.1
	Total (N)	376	100.0
Highest Level of Education	No Education	36	9.7
	Primary	68	18.3
	Secondary	158	42.6
	Tertiary	105	28.3
	Others	4	1.1
	Total (N)	371	100.0
Location	Urban	209	55.4
	Rural	82	21.8
	Semi Urban	86	22.8
	Total (N)	377	100.0
Religion	Christianity	164	43.5
	Islam	181	48.0
	Traditional	24	6.4
	None	8	2.1
	Total (N)	377	100.0
Occupation	Employed	196	52.5
	Unemployed	129	34.6
	Student/Apprentice	48	12.9
	Total (N)	373	100.0

Table 1 above showed that, majority, 157 (40.9%) of the respondents were in the 31 to 45 age brackets while 106 (27.6%), 81 (21.1%) and 40 (10.4%) were in the 18 to 30, 46 to 60 and 60 plus respectively. Equal number of male and female, 182 (50%) of the respondents responded to gender as an item in the questionnaire. Of the respondents that indicated their marital status, majority, 179 (47.6%) were married, while 90 (.9%), 43 (11.4%), 45 (12%) and 19 (5.1%) were unmarried, divorced, widowed

and separated respectively.

With respect to the respondents that indicated their highest educational qualification, 36 (9.7%), 68 (18.3%), 158 (42.6%), 105 (28.3%), 105 (28.3%) and 4 (1.1%) claimed to have no formal education, primary education, secondary, tertiary and others respectively. It was observed that majority of the respondents had secondary school education. Of the respondents who indicated their location, majority, 209 (55.4%) were from urban while 82 (21.8) and 86 (22.8) were from rural and semi urban area respectively. Concerning religious affiliation, 164 (43.5%), 181 (48%), 24 (6.4%) and 8 (2.1%) claimed to belong to Christian, Islamic, traditional and no religion respectively. Lastly, 196 (52.5%), 129 (34.6%) and 48 (12.9%) of the respondents were employed, unemployed and students/apprentices respectively.

Table 2: Uptake of COVID-19 Vaccination among Adults

S/N			Frequency	%	Mean	SD
1.	COVID-19 vaccine can effectively prevent COVID-19 infection	Strongly Disagree	9	2.3		
		Disagree	87	22.7		
		Agree	121	31.5		
		Strongly Agree	167	43.5		
		Total	384	100	3.16	.86
2.	If I had my way, I would not receive vaccination against COVID -19.	Strongly Disagree	154	40.1		
		Disagree	74	19.3		
		Agree	130	33.9		
		Strongly Agree	26	6.7		
		Total	384	100	2.07	1.00
3	I've told so many people to receive vaccines against COVID -19.	Strongly Disagree	14	3.6		
		Disagree	62	16.1		
		Agree	93	24.2		
		Strongly Agree	215	56.1		
		Total	384	100	3.33	.87
4.	I have completed my COVID -19 Vaccines doses	Strongly Disagree	18	4.7		
		Disagree	101	26.3		
		Agree	115	29.9		
		Strongly Agree	150	39.1		
		Total	384	100	3.03	.92
5.	COVID -19 Vaccination is not good for young adults.	Strongly Disagree	167	43.5		
		Disagree	63	16.4		
		Agree	110	28.6		
		Strongly Agree	44	11.5		
		Total	384	100	2.08	1.08

Table 2 above showed that items 2 and 5 were the only negative items on the scale. This implied that there appeared to be high likelihood of massive uptake of COVID-19 vaccines in the study area.
To summarize the uptake of COVID-19 vaccine, the following method was used:
Mean 13.6745
Std. Deviation2.39141
Minimum 7
Maximum 19
$\overline{X}$ -SD =11.28309
$\overline{x}$ +SD = 16.06591
Range
Scores from 7 to 11 low
Scores from 12 to 16 Moderate
Scores from 17 to 19

Table 3: Summary of Uptake of COVID-19 Vaccines

		Frequency	Percent
Valid	Low	49	12.8
	Moderate	284	74.0
	High	51	13.3
	Total	384	100.0

Table 3 showed that, 284 (74%) which is in majority of the respondents demonstrated the tendencies of receiving or having received uptake of COVID-19 Vaccines while 12.8% representing 49 respondents exhibited no interest in the uptake.

Table 4: Social Factors Responsible for the Uptake of COVID-19 Vaccination among Adults

S/N	ITEM		Frequency	Percentage	Mean	SD
1	COVID -19 Vaccination certificate must be a pass key into public places	Strongly Disagree	28	7.4		
		Disagree	82	21.8		
		Agree	98	26.0		
		Strongly Agree	169	44.8		
		Total	377	100	3.08	.98
2	Government has told too many lies about COVID -19	Strongly Disagree	151	40.4		
		Disagree	95	25.4		
		Agree	106	28.3		
		Strongly Agree	22	5.9		

		Total	374	100	2.00	.96
3	People in the lower class don't contract coronavirus	Strongly Disagree	119	32.2		
		Disagree	79	21.4		
		Agree	122	33.0		
		Strongly Agree	50	13.5		
		Total	370	100	2.28	1.06
4	Global pandemic is deceitful	Strongly Disagree	103	27.3		
		Disagree	106	28.1		
		Agree	122	32.4		
		Strongly Agree	46	12.2		
		Total	377	100	2.29	1.00
5	COVID -19 is an evil plan by China to dominate the world.	Strongly Disagree	130	34.8		
		Disagree	87	23.3		
		Agree	107	28.6		
		Strongly Agree	50	13.4		
		Total	374	100	2.21	1.06
6	No Vaccination Centre is close to me.	Strongly Disagree	102	27.3		
		Disagree	112	29.9		
		Agree	127	34.0		
		Strongly Agree	33	8.8		
		Total	374	100	2.24	.95
7	I don't belong to the social class of people who easily contract COVID -19.	Strongly Disagree	144	38.6		
		Disagree	92	24.7		
		Agree	103	27.6		
		Strongly Agree	34	9.1		
		Total	373	100	2.07	1.01
8	Introduction of vaccine has the potency of reducing world population	Strongly Disagree	97	25.9		
		Disagree	116	31.0		
		Agree	122	32.6		
		Strongly Agree	39	10.4		

		Total	374	100	2.28	.96
9	Vaccination is a means by Government to steal public money.	Strongly Disagree	157	41.6		
		Disagree	83	22.0		
		Agree	114	30.2		
		Strongly Agree	23	6.1		
		Total	377	100	2.01	.98

Table 4 above showed that, an aggregated majority of the respondents, as high as 70.8% agreed with the content of item 1, the only positive item on social factors in the instrument, while only a total of 29.2% of the respondents disagreed with this positive item which emphasized the use of COVID -19 vaccination certificate as a prerequisite for entry into public places. Other items in the instrument which are negative items, majority of the respondents, up to a cumulative figure of 65.8% for item 2 disagreed with the contents which says, 'Government has told too many lies about COVID -19', while only the summated percentage of 34.2% agreed with the content of this negative items. From the table, item 28 which stated that people in that lower social class do not contract COVID-19, was the only negative item with highest aggregated percentage (46.5%) of respondents agreeing to, while a total of 53.5% still showed disagreement against this negative item. The totality of these results indicated that, more people (summed up percentage of 70.8%) agreed with positive social factors related to COVID -19 while fewer of the respondents not more than a total of 46.5% subscribed to negative social predictors of COVID -19 uptake. Thus, while some percentage of the respondents may be affected by social factor, a higher percentage may not be affected by it in determining whether to take or not to take vaccine.

To summarize the influence of social factors on COVID-19, the following method was used:
Mean 19.9531
Std. Deviation 6.57457
Minimum 0
Maximum 34.00
$\bar{x}$ -SD = 13.37853
$\bar{x}$ +SD = 26.52767
Range
Scores from 0 to 13 low
Scores from 14 to 27 Moderate
Scores from 28 to 34 High

Table 5: Summary of Social Factors' Influence on Uptake of COVID-19 Vaccines

		Frequency	Percent
Valid	Low	49	12.8
	Moderate	286	74.5
	High	49	12.8
	Total	384	100.0

Table 5 showed that, 286 (74.5%) which is in majority of the respondents possessed moderate social factors that might influence uptake of COVID-19.

Table 6: Ethno-Cultural Factors Responsible for Uptake of COVID-19 Vaccination among Adults

S/N	ITEM		Frequency	Percentage	Mean	SD
1	Supernatural power is a preferred protection against COVID -19 than vaccines.	Strongly Disagree	126	33.8		
		Disagree	81	21.7		
		Agree	117	31.4		
		Strongly Agree	49	13.1		
		Total	373	100	2.24	1.06
2	I belong to a tribe of people that cannot contract coronavirus.	Strongly Disagree	104	27.3		
		Disagree	45	11.8		
		Agree	166	43.6		
		Strongly Agree	66	17.3		
		Total	381	100	2.51	1.07
3	Herb is a better cure of COVID -19.	Strongly Disagree	116	30.8		
		Disagree	116	30.8		
		Agree	130	34.5		
		Strongly Agree	15	4.0		
		Total	377	100	2.12	.89
4	COVID -19 prevention protocols are killer of culture.	Strongly Disagree	133	34.9		
		Disagree	76	19.9		
		Agree	141	37.0		
		Strongly Agree	31	8.1		
		Total	381	100	2.18	1.01
5	COVID -19 cannot survive in Nigerian weather.	Strongly Disagree	81	21.3		
		Disagree	60	15.7		
		Agree	201	52.8		
		Strongly Agree	39	10.2		
		Total	381	100	2.52	.94

6	I refuse to get vaccinated because only God/Allah can prevent COVID-19	Strongly Disagree	166	43.6		
		Disagree	61	16.0		
		Agree	119	31.2		
		Strongly Agree	35	9.2		
		Total	381	100	2.06	1.06

Table 6 showed that, of all the six negative ethno-cultural items, only items 2 and 5 which respectively speculate that a tribe of people cannot contract coronavirus and COVID -19 cannot survive in Nigerian weather did majority of the respondents (60.9% for item 36 and 63% for item 39) affirm. However, 39.1 and 37% disagreed that a tribe of people cannot contract coronavirus and COVID -19 cannot survive in Nigerian weather respectively. For the remaining negative items, respondents majorly disagreed while only very few agreed to the contents of each of the items.

To summarize the influence of ethno-cultural factors on COVID-19, the following method was used:
Mean 13.4531
Std. Deviation 4.63643
Minimum 0
Maximum 24.00
$\bar{x}$ -SD = 8.81667
$\bar{x}$ +SD = 18.08953
Range
Scores from 0 to 9 low
Scores from 10 to 18 Moderate
Scores from 19 to 24 High

Table 7: Summary of Ethno-cultural Factors' Influence on Uptake of COVID-19 Vaccines

		Frequency	Percent
Valid	Low	69	18.0
	Moderate	265	69.0
	High	50	13.0
	Total	384	100.0

Table 7 showed that, 265 (69%) which is in majority of the respondents possessed moderate ethno-cultural factors that might influence uptake of COVID-19.

Table 8: Religious Factors Responsible for Uptake of COVID-19 Vaccination among Adults

S/N	ITEM		Frequency	Percentage	Mean	SD
1	My religion prohibits me from taking vaccine.	Strongly Disagree	42	10.9		
		Disagree	91	23.7		
		Agree	193	50.3		
		Strongly Agree	58	15.1		
		Total	384	100	2.70	.86
2	COVID-19 vaccination contains unholy ingredients.	Strongly Disagree	59	15.5		
		Disagree	70	18.4		
		Agree	178	46.8		
		Strongly Agree	73	19.2		
		Total	380	100	2.70	.95
3	Those who take have limited years to live.	Strongly Disagree	42	11.1		
		Disagree	103	27.1		
		Agree	144	37.9		
		Strongly Agree	91	23.9		
		Total	380	100	2.75	.94
4	Vaccination is an end-time agenda.	Strongly Disagree	81	21.1		
		Disagree	60	15.6		
		Agree	132	34.4		
		Strongly Agree	111	28.9		
		Total	384	100	2.71	1.10

Table 8 above showed that, 65.4%, 66.1, 61.8% and 63.3% of the respondents agreed that, their religion prohibits me from taking vaccine, COVID-19 vaccination contains unholy ingredients, those who take ,have limited years to live and vaccination is an end-time agenda respectively while 34.6%, 33.9%, 38.2% and 36.7% of the respondents disagreed. Thus, the tendency is there for religious factors to influence COVID-19 uptake or not.

To summarize the influence of religious factors on COVID-19, the following method was used:
Mean 10.7943
Std. Deviation 3.55881
Minimum 4
Maximum 16
X-SD = 7.23549
X+SD = 14.35311

Range
Scores from 4 to 7 low
Scores from 8 to 14 Moderate
Scores from 15 to 16

Table 9: Summary of Religious Factors' Influence on Uptake of COVID-19 Vaccines

		Frequency	Percent
Valid	Low	88	22.9
	Moderate	231	60.2
	High	65	16.9
	Total	384	100.0

Table 9 showed that, 231 (60.2%) which is in majority of the respondents demonstrated moderate religious factors that might influence uptake of COVID-19.

Test of Hypothesis

$H_0$1: There is no significant composite influence of social, ethno-cultural and religious factors on uptake of COVID -19 vaccine among adults in Ifo LGA of Ogun State

Table 10: Multiple Regression showing influence of Associated Factors and Uptake of COVID-19

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.498	.556		15.283	.000
	Social Factors	.064	.023	.175	2.786	.006
	Ethno-Cultural Factors	.141	.036	.274	3.978	.000
	Religious Factors	.203	.043	.302	4.773	.000
R = .607, R Square = .368, Adjusted R square = .358, F = 36.586						

The results in Table 10 above showed that, there is significant composite influence of social, ethno-cultural and religious factors on uptake of COVID -19 vaccine among adults in Ifo LGA of Ogun State ($F_{3\ 383}$=36.586; p<.05). It was observed that, 35.8 of variance in uptake of COVID-19 is significantly jointly traceable to social, ethno-cultural and religious factors (R^2=.358; p<.05).

DISCUSSION

The present research findings showed that, the level of influence of social factors on the uptake of COVID-19 vaccination among adults was moderate. This finding is in perfect agreement with the trend reported in earlier studies like WHO (2020) that reported some social determinants that have much to determine about the behavioural outpour of people as per the decision to or not to take vaccines or issues around vaccination. Empirical studies carried out have suggested social-political

orientations to decisions taken by people in relation to COVID -19 and vaccination against it. This outcome of significant relationship between social factors and the uptake of COVID -19 vaccines also similar to the COVID -19 vaccination disparity due to social factors observed by Agarwal, et al (2021). This is so because individuals often imitate or are compelled by social considerations to imitate the other persons, groups or social units. The decision to take or not to take COVID -19 vaccine may be made as a result of the dispositions of the social settings to which individuals belong or in which they find themselves.

Trailing a similar path is another result obtained in this study which revealed that, the level of influence of ethno-cultural factors on the uptake of COVID-19 vaccination among adults was moderate. Expectedly, ethnicity and cultural orientations have a way of influencing people's decisions in several respects. This is because culture is well-grounded, deep-rooted and intricately ingrained much more than habit that cultural dictates or considerations often form the basis of important decisions made by some individuals. Significant relationship between ethno-cultural factors and COVID -19 uptake observed by this research is really in tandem with the earlier explanations offered by Kalam, et al. (2021) and Ng and Tan (2021) who asserted that some of these ethno-cultural considerations are resident in belief in herbal medicines as means of prevention, present health conditions, COVID -19 cannot survive in African weather and black Africans have natural immunity to COVID -19 infection. It is thoughtful that, due to the lessons learnt during the ravaging days of COVID -19, the belief that vaccination improves COVID -19 survival rates too, might have become part of the cultural fabrics of some ethnic groups, too, and the chunk of the people who reside in Ifo might not be excluded from this.

The present research findings also showed that, the level of influence of religious factors on the uptake of COVID-19 vaccination among adults was moderate. Although there have been beliefs that awareness of Nigerians about coronavirus is coloured by religious beliefs but empirical studies have often shown otherwise. Adedeji-Adenola, et al (2022) while conducting an empirical study on factors influencing COVID-19 vaccine uptake among adults in Nigeria observed that Christians and Muslims had better COVID -19 vaccination awareness than their non-religious counterparts which implies that the two major religious groups teach their people on the essential knowledge to combat the virus. In this sense, the finding of significant positive relationship between religious factors and uptake of vaccines as recorded by this study is self-explanatory. However, the finding negates the proposition of Aroh, et al (2021) who emphasised that religious beliefs and myths exist in Africa which militate against uptake of vaccines. This negation is not unwarranted because of the peculiarity surrounding the advent of the vaccines and the way it clearly affected major or all religious organisations which made all to learn fast, positively leading to positive psychology of adjustment by members.

Finally, the result of significant composite influence of social, ethno-cultural and religious factors on uptake of COVID -19 vaccines is a clear pointer to the multidimensional orientation of COVID -19 uptake as a dimensional variable. Earlier studies like Agarwal, et al (2021), Ng and Tan (2021) have

all previously indicated that COVID -19 uptake is not solely a function of one particular variable, and the last finding of this study has given credence to all these.

CONCLUSION

The study concluded that the levels of influence of social, ethno-cultural and religious factors on the uptake of COVID-19 vaccination among adults were moderate. Furthermore, uptake of COVID -19 vaccination has been unraveled in this study to bear strong association with several other variables. As it has been shown, if all these variables are jointly brought to a focus point, they may harmonise to give appreciable improvement to uptake of COVID -19 vaccination.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. The entire Health Ministry and donor agencies should focus on social settings like family units, community associations, schools, social media, registered clubs and associations to spread right knowledge and awareness on the need for all to get vaccinated. In addition, the use of regular mass media should be complemented with social media (groups).
2. COVID -19 Vaccination Task force can also be formed among communities and towns to continue to give right knowledge on COVID -19 vaccination and where to receive it with ease.
3. Health Ministry and other stakeholders in the health sector should enlighten health care givers to put a paid to the belief that, cultural beliefs or practices exist, especially with respect to the study area, which have negative implication for the uptake of COVID -19. There should not only be teams to counsel and allay the fears of these frontline health workers, there should also be taskforce and complaints lodging points to ensure adequate coverage of all ethnic groups within the community.
4. The outcome which significantly linked religious factors to uptake of COVID -19 vaccine brings to fore the need for important stakeholders in the health sector to put behind them the erstwhile belief that religious beliefs majorly exist in adult residents in the study area which might make them resist COVID -19 vaccination. In fact, what actually exists, as this study has shown, is positive religious inclinations which may help improve the uptake of COVID -19, and arrest the death threat. Thus, the use of churches, mosques and other religious houses to share essential information about COVID -19 and vaccination should continue to be taken to all available religious centres, and it is through these that positive knowledge about COVID -19 will continue to be transmitted to help improve uptake, and arrest its ugly claws.

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