



Rural Households' Disposition towards Vaccination against COVID-19 Pandemic in Oyo State, Nigeria

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Abstract

Rural households are very important and are actually the bedrock in the drive to fight poverty, hunger, the attainment of improved gross national product (GDP) and sustainable food security. The advent of COVID-19 in 2019 really hampered peoples' health and livelihood activities. Therefore, this study assessed the rural households' disposition towards vaccination against COVID-19 pandemic in Oyo State, Nigeria. The specific objectives were to: describe socioeconomic characteristics of the rural households in the study area, identify the underpinning factors associated with the effects on livelihood activities of the rural households during COVID-19 pandemic, determine rural households' dispositions towards COVID-19 vaccination, and identify the constraints against COVID-19 vaccination in rural areas. The hypothesis was that there is no significant relationship between constraints and rural farming households' disposition towards vaccination against COVID-19 vaccination. Multistage sampling procedure was used to select 364 core rural households. It was revealed that the mean age was 45 years. Nationality/tribe revealed that 77.7% were indigenes while 22.3% were non-indigenes. All (100%) the respondents affirmed that they got their information on COVID-19 from radio.

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All (100%) the respondents asserted that imposition of restrictions on movements was the actual major factor that really affected all activities in their areas. Also, all (100%) the respondents affirmed that nobody was hospitalized and there was no any case of death due to COVID-19 infection in their areas. Furthermore, all (100%) the respondents held the belief that rural people cannot contract COVID-19 at first instance, hence vaccination was not needed. Regression analysis established that constraints of trekking long distance and phobia for vaccine were significantly related to rural households' disposition towards vaccination against covid-19 pandemic in Oyo State. Therefore, government and all health stakeholders should device strong means of persuasion to convince the rural people about the health implications and importance of vaccines and other equally crucial health improvement programmes. Rural people should also be encouraged to embrace orthodox medical practices alongside their traditional medicine.

Keywords: Rural households; COVID-19; disposition; vaccination.

1. Introduction

Rural people are contextualized as people who are precisely close to nature, live far away from towns and cities but interact very closely with the environment. Due to high concentration of natural resources [1] rural households are very germane and actually are the bedrock in the drive to fight poverty, hunger and the attainment of improved gross national product (GDP) and sustainable food security. This is due to the fact that in Nigeria, the aggregate production surpluses from these rural households form the national output. However, the advent of COVID-19 in 2019, and having its full blown spread worldwide in 2020 which threatened humanity Soyannwo, and his colleagues, 2022 [2] really hampered peoples' health and livelihood activities worldwide, and Nigeria is not an exception. Reference [3] had asserted that COVID-19 had ravaged many parts of the world and including Nigeria. The rate at which this COVID-19 was spreading especially at the onset of the outbreak was highly unprecedented. Coronavirus disease, commonly called COVID-19, was described by [3] as a contagious respiratory illness, having its incubation period range from one to fourteen days[4], transmitted through the eyes, nose and mouth through droplets from coughs, sneezes, close contact with infected person and contaminated surfaces [5,6]. The effects of this pandemic were so devastating that necessitated various governments pronouncing total lockdown of all human activities throughout the world. This was corroborated by Reference [7,8] that many governments imposed total nationwide lockdown (curfew) to restrict the spread of the virus and protect the health systems from total collapse. In actual fact, that was the measure taken by various governments at curtailing the spread of this seemingly unstoppable COVID-19. During the initial period of this COVID-19 ravage, every human activity almost came to a halt, of which human movements were heavily restricted. Lockdown measures declared by various governments globally have impacted global economic systems, causing unprecedented shock on societies, economies and labour markets [6,9,10,11,12]. The outbreak has unpredictably changed how people interact, work, communicate and transact businesses. The lockdown in 2020 had essentially impacted negatively on agricultural activities, food security, livelihood activities and the economy at large.

2. Problem Statement/Justification

The sudden emergence and ravaging of COVID-19 with unbridle fierceness became great threat to the whole world. The eruption of this COVID-19 caused panic and great loss of human lives across the world. In developing countries such as Nigeria, the awareness of the scourge was much in the city urban because of the efforts to curtail its spread, such as strategies and propaganda, were mainly concentrated in the city/urban than rural areas. This could make rural households (the bedrock of food security and other primary livelihood activities) to be much predisposed to vulnerability. The pandemic spread was assumed to be spreading equally in both urban and rural areas with the same vigour without regards for location. However, this research was much concerned about rural areas and the health of its inhabitants as major key stakeholders in food security system and other ancillary services of the nation. The facilities to curtail the spread were much relatively available in the urban settings but insignificantly available, if any, in the rural areas where the food and fibres were produced including engagement in other economic activities. Since it has been documented that there was great awareness on unprecedented spread of COVID-19 and its vaccination in the city, no much work had been done on rural households' disposition towards vaccination against COVID-19 epidemic in Oyo State, Nigeria. Vaccines, according to [13], are the products that prepare the immune system of the body to detect certain disease-causing pathogens, thereby helping to reduce the devastating impact of preventable diseases. Then, vaccination could be simply described as the act of introducing a vaccine into the body of any living organism to produce protection for the recipients from specific disease. Medically, therefore, vaccination is imperative if the scourging tide of COVID-19 is to be curtailed in order to reduce tension and psychological trauma being unleashed by COVID-19 because [14,15,16] had asserted that coronavirus disease has caused mankind serious confusion, economic havoc and psychological distress. In order to defeat and incapacitate the COVID-19 virus, its vaccination programme was rolled out. If the rural households are healthy, they will have the energy and vibrancy required for successful accomplishment in agriculture and other livelihood activities that add value to the economy of the nation. Their surplus output, after securing their respective households' foods and other needs, will be pulled together as aggregate national supply. This will engender the national gross domestic product (GDP) which will translate to improve per capita income and better living of the citizenry. The attitudinal disposition of the rural dwellers towards COVID-19 Fisher and his colleagues. (2020) Reference [17] and uptake of its vaccination could establish the basis for confronting any other outbreak that might occur in future. This will help the health agencies and other health stakeholders to focus their operations in every area concurrently, irrespective of whether rural or urban. New vaccination against any novel disease was usually trailed with initial skepticism because not everybody will be willing to get vaccinated. Therefore, the general objective of this study was to assess the rural households' disposition towards vaccination against COVID-19 pandemic in Oyo State, Nigeria. The specific objectives were to: describe socioeconomic characteristics of the rural households in the study area, identify available sources of information on COVID-19 in the study area, identify the underpinning factors associated with the effects on livelihood activities of the rural households during COVID-19 pandemic, determine the beliefs held about COVID-19 vaccination by rural households in the study area, determine rural households' dispositions towards COVID-19 vaccination, and identify the constraints against COVID-19 vaccination in rural areas. The only hypothesis was stated in null form that as follows: There is no significant relationship between constraints and rural farming households'

disposition towards vaccination against COVID-19 vaccination.

3. Previous similar studies

Ojewale, Afolabi and Ogunniyi (2022) [18] conducted on COVID-19 vaccine attitude and its predictors among people living with chronic health conditions in Ibadan, Nigeria. They opined that making vaccine available might not translate into uptake, as other important factors must be considered, chief among is the willingness of the recipients. However, their study was based on patients in the hospitals and not on rural people per se. Also, a study conducted by Ilesanmi and Afolabi (2021) [19] which focused on knowledge of community on COVID-19 in Ibadan, Oyo State, Nigeria, did not expressly state the explicit concerns for rural households. Soyannwo and his colleagues, (2022) [2] explained in their study that vaccination medical intervention for humanity, there are always reservations. Vaccine hesitancy hinged upon risks, trust/mistrust, doubt about the vaccine effectiveness and safety, the system that brought the vaccines and competence of the health providers. This study was diametrically similar to our study but was carried in Ogun State while our own study was carried out in Oyo State, Nigeria.

4. Methodology

Cross-sectional survey was used for this study and reliance was based on zonal delineation structure and village listing template of Oyo State Agricultural Development Programme (OYSADEP). Multistage sampling procedure was used as follows. Stage one: purposive selection of all agricultural zones in Oyo State because of the purported widespread of COVID-19 cases. Stage two: random selection of 10% of rural Local Government Areas (LGAs) in each of the zones. That is Ona-Ara local government from Ibadan/Ibarapa with 9 rural LGAs; Afijio local government from Oyo zone with 4 LGAs; Ogo Oluwa local government from Ogbomoso Zone with 5 LGAs and Itesiwaju local government from Saki zone with 10 LGAs culminating in 4 LGAs where this research was carried out. Stage three: based on the village listing template of OYSADEP, 10% of the rural villages in each of the chosen rural local government areas were randomly selected. This gave 36 from 3,909 villages, 12 from 1,205 villages, 16 from 1,601 villages and 19 from 1,904 villages from Ona-Ara, Afijio, Ogo Oluwa and Itesiwaju LGAs, respectively. Finally, stage four involved random selection of 10% of the 36,405 rural household heads from OYSADEP farmers' register in the villages from selected LGAs, which gave 364 respondents for this research.

5. Results and discussion

5.1 Socioeconomic characteristics

Data in Table 1 revealed that 57.4% of the respondents were between 41-50 years of age. The mean age was 45 years. This implies that the respondents were in their prime age and economically vibrant stage. This is in line with [20] that the respondents were in their economically active and productive stage. The household modal size was 6 members. This implies a relative moderate household size which has implication for farming in rural because of family labour availability. Educational attainment indicated that 53.2% had primary school education and only 10.4% did not have any formal education. This implies that majority of the respondents possessed

various forms of education and this can help the respondents in the early adoption of innovation which could also be a tool for accelerated development. This is in line with [21,22] that education brings sumptuous benefits to households. It was further revealed that 75.5% were male which implies that men still dominate rural population. This is an advantage to the farming households as men have vigour required to carry out farm works. Also, 62.9% were married; 22.8% widowed; 8.5% single and 5.8% divorcee. Nationality/tribe revealed that 77.7% were indigenes while 22.3% were non-indigenes. This implies that the study area was being co-habited with other ethnic nationalities that were not indigenes of the area. This shows that people in the study area were tolerant of other tribes as they co-habit together peacefully. Distance travelled to the nearest health centres to receive health services revealed that 34.9% trekked 6-10km before they could get to nearby health centre. Also, 26.4% trekked about 5km; 24.7% trekked 11-15km while 14.0% trekked over 15km before they could receive health services. This implies that health centres were poorly located in the rural areas and people who are sick must trek long distance before they could access health services. This is inimical to the health of rural people who are the primary food producers whom aggregate supply form national food supply.

Table 1: Distribution of respondents by socioeconomic characteristics

| Socioeconomic characteristics | Frequency | Percentage | Mean/mode |
|------------------------------------|-----------|------------|------------|
| Age (years): | | | |
| 21 – 30 | 26 | 7.1 | 45 |
| 31 – 40 | 50 | 13.7 | |
| 41 – 50 | 209 | 57.4 | |
| 51 and above | 79 | 21.7 | |
| Household size: | | | |
| 3 | 21 | 5.8 | 6 |
| 4 | 44 | 12.1 | |
| 5 | 99 | 27.2 | |
| 6 | 200 | 54.9 | |
| Educational attainment: | | | |
| No formal education | 38 | 10.4 | |
| Primary education | 192 | 53.2 | |
| Secondary school | 88 | 24.2 | |
| Tertiary education | 46 | 12.2 | |
| Sex: | | | |
| Male | 275 | 75.5 | |
| Female | 89 | 24.5 | |
| Marital status: | | | |
| Single | 31 | 8.5 | |
| Married | 229 | 62.9 | |
| Divorced | 21 | 5.8 | |
| Widowed | 83 | 22.8 | |
| Nearest health centre (km): | | | |
| 0 – 5 | 96 | 26.4 | 8.2 |
| 6 – 10 | 127 | 34.9 | |
| 11 – 15 | 90 | 24.7 | |
| Over 15 | 51 | 14.0 | |
| Tribe/Nationality: | | | |
| Indigene | 283 | 77.7 | |
| Non-indigene | 81 | 22.3 | |

Source: Field Survey, 2023

5.2 Sources of information available on COVID-19

Data in Table 2 revealed that all (100%) the respondents affirmed that they got their information on COVID-19 from radio. This is similar to Ilesanmi and Afolabi (2021) [19] where they affirmed that major source of

information to their respondents was radio. Majority (95.9%) had markets as their main source of information on COVID-19. Radio being a major source of information in rural areas could be as a result of modern day technology that has made transistor radio to become ubiquitous even in very remote areas due to its ease of accessibility and affordability. Also, house to house campaigns by town criers (73.6); hospitals and dispensaries (health agencies) personnel (55.5%) were the sources of information to the rural households on COVID-19. This implies that there were various sources of information available to the rural households which they utilized during COVID-19 pandemic. Therefore, these identified sources of information that were readily available and being constantly used by rural people could be employed to reach out to rural people for sensitization to gain their confidence, whenever any development initiative is to be introduced in rural areas. This opinion was corroborated by [23] that communication practitioners should utilize the available but widely used sources of information in rural areas in reaching out to rural people.

Table 2: Sources of information on covid-19 available to rural households

| Sources of information on covid-19* | Frequency | Percentage |
|--|-----------|------------|
| Radio | 364 | 100 |
| Markets | 347 | 95.9 |
| House to house campaigns (town criers) | 268 | 73.6 |
| Health agencies | 202 | 55.5 |
| Neighbourhood | 193 | 53.0 |
| Community gatherings | 146 | 40.1 |
| Friends and family | 130 | 35.7 |
| Local leaders | 100 | 27.5 |
| Extension agents | 24 | 6.5 |
| Social media | 15 | 4.1 |
| Television | 12 | 3.3 |
| Newspapers | 10 | 2.7 |
| Flyers/hand bills | 9 | 2.5 |
| Journals | 2 | 0.6 |

*Multiple responses

Source: Field Survey, 2023

5.3 Underpinning factors associated with effects of COVID-19 on livelihood activities

Table 3 has shown underpinning factors associated with the effects of COVID-19 on rural livelihood activities. The established fact had been that COVID-19 as a pandemic actually caused widespread isolation, unbridled hospitalization and deaths when the ravaging lasted. However, this study really investigated factors that actually affected livelihood activities during COVID-19 period in rural areas in Oyo State, Nigeria. It was revealed that all (100%) the respondents asserted that imposition of restrictions on movements was the actual major factor

that really affected general activities in the study area. Also, all (100%) the respondents affirmed that nobody was hospitalized and there was no any case of death due to COVID-19 infection in their areas. However, 82.7% affirmed that they fear being isolated if infected by COVID-19. This is similar to [24] that fear of being infected with COVID-19 was part of effects of lockdown. This fear of isolation would have been implanted in the rural people could be as a result of serious campaigns mounted by the health officials which explained everything concerning COVID-19 to rural people. Also, 55.2% complained of too much COVID-19 protocol and 33.0% admitted that they fear being infected by COVID-19 disease. All these pointed to the fact that the people in the study area did not record a single case of actual infection, isolation or death as a result of the COVID-19 pandemic. It could be inferred that contrary to the widespread belief about COVID-19 as a disease did not affect rural people in the study area. Probably, this was due to their high rurality, raw affinity with nature and detachment from the city/urban. However, the force policy of governments on movement restriction was the point of fact responsible for the effects witnessed in rural areas and on livelihood activities of the rural households. The aforementioned assertions only created fears in the respondents and not that they were actually infected by COVID-19 disease. It is worth noting that the respondents did not experience those factors that were in reality associated with the manifestation of COVID-19 such as infection, isolation and or death in the study area.

Table 3: Underpinning factors of COVID-19 effects in core rural areas

| Underpinning factors * | Yes | Percentage |
|---|------------|-------------------|
| Imposition of restriction on movements | 364 | 100 |
| No any case of death due to COVID-19 infection | 364 | 100 |
| Nobody was hospitalized because of COVID-19 infection | 364 | 100 |
| Fear of being isolated if infected by COVID-19 | 301 | 82.7 |
| Too much of COVID-19 protocol | 201 | 55.2 |
| Fear of being infected with COVID-19 | 120 | 33.0 |
| Many people were infected and could not work | 0 | 0.0 |

* Multiple responses

Source: Field Survey, 2023

5.4 Beliefs held by rural people about COVID-19 vaccination

Data in Table 4 revealed that all (100%) the respondents held the belief that rural people cannot contract COVID-19 at first instance, hence vaccination was not needed. This belief was further confirmed during the focus group discussion (FGD) where they unanimously and confidently asserted that they could not be infected by COVID-19 because of their rurality and that those who live in urban areas were the people that were prone and predisposed to such infections. Rural people believed they live in natural and unpolluted environment, unlike those in the cities/towns that live in contaminated and highly polluted environment. They tenaciously held to this conviction probably because the outbreak of COVID-19 was neither experienced nor witnessed at

rural areas. Whereas, the tremor of COVID-19 shook towns and cities but rural areas were not affected. However, this belief held by rural people could be very dangerous, if in future a similar outbreak occur in rural areas. Also, 99.2% believed that the vaccine cannot prevent the disease; 92.0% held the belief that COVID-19 vaccination was meant to depopulate Africans; 88.5% was of the belief that the vaccination can trigger other diseases while 85.7% held the belief that COVID-19 vaccination was being suspected to suppress the blacks and 82.4% held that the vaccination was to recolonize the blacks. These upheld beliefs could be hinged on the newness of COVID-19 disease outbreak which did not emanate from Africa; and anything foreign was always viewed with suspicion by the Africans, particularly those who were resident in rural areas.

Table 4: Beliefs held about COVID-19 vaccination

| Beliefs * | Frequency | Percentage |
|--|-----------|------------|
| Vaccination is not needed as rural people cannot contract COVID-19 | 364 | 100 |
| The vaccine cannot prevent the disease | 361 | 99.2 |
| COVID-19 vaccination was meant to depopulate the Africans | 325 | 92.0 |
| The vaccination can trigger other diseases | 322 | 88.5 |
| COVID-19 vaccination was being suspected to suppress the blacks | 312 | 85.7 |
| COVID-19 was an attempt to recolonize the blacks | 300 | 82.4 |
| COVID-19 vaccine is dangerous | 264 | 72.5 |
| We are afraid of receiving COVID-19 vaccine | 262 | 72.0 |
| COVID-19 vaccine cannot be effective | 224 | 61.5 |

* Multiple responses

Source: Field Survey, 2023

5.5 Disposition of rural households towards COVID-19

Weighted mean score (WMS) was used in describing the disposition of rural households towards COVID-19 vaccination as depicted in Table 5. It was revealed that disposition that local herbs can cure all diseases including COVID-19 ranked 1st. This reflects rural peoples' confidence reposed in their traditional medical practices as opposed to orthodox medicine. Ranked 2nd was the respondents' disposition that COVID-19 cannot kill rural people as government was using the pandemic to make money. This could be drawn from the fact that they did not experience COVID-19 infection in their areas. Disposition that ranked 3rd was that our body mechanism was hardy and can repel/withstand various diseases. The 4th ranked disposition was that rural people cannot be infected and there was no need for vaccination. This overdependence of confidence in their local medical practices quite negates the stipulation of orthodox medicine. The ranked fifth disposition was that COVID-19 was an imported disease that cannot affect rural people. The 6th ranked was that rural households were not disposed to receiving COVID-19 vaccine. This was due to their self-assurances in their local herbs and body immunity. However, this may fail them without warning which may be grievous. The 7th disposition was that there was nothing like COVID-19 in their areas. This was affirmed by [25] when their study established that

53% of the respondents viewed COVID-19 as not nonexistent. This assertion could have arisen from the fact that COVID-19 did not infect anyone within their vicinity. So, rural people did not have a taste of how COVID-19 affects people. Ranked 8th disposition was that black people do not need COVID-19 vaccination. Ranked 9th was that rural people have natural immunity against many naturally occurring diseases. This may be traced to their eating habits of consuming mostly naturally prepared organic food items that were not treated with synthetic chemicals. Disposition that ranked 10th was that only urban people were prone to COVID-19 infection. Ranked 11th was the disposition that they will receive COVID-19. It should be noted that dispositions with WMS of 1.5 and above were the dispositions that tended more towards agree while those with WMS of less than 1.5 tended towards disagree. In this situation here, only the disposition that I will receive COVID-19 vaccine was disagreeable by the respondents. During FGD, it was established that majority of the few participants that got vaccinated asserted that they received the vaccination because of the governments' threat that anyone that did not receive the vaccine will not enjoy some benefits. This implies that the disposition of people in the study area disagreed vehemently towards receiving the vaccine. This has health implications because their insistence on refusal to be vaccinated is dangerous to public health. Therefore, government should device strong means of persuasion to convince the rural people about the importance of this vaccine.

Table 5: Disposition of rural households towards COVID-19 vaccination

| Disposition to COVID-19 | Agree | Undecided | Disagree | WMS | Rank |
|---|-------|-----------|----------|------|------------------|
| Local herbs can cure all diseases including COVID-19 | 364 | 0 | 0 | 3.0 | 1 st |
| COVID-19 cannot kill as government was using it to make money | 361 | 0 | 0 | 2.98 | 2 nd |
| Our body mechanism was hardy to repel /withstand diseases | 321 | 32 | 11 | 2.85 | 3 rd |
| Rural people cannot be infected, no need for vaccination | 301 | 63 | 0 | 2.83 | 4 th |
| COVID-19 was an imported disease, no need for vaccination | 236 | 96 | 32 | 2.78 | 5 th |
| I cannot receive COVID-19 in my life | 329 | 5 | 10 | 2.77 | 6 th |
| There was nothing like COVID-19 disease in our areas | 311 | 0 | 53 | 2.67 | 7 th |
| Black people do not need COVID-19 vaccination | 296 | 24 | 44 | 2.96 | 8 th |
| I have natural immunity | 252 | 96 | 16 | 2.65 | 9 th |
| Only urban people were prone to COVID-19 infection | 211 | 109 | 44 | 2.63 | 10 th |
| I will receive COVID-19 vaccine | 6 | 54 | 304 | 1.16 | 11 th |

WMS: Weighted mean score

Source: Field Survey, 2023

5.6 Constraints against COVID-19 vaccination

Table 6 revealed that 99.5% maintained that trekking long distances to vaccination centres was a constraint. This implies that even if they wished, trekking long distance is a factor that could discourage and hinder rural people from receiving COVID-19 vaccine. To the rural people, this would be tantamount to exhaustion of energies and waste of time that could be channeled to other useful purposes. Also, 95.1% feared conspiracy theory that surrounded COVID-19 scared them. Furthermore, 88.1% asserted that they naturally have phobia of being vaccinated. This could be traced to their high level of rurality and little exposure and affinity of the respondents to urban setting/living. Also, 84.3% of the respondents were gripped with the fear of unknown after being vaccinated. Only 16.8% asserted that the vaccine was always available at the nearest health centres. This implies that majority of the respondents corroborated that vaccine was not always readily available. Non-availability of vaccine at health centres or health centres that were located far away from the rural people can militate against receiving the vaccination by the rural people. Also, 13.5% opined that poor rural road network hindered their accessibility to COVID-19 centres.

Table 6: Constraints against covid-19 vaccination

| Constraints * | Yes | Percentage |
|--|-----|------------|
| Trekking long distances to vaccination centre by rural people | 362 | 99.5 |
| Fear of conspiracy theory that surrounds covid-19 | 346 | 95.1 |
| Phobia for vaccine by rural people | 321 | 88.1 |
| Fears of unknown after being vaccinated | 307 | 84.3 |
| The vaccine was always available at the nearest health centres | 61 | 16.8 |
| Poor rural road network hindered accessibility | 49 | 13.5 |

*Multiple responses

Source: Field Survey, 2023

5.7 Test of hypothesis

Data in Table 7 has established a significant relationship between constraints and rural households' disposition towards vaccination against COVID-19. Trekking long distance that was negative but significant at 0.00 level implies that the longer the distance trekked by rural households, the lesser their disposition towards receiving COVID-19 vaccine. Trekking long distance is an indication that health facilities were poorly situated in rural areas. [26] affirmed the existence of poor state of health resources. Also, their phobia for vaccine that was significant also trigger poor disposition of rural households towards receiving COVID-19 vaccine. Fear of unknown after receiving vaccine may cause setback and make rural households avoid the vaccination thereby increase their negative disposition. The aforementioned constraints may pose great huddles to rural peoples' readiness to receiving vaccine into their body.

Table 7: Regression analysis establishing relationship between constraints and rural households' disposition towards vaccination against COVID-19 pandemic

| Constraints | Coefficients | Standard error | t | p-v |
|---------------------------|--------------|----------------|--------|-------------|
| Intercept | 17.7078 | 1.0224 | 17.319 | < 2e-16*** |
| Trekking long distance | -2.7797 | 0.6308 | -4.407 | 1.53e-05*** |
| Fear of conspiracy theory | 3.7056 | 0.6216 | 5.961 | 8.13e-09*** |
| Phobia for vaccine | 2.9339 | 1.0103 | 2.904 | 0.004002** |
| Fear of unknown | 1.6146 | 0.7441 | 2.170 | 0.030914* |

Significance codes: 0 (***); 0.001 (**); 0.01 (*)

Source: Field Survey, 2023

6. Conclusions and recommendation

It could be concluded that though COVID-19 did not occur in core rural areas of Oyo State but its ripple effect was much experienced by rural households. Also, rural households suffered untold hardship during COVID-19 pandemic not because of the disease per se but because of the ban/restrictions imposed on movements which led to most of their livelihood activities to experience depression. Livelihood activities of rural households were seriously threatened and for the reason of their rurality that made them to be much more vulnerable because of their high level of primitiveness, crudeness and inaccessibility to life enhancing infrastructures. Rural people believed and have so much disposition/confidence in their trado-medical practices. Therefore, government and all health stakeholders should device strong means of persuasion to convince the rural people about the health implications and importance of vaccines and other equally crucial health improvement programmes. Rural people should be encouraged to embrace orthodox medical practices alongside their traditional medicine. Finally, government should formulate policies that will ease the burden of those who reside in the core rural areas in case there is an unforeseen pandemic in future.

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7. Conflict of interest

We declare that there was no conflict of interest.

References

- [1] Abdullateef, R., Yinusa, M. A., Danjuma, M. M., Abdul-Rasheed, S. L. and Adeyemi, R. A. "Rural Areas: The Real Home of the Nigerian Economy", International Journal of Social Sciences &

Educational Studies” Vol. 4, 2017.

- [2] Soyannwo, T., Osinubi, M.mO., Abdulsalam, A., Ahmed, A. K., Imhonopi, G. B., Adebisi, O. I., Ajadi, O. R., Mohammed, S. N., Erinoso, M. A. and Alausa, K. O. “A Comparative Study of COVID-19 Vaccine Acceptability and its Determinants among Urban and Rural Community Residents in Oyo State”, *Journal of Community Medicine and Primary Health Care*, 34(2):128-151, 2022.
- [3] Olapegba, P. O., Ayandele, O., Kolawole, S. O., Oguntayo, R., Gandi, J. C., Dangiwa, A. L., Ottu, I. F. A. and Iorfa, S. K. A. “Preliminary Assessment of Novel Coronavirus (COVID-19). Knowledge and Perceptions in Nigeria. Poverty Alleviation. Social Sciences and Humanities”, Open, 2020.
- [4] Lauer, S. A., Grantz, K. H., Bi, Q., Jones, F. K., Zheng, Q., Meredith, H. R., Asman, A. S., Reich, N. J., and Lessler, J. “The Incubation Period of Coronavirus Disease 2019 From Publicity Reported Cases: Estimation and Application”. *Annals of Internal Medicine*”, 172(9):577-582, 2020.
- [5] Islam, S. M. D., Bodrud-Doza, M., Khan, R. M., Haque, M.A. and Mamun, M. A. “Exploring COVID-19 Stress and its Factors in Bangladesh: A Perception-based Study”, *Heliyon*, 6 (7), 2020.
- [6] Wang, C., Wang, D., Abbas, J., Duan, K. and Mubeen, R. “Global Financial Crisis, Smart Lockdown Strategies, and the Covid-19 Spillover Impacts: A Global Perspective Implications from Southeast Asia”, *Frontiers in Psychiatry*, 12, 643-783, 2021.
- [7] Lloyd, P. and Blakemore, M. *The Virus and Lockdown: The Devil and the Blue Sea*, 2020.
- [8] Ren, X. “Pandemic and lockdown: a territorial approach to COVID-19 in China, Italy and the United States”, *Eurasian Geography and Economics*, 61(4-5), 423-434, 2020.
- [9] Yamaka, W. Lomwanawong, S. Magel., Maneejuk, P. “Analysis of the Lockdown Effects on the Economy, Environment, and COVID-19 Spread: Lesson Learnt from a Global Pandemic in 2020”, *Int J. Environ. Res. Public Health*, 8:19(19):12868, 2022
- [10] Amusan, L. and Agunyai S. C. ‘The COVID-19 pandemic and the crisis of lockdowns in Nigeria: The Household Food Security Perspective’, *Africa’s Public Service Delivery and Performance*, Review 9(1).
- [11] Bhat SA, Bashir O, Bilal M, Ishaq A, Din Dar MU, Kumar R, Bhat RA, Sher F. “Impact of COVID-related lockdowns on environmental and climate change scenarios”. *Environ Res*. 2021.
- [12] Hamza, M. ‘Coronavirus Pandemic’, *Al Jazeera*, 2020,
<https://www.aljazeera.com/news/2020/03/coronavirus-pandemic-experts-somalia-risk-greater-china-200319052938789.html>.

- [13] Coelho, S. (2020). "What is Vaccine? Types, Stages for Approval. Medical News Today".
- [14] Adenubi, O. T., Adebawalwe, O. O., Oloye, A. A., Bankole, N. O., Adesokan, H. K., Fadipe, O. E., Ayo-Ajayi, P.O. and Akinloye, A. K.. "Level of Knowledge, Attitude and Perception about COVID-19 Pandemic and Infection Control: A cross-sectional Study among Vetrinarians in Nigeria", 2020
- [15] Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. " Study of Knowledge, Attitude, Anxiety & Perceived Mental Healthcare Need in Indian Population during COVID-19 Pandemic". *Asian Journal of Psychiatry*, 51, 2020.
- [16] Iorfa, S. K., Ottu, I. F.A., Oguntayo, R., Ayandele, O., Kolawole, S. O., Gandi, G. C., Dangiwa, A. L. and Olapegba, P. O. "COVID-19 Knowledge, Risk Perception and Precautionary Behavior among Nigerians: A Moderated Mediation Approach", medRxiv, 2020
- [17] Fisher, K. A., Bloomstone, S. J., Walder, J., Crawford, S., Fouayzi, H. Mazor, K. M. "Attitudes towards a Potential SARS-COV-2 Vaccine: A Survey in U.S. Adults". *Ann Intern Med*, 173(12):964-973, 2020.
- [18] Ojewale, L. Y., Afolabi, R. F. and Ogunniyi, A. "COVID-19 Vaccine Attitude and its Predictors among People Living with chronic Health Conditions in Ibadan, Nigeria. *Int J Public Health* 67:116048, 2022.
- [19] Ilesanmi, O. S. and Afolabi, A. A. Knowledge of Community Members on COVID-19 in Ibadan, Oyo State, Nigeria", *Pan African Medical Journal* 39(17), 2021.
- [20] Sennuga, S. O., Fadiji, T. O. and Thaddeus, H. "Factors Influencing Adoption of Improved Agricultural Technologies (IATs) among Smallholder Farmers in Kaduna State, Nigeria". *International Journal of Agricultural Education and Extension*, 6(2): 382-391, 2020.
- [21] Ninh, L. K. "Economic Role of Education in Agriculture: Evidence from Rural Vietnam", *Journal of Economics and Development*, 23(1):48-58, 2020
- [22] Tran, T. A., Tran, T. Q., Tran, N. T., & Nguyen, H. T. (2020). The role of Education in the Livelihood of Households in the Northwest Region, Vietnam". *Educational Research for Policy and Practice*, 19, 63-88, 2020.
- [23] Oyelere, G. O., Sadiq, M. M., Olagoke, O. O., Adisa, J. O. and Abass A. O. "Adaptation Practices among Arable Crop Farmers Against Perceived Effects of Climate Change in Rural Southwestern Nigeria", *International Journal of Sciences: Basic and Applied Research (IJSBAR)* 52 (2):191-202, 2020.

- [24] Bodas, M., Adini, B., Jaffe, E., Kaim, A., Peleg, K.. “Lockdown Efficacy in Controlling the Spread of COVID-19 May be Waning Due to Decline in Public Compliance, Especially among Unvaccinated Individuals: A Cross-Sectional Study in Israel”. *Int J Environ Res Public Health*,19(9):4943, 2022 .
- [25] Safiyo, H. H., Mohammed, A. I., Jakada, M. B., Kalla, U. M. and Mika, B. U. “An Empirical Analysis on COVID-19: Lockdown Impact on Nigeria Economy”, *Journal of Accounting, Organization and Economics*, 3(3):206-214, 2020.
- [26] Elikwu, C. and Walker, O. “COVID-19 Pandemic in Nigeria: A review: SARS-CoV-2 Pandemic” *Babcock University Medical Journal*, 3(1): 11–26, 2020.