

KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS COVID-19 AMONG RURAL FARMERS IN OSUN STATE, NIGERIA

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Abstract

The study assessed the knowledge, attitude and practices (KAPs) towards COVID-19 among rural farmers in Osun state, Nigeria. Multi-stage sampling procedure was employed to select 270 rural farmers in three agricultural development zones. Structured interview schedule was used to elicit information on respondents' socioeconomic characteristics, knowledge, attitude and practice of COVID-19 preventive measures. The overall level of knowledge was found to be moderate in all the four domains investigated: transmission (62.6%); knowledge of symptoms (68.2%); knowledge of prevention (55.9%) and knowledge of the disease itself (72.6%). Majority (69.6%) of the rural farmers had a poor attitude, towards COVID-19. Majority (75.6%) of the rural farmers' compliance with COVID-19 preventive measures was moderate. Regression analysis results revealed that years of schooling and farm market distance were significantly related to KAP [$F(26.243) = 4.55; p < 0.01$]. The study concluded that majority of the farmers were at the moderate level of KAP, and thus advocated the need for more effective intervention in the area of knowledge and practice of preventive measures among the farming populations in the event of any emergent epidemic.

Key words: attitude, COVID-19, Knowledge, practices, preventive measures.

INTRODUCTION

The Corona Virus Disease 2019, also known as "COVID-19" is a respiratory disease that is caused by a novel corona virus and was first detected in December 2019 in Wuhan, China as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV-2) (Mărcuță et al., 2020; Das et al., 2021). The rapid spread of the disease across over 198 countries made the World Health Organisation (WHO) to declare it as a global pandemic on 12th March, 2020 as more than half a million cases were already reported with over 23,000 deaths (Erfani et al., 2020).

The first confirmed case of COVID-19 pandemic in Nigeria was announced on 27th of February, 2020 when an Italian citizen who flew into the country through Lagos state tested positive for the virus. On 9th of March, 2020, a second case of the virus was reported in Ewekoro, Ogun State, when a Nigerian citizen who had contact with the Italian citizen also tested positive. Nearly one year later,

precisely as at 8th of February, 2021, the number of confirmed cases jumped to 140,391 out of which 114,635 patients were discharged after testing negative to the virus and 1,673 deaths were recorded (Aborisade, 2021). As at 7th June 2021, the number of cases confirmed by laboratories was 166,767 with 163,096 recoveries and 2,117 deaths (Bamiwuye et al., 2021). The current picture of the spread of the COVID-19 pandemic as at January 27, 2023, presented 261,473 confirmed cases, 3147 deaths and 254,953 recoveries since the outbreak of the pandemic in 2019 (Nigeria Centre for Disease Control - NCDC, 2023). Nearly all nations of the world including Nigeria adopted certain measures to contain the spread of the disease. Such measures included partial or total lockdown and restriction of movements and these led to the closure of several public places, halting of public transportation, isolation and management of infected persons (Aborisade, 2021). The Federal Government of Nigeria enforced an initial 2-week lockdown on March 30, 2020,

for 3 out of 36 states (Lagos, Ogun, and Abuja) and, on April 13, 2021 extended it with another 2 weeks. Some farmers who took the risk of getting some of their farm produce to the market were stopped by security operatives from getting to the market which led to a high level in waste of food produce and products.

The level of knowledge of a disease condition is associated with attitude towards the disease, and these interact to substantially affect the practices and measures aimed at controlling it (Okoro et al., 2022). This is significant for rural farmers who were rarely reached by the COVID-19 preventive campaign. Experts were worried about COVID-19 spreading fast in Africa, because, widespread of the virus could have a negative effect on livestock and crop productions through labour shortages especially amongst the older rural farmers, women, children and youths that were susceptible to the effects of COVID-19 (Bamiwuye et al., 2021).

In a developing country where the agricultural sector plays an important role in maintaining regular trend of food production (Roy et al., 2020), rural farming households, especially women, children and youths could become malnourished and less productive due to the intrusion or blockage of essential food supplies in rural communities. Evidence is scarce on KAP towards Covid-19 pandemic among rural farming communities. Inadequate knowledge and wrong attitudes of the rural farmers towards COVID-19 pandemic and its preventive measures can predispose rural farmers to the risk of infection and this may affect the rural economy and heightens rural poverty. It is against this backdrop that this study assessed the knowledge, attitude, and practices of rural farmers towards COVID-19 pandemic.

The specific objectives of the study were to:

- i. assess the knowledge level of rural farmers about COVID-19;
- ii. assess the attitude of rural farmers towards COVID-19;
- iii. examine the level of compliance of rural farmers with the practice of COVID-19 preventive measures.

Hypothesis

There is no significant relationship between the selected socio-economic characteristics of rural farmers and knowledge, attitude and practices (KAPs) towards COVID-19.

MATERIALS AND METHODS

Study Area

The study area is Osun State (Figure 1), in south-west of Nigeria, is an inland state which lies on latitude 8° to the north and 6° to the south, longitude 4° to the west and 5° to the east with an average population of 3,416,959 (National Population Commission Census, 2006). “The state is essentially an agrarian state with about 70% of its population engaged in one form of agriculture or the other” (Osun State CDTI Project, African Programme for Onchocerciasis Control, 2007).



Figure 1. Map of Osun State showing the thirty (30) local government areas

Study Population

The study population comprised all rural farmers, both male and female, including the youths in Osun State.

Sampling Procedure and sample size

Multi-stage sampling procedure was employed to select sample for the study; At the first stage, there was proportional sampling of thirty percent (30%) of the Local Governments Areas (LGAs) in each agricultural zone to give three (3) from Ife-Ijesa, two (2) from Iwo and four (4) from Osogbo agricultural zones making a total of nine (9) LGAs. The local governments randomly selected were; Ife North, Ife south, and Oriade LGAs of Ife-Ijesa agricultural zone, Ejigbo and Ola-Oluwa LGAs of Iwo agricultural zone and Boluwaduro, Ede south,

Egbedore and Orolu LGAs of Osogbo agricultural zone. At the second stage, three (3) most agrarian villages were purposively selected from each of the nine (9) selected LGAs to give a total of 27 villages. At the final stage, ten percent (10%) of the registered rural farmers across each of the selected villages were selected proportionate to size using systematic random sampling technique to give a total of two hundred and seventy (270) respondents as the total sample size.

Data collection

Data for the study were collected through the use of structured interview schedule to elicit information on socio-economic characteristics of the respondents such as age, gender, religion, educational level, knowledge, attitude and practices towards COVID-19,

Measurement of variables

Knowledge level of respondents about COVID-19:

We assessed knowledge of respondents concerning COVID-19 using twenty-one (21) items measured on 4-point Likert scale, scored 3, 2, 1 or 0 based on the responses of the respondents. The response options were; definitely true, "DT" (3), somewhat true, "ST" (2), not sure, "NS" (1), and definitely false, "DF" (0). The composite scores gave a minimum of 0 and maximum of 63 for 21 items, categorised into high, moderate and low levels using mean \pm 1S.D.

Attitude of respondents towards COVID-19: We also assessed the attitude of the respondents towards COVID-19 with fifteen (15) items measured on the 5-point Likert scale scored 4, 3, 2, 1 or 0 based on the corresponding responses of the respondents. The response options were; strongly agree, "SA" (4), agree, "A" (3), neither agree nor disagree, "NAD" (2), disagree, "D" (1) and strongly disagree, "SD" (0). The composite scores gave a minimum of 0 and maximum of 60 for 15 items, categorised into good or poor using mean \pm 1SD.

Practice of COVID-19 preventive measures: Lastly, we examined compliance to covid-19 preventive measures measured by the extent of practice of COVID-19 preventive measures using six (6) items measured on a 4-point Likert scale. The response options were; always (3), occasionally (2), rarely (1) and

Never (0). The composite scores gave a minimum of 0 and maximum of 18 and categorised into high, moderate and low levels using mean \pm 1S.D.

Data Analysis: Data were analyzed using descriptive statistics such as frequency distributions, percentages, mean, standard deviation and inferential statistics such as correlation analysis and multiple regressions technique. We employed Stata software version 16 for analyses.

RESULTS AND DISCUSSIONS

Socio-economic characteristics of rural farmers

Results in Table 1 showed that more than half (54.8%) of the rural farmers were between age 30 and 44 years while 31.5% were of age category of 45 to 59 years. The mean age of the rural farmers was 44.1 ± 11.0 . This suggests that majority of the respondents were in their active years and they constituted the bulk of the people in the rural labour force because they possess the energy and strength needed to carry out farming operations. The age distribution in this study is in agreement with the one reported by Reuben et al. (2020) in a similar study in North-Central Nigeria.

The gender distributions of rural farmers showed that majority (73.3%) of the respondents were male while 26.7 % were female. This shows the dominance of the male gender in farming most especially in the rural communities. The result was in tandem with the study of Nwadike et al. (2021) who reported earlier that higher proportion of males than females were into farming.

Majority of the respondents (76.7%) were married and majority (68.9%) had a family size between 5 and 8. The mean family size was 6 ± 2 which may likely encourage the spread of COVID-19 pandemic. In terms of the household size, half (50.0%) of the rural farmers had household size between 6 and 10 while the mean household size was 9 ± 4 which implies that feeding household members could be a major challenge during the lockdown period.

Distribution of respondents according to religious affiliation showed that more than half (56.7%) of the rural farmers were adherent of Islamic religion while 40.0% practiced

Christianity. This shows that the two dominant religions in the study areas were Islam and Christianity; and as such, places of worship could serve as a means of disseminating COVID-19 related information to rural farmers as they all belong to one religious affiliation or the other.

Results indicated that the mean number of years spent in school was 7.55 ± 5.79

Majority (73.7%) of the rural farmers had farm size between 1 and 5 acres and 22.2% had between 6 and 10 acres. The mean farm size of the rural farmers was 4.7 ± 3.5 acres. This suggests that restriction of movement due to COVID-19 pandemic could affect the labour force needed to cultivate and maintain the farms. Results further showed that nearly half (45.5%) of the farmers had less than 21 years of farming experience, 30.4% had between 21 and 30 years of farming experience while 24.1% had over 30 years of farming experience. The mean year of farming experience was 24.5 ± 11.2 . Results also showed that most (55.5%) had their farms above 11 kilometres to the nearest market. This could be inferred that most of rural farmers could not have access to markets during the lockdown thereby leading to massive loss due to spoilage of their farm produce.

Knowledge of rural farmers about COVID-19

Results in Table 2 showed the knowledge of rural farmers about COVID-19. We categorized knowledge into knowledge concerning the pandemic, knowledge of symptoms, knowledge of means of transmission; and knowledge of preventive measures.

The results showed that 53.2% of the rural farmers reported that Covid-19 pandemic is a spiritual attack or punishment from the gods which suggests that the myth that the pandemic is more of spiritual than medical is common among the rural farmers.

The results also showed that more than half of the farmers (54.8%) reported that it was either somewhat true (20.0%) or definitely true (34.8%) that people with underlying ailments and the aged are more at risk of getting infected with the virus.

Table 1. Distribution of rural farmers based on their socio-economic characteristics (n = 270)

Socio-economic characteristics	Freq	%	Mean	Standard deviation
Age				
Less than 30	12	4.4		
30-44	148	54.8	44.1	11.0
45-59	85	31.5		
60 and above	25	9.3		
Sex				
Male	198	73.3		
Female	72	26.7		
Marital status				
Single	16	5.9		
Married	207	76.7		
Separated	27	10.0		
Divorced	9	3.3		
Widowed	11	4.1		
Family size				
1-4	63	23.3		
5-8	186	68.9	5.8	2.2
9 and above	21	7.7		
Household size				
1-5	61	22.6		
6-10	135	50.0	8.9	4.4
11-15	55	20.4		
16 and above	19	7.1		
Religion				
Christianity	108	40.0		
Islam	153	56.7		
African traditional religion	9	3.3		
Number of years spent in school				
1-6				
7-12	89	33.0	7.55	5.79
13 and above	66	24.4		
	48	17.8		
Farm size (acres)				
1-5	199	73.7	4.7	3.5
6-10	60	22.2		
11-15	8	3.0		
16 and above	3	1.1		
Farm – market distance				
	48	17.8		
1-5	72	26.7	12.1	6.6
6-10	150	55.5		
11 and above				
Farm experience (years)				
	123	45.5		
20 or less	82	30.4		
21-30	47	17.4	24.5	11.2
31-40	18	6.7		
41 and above				

Source: Field survey, 2021

Many of the respondents (57.8%) were not sure that rate of infection in children was absolutely low, and more than half (51.9%) also reported that they were not sure that some people were asymptomatic. Similarly, 61.9% of the rural farmers were not sure that asymptomatic patients can spread the disease while most of the farmers (86.3%) reported that it was somewhat true or definitely true that people infected with COVID-19 can still survive the disease.

Three indicators were employed to measure knowledge of symptoms of Covid-19 infection. Results in Table 2 revealed most rural farmers (83.7%) had the knowledge that difficulty in breathing is a symptom of Covid-19 infection with 38.5% reporting somewhat true and 45.2% definitely true. Similarly, 62.6% of rural farmers reported fever as a symptom of Covid-19 infection. This comprised 15.9% and 46.7% who reported that it is either somewhat true or definitely true that fever is a symptom of the pandemic. Close to three-fifth (57.8%) and 37.0% affirmed that it is definitely true and somewhat true that persistent coughs is a symptom of the disease. Four indicators were used to measure knowledge of transmission of Covid-19 infection. Results showed that less than half (46.7%) of the farmers affirmed that it is definitely true that direct close contact with infected persons and infected droplets from cough and sneeze (39.3%), being in crowded places (41.9%) and touching of nose, mouth and eyes (34.4%) are means of transmitting COVID-19 virus.

We used eight (8) indicators for knowledge of preventive measures of Covid-19 infections. Results revealed that nearly one-quarter (24.8%) of the rural farmers claimed that it is definitely true that alcohol consumption is not a COVID-19 preventive measure, 43.3% were not sure while 31.9% affirmed that it was somewhat true. 32.2% of the farmers were affirmative that it is definitely true that isolation of people with related symptoms is a COVID-19 preventive measure while 37.4% were of the opinion that it is somewhat true. This implies that nearly 7 in 10 respondents (69.6%) had knowledge of isolation as a preventive measure.

Results of knowledge of hand washing behavior showed that 33.7% and 41.5% have

the knowledge that it is somewhat true or definitely true, that washing of hands with soap and running water is a preventive measure against COVID-19. Similarly, 40.7% and 38.5% reported that it is definitely true and somewhat true respectively, that application of alcohol-based hand sanitizer is a preventive measure against the disease. Most respondents (63.3%) said that it is definitely true and 31.9% reported that it is somewhat true that wearing a face mask in the midst of people is a preventive measure of covid-19 infection. While 38.9% reported that it is definitely true, 32.6% said it is somewhat true that restriction in movement is a preventive measure in controlling the spread of the disease, majority (92.6%) of the respondents reported that it is true that reaching out to health experts promptly when sick is a preventive measure in curtailing the spread of the disease. These results indicated that most rural farmers knew major ways of preventing covid-19 infections.

Knowledge level of rural farmers about COVID-19

Results in Figure 2 revealed the knowledge level of rural farmers concerning COVID-19. The result indicated that many (58.9%) of the rural farmers had a moderate level of knowledge concerning COVID-19, 23.3% had low level of knowledge while few (17.8%) had high knowledge level. This is in tandem with Erfani et al. (2020) in their study; Knowledge, attitude and practice towards the Novel Coronavirus (COVID-19) outbreak: A population based survey in Iran in which they affirmed that 60.8% of the general population have moderate knowledge towards COVID-19.

Attitude of rural farmers towards COVID-19

Results in Table 3 showed that more than half of the rural farmers (63.0%) either disagreed (23.0%) or strongly disagreed (40.0%) that COVID-19 affects only the rich and influential persons. Although most farmers (75.2%) were positive in their attitude that timely isolation of people with symptoms can prevent the spread of the disease with 42.6% and 32.6% that agreed or strongly agreed respectively, a large proportions (72.9%) reported that they agreed or strongly agreed that isolation of patients may lead to stigmatization. Positive attitudes towards hand washing behavior, use of hand

sanitizers and wearing of facemasks were reported by most of the farmers. For example, 36.7%, a little above half (51.5%) and about one-third (33.3%) of the rural farmers strongly agreed that frequent washing of hands with soap and running water; constant wearing of facemask in the midst of people and frequent

use of hand sanitizer respectively would curtail the spread of COVID-19. These results indicated that many rural farmers have positive attitudes towards preventive measures such as hand washing with soap, use of sanitisers and constant wearing of face masks.

Table 2. Distribution of rural farmers according to their knowledge about COVID-19 (n=270)

Item	Definitely false Freq (%)	Not sure Freq (%)	Somewhat true Freq (%)	Definitely true Freq (%)
Knowledge concerning the pandemic				
COVID-19 is a spiritual attack or punishment from the gods	65(24.1)	61(22.6)	110 (40.7)	34 (12.6)
People with underlying ailment and the aged more at risk	12 (4.4)	110 (40.7)	54 (20.0)	94 (34.8)
Children infection rate is absolutely low	8 (3.0)	156 (57.8)	47 (17.4)	59 (21.9)
Some people are asymptomatic	75 (27.8)	140 (51.9)	30 (11.1)	25 (9.3)
Asymptomatic patients can still spread the disease	47 (17.4)	167 (61.9)	29 (10.7)	27 (10.0)
Infected patients can still survive the disease	12 (4.4)	25 (9.3)	152 (56.3)	81 (30.0)
Knowledge about symptoms				
Difficulty in breathing is a symptom	9 (3.3)	35 (13.0)	104 (38.5)	122 (45.2)
Fever is a symptom	21 (7.8)	80 (29.6)	43 (15.9)	126 (46.7)
Persistent cough is a symptom	11 (4.1)	3 (1.1)	100 (37.0)	156 (57.8)
Knowledge about means of transmission				
Direct close contact is a means of transmission	0 (0)	14 (5.1)	130 (48.2)	126 (46.7)
Droplets from cough and sneeze a means of transmission	3 (1.1)	63 (23.3)	98 (36.3)	106 (39.3)
Crowded places increase the rate of being infected	5 (1.9)	28 (10.4)	80 (29.6)	157 (41.9)
Touching nose, mouth and eyes increase rate of infection	19 (7.0)	104 (38.5)	54 (20.0)	93 (34.4)
Knowledge about preventive measures				
Alcohol consumption not a preventive measure	0 (0)	117 (43.3)	86 (31.9)	67 (24.8)
Consumption of nutritious food a preventive measure	8 (3.0)	59 (22.0)	112 (41.8)	89 (33.2)
Isolation of people with related symptoms is a preventive measure	17 (6.3)	65 (24.1)	101 (37.4)	87 (32.2)
Washing of hands a preventive measure	5 (1.5)	62 (23.0)	91 (33.7)	112 (41.5)
Application of hand sanitizer a preventive measure	3 (1.1)	53 (19.6)	104 (38.5)	110 (40.7)
Wearing face mask in the midst of people a preventive measure	0 (0)	13 (4.8)	86 (31.9)	171 (63.3)
Restriction in movement a preventive measure	45 (16.7)	32 (11.9)	88 (32.6)	105 (38.9)
Prompt reach to health experts when sick a preventive measure	5 (1.9)	15 (5.6)	124 (45.9)	126 (46.7)

Source: Field survey, 2021

While 33.3% of the rural farmers were strongly in agreement with compliance to the restriction on movement placed by the government as a means of curtailing the spread of the disease, 42.2% strongly disagreed that the government should impose another lockdown. Results also indicated that at least half of the rural farmers

(52.2%) expressed positive attitude towards vaccination to prevent the infection, however, some of the respondents were of the opinion that only health workers (25.6%), only infected persons (36.3%) or the aged people (23.3%) should receive vaccinations. These attitudes suggest that vaccination may not be well

accepted by the rural farmers and this has consequence for the spread of the infection. Nearly two-fifth (36.3%) of the rural farmers either agreed (23.3%) or strongly agreed (13.0) that rural dwellers can never be infected; a total of 61.2% either agreed (39.3%) or strongly agreed (21.9%) that prayers can dispel Covid-19 infection. Majority (65.2%) of the rural farmers strongly agreed that COVID-19 is not their portion and cannot be infected with the disease. These attitudes suggest that many rural farmers see themselves as immune to the virus and might not use any preventive measures to protect themselves from the virus. This finding negates a similar study in North-Central Nigeria by Reuben et al. (2020) who reported

that respondents had a positive attitude towards COVID-19.

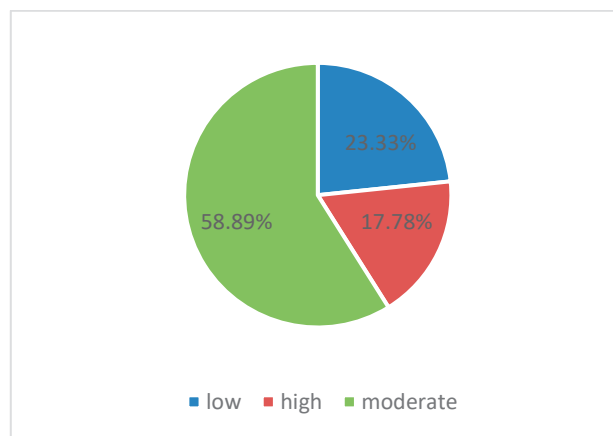


Figure 2. Knowledge level of respondents

Table 3. Distribution of rural farmers according to their attitude towards the COVID-19 (n = 270)

Item	Strongly disagree	Disagree	Neither agree nor disagreed	Agree	Strongly agree
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
COVID-19 affects only the rich and influential	108 (40.0)	62 (23.0)	46 (17.0)	21 (7.8)	33 (12.2)
Timely isolation of persons with symptoms will prevent spread	0 (0)	20 (7.4)	46 (17.0)	115 (42.6)	89 (32.6)
Isolation may lead to stigmatization and depression	11 (4.1)	25 (9.3)	37 (13.7)	83 (30.7)	114 (42.2)
Frequent washing of hands will protect me from infection	5 (1.9)	13 (4.8)	57 (21.1)	96 (35.6)	99 (36.7)
Constant wearing of face mask in midst of people will protect me from infection	5 (1.9)	10 (3.7)	20 (7.4)	96 (35.6)	139 (51.5)
Frequent use of hand sanitizer will protect me from infection	0 (0)	4 (1.5)	63 (23.3)	113 (41.9)	90 (33.3)
Compliance to restrictions on movement imposed by the government will reduce the spread	24 (8.9)	60 (22.2)	48 (17.8)	48 (17.8)	90 (33.3)
Imposing another lockdown will prevent spread of the infection	114 (42.2)	64 (23.7)	19 (7.0)	39 (14.4)	34 (12.6)
Vaccination will prevent me from being infected	11 (4.1)	0 (0)	118 (43.7)	67 (24.8)	74 (27.4)
Health workers alone should be vaccinated	73 (27.0)	38 (14.1)	90 (33.3)	42 (15.6)	27(10.0)
Infected persons alone should be vaccinated	54 (20.0)	40 (14.8)	78 (28.9)	50 (18.5)	48 (17.8)
Vaccination should be for the aged alone	79 (29.3)	30 (11.1)	98 (36.3)	40 (14.8)	23 (8.5)
Rural dwellers cannot be infected	80 (26.9)	73 (27.0)	19 (7.0)	63(23.3)	35 (13.0)
Prayers dispel infection	36 (13.3)	41 (15.2)	28 (10.4)	106 (39.3)	59 (21.9)
COVID-19 is not my portion; I cannot be infected	22 (8.2)	19 (7.0)	21 (7.8)	32 (11.9)	176 (65.2)

Source: Field survey, 2021

Attitude level of rural farmers towards COVID-19

Results in Figure 3 revealed the attitude level of rural farmers concerning COVID-19, the

result showed that majority (69.6%) of the rural farmers had a poor attitude, while few (30.4%) had good attitude towards COVID-19 which suggested that the majority who had poor

attitude could expose the rest to infections due to the rate of spread of the disease.

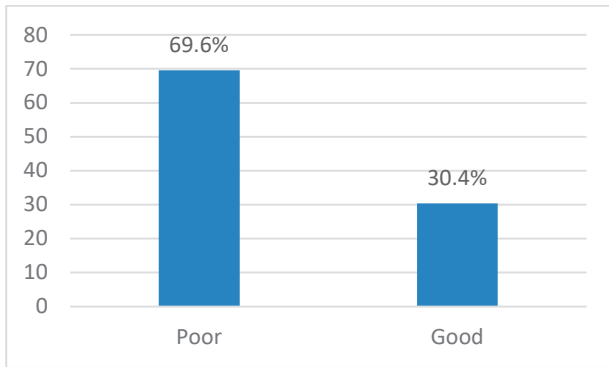


Figure 3. Attitude towards COVID-19

Practice of COVID-19 preventive measures

We examined the practice of Covid-19 preventive measures using six indicators. Results in Table 4 showed that 42.2% of the

rural farmers always used facemask outside the house, and 38.5% used facemasks occasionally. More than half (53.0%) of the rural farmers rarely use hand sanitizer and 46.3% always maintained social distancing in public places. Many of the rural farmers (66.3%) always avoided crowded places, 34.8% washed their hands with soap under running water always while 44.1% always avoided the touching of eyes, nose or mouth. These results indicate that a substantial number of rural farmers practice some form of recommended Covid-19 preventive measures such as wearing of facemasks, maintaining social distancing, avoiding crowded places and using water and soap to wash their hands, although the frequency of observing these preventive measures varies.

Table 4. Distribution of rural farmers according to their practice of COVID-19 preventive measures (n = 270)

Item	Never Freq (%)	Rarely Freq (%)	Occasionally Freq (%)	Always Freq (%)
Proper use of facemask outside the house	5 (1.9)	47 (17.4)	104 (38.5)	114 (42.2)
Use of hand sanitizer	21 (7.8)	143 (53.0)	65 (24.1)	41 (15.2)
Maintained social distancing in public places	5 (1.9)	10 (3.7)	130 (48.2)	125 (46.3)
Avoided crowded places	5 (1.9)	12 (4.4)	74 (27.4)	179 (66.3)
Washed hands with soap under running water	5 (1.9)	49 (18.2)	122 (45.2)	94 (34.8)
Avoided the touching of eyes, nose or mouth	16 (5.9)	91 (33.7)	44 (16.3)	119 (44.1)

Source: Field survey, 2021

Level of compliance of rural farmers with the practice of COVID-19 preventive measures

Results in Figure 4 showed the level of compliance of rural farmers with the practice of COVID-19 preventive measures. The result showed that majority (75.6%) of the rural farmers' level compliance with COVID-19 preventive measures was moderate while few (14.8%) had low level of compliance less than 10% (9.6%) of the rural farmers had high level of compliance. Considering the rate of spread of COVID-19, the percentage of rural farmers who had a high level of compliance with the practice of COVID-19 preventive measures was low and this could lead to the spread of the virus among rural farmers.

Results of correlation analysis between the selected socio-economic characteristics of rural farmers and their knowledge, attitude and practices towards COVID-19

Results in Table 5 revealed the correlation analysis, the coefficient of determination and

the associated p-values between each of the selected socio-economic characteristics of rural farmers and their knowledge, attitude and practices towards COVID-19.

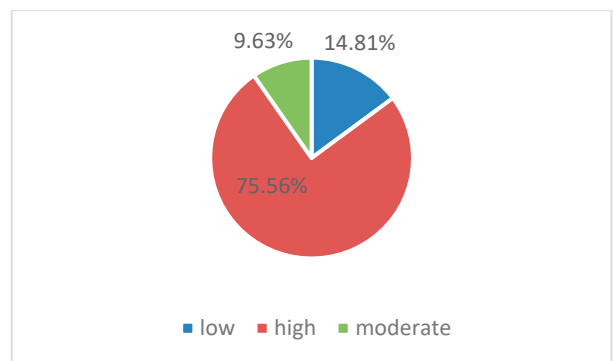


Figure 4. Level of compliance to COVID-19 preventive measures

Seven variables were significantly correlated with the rural farmers' knowledge, attitude and practices towards COVID-19, they are; age ($r = -0.286$, $p \leq 0.01$), family size ($r = -0.172$,

$p \leq 0.01$), household size ($r = -0.127$, $p \leq 0.05$), years spent in school ($r = 0.235$, $p \leq 0.01$), years of farming experience ($r = -0.264$, $p \leq 0.01$), distance from rural farmers' farm to the nearest market ($r = -0.182$, $p \leq 0.01$) and sources of information ($r = -0.135$, $p \leq 0.01$).

Table 5. Results of correlation analysis of the relationship between the selected socio-economic characteristics and the knowledge, attitude and practices (KAPs) of rural farmers towards COVID-19

Variable	r-value	r ²	p-value	Decision
Age	-0.286**	0.082	0.000	S
Family size	-0.172**	0.030	0.005	S
Household size	-0.127*	0.016	0.037	S
Years spent in school	0.235**	0.055	0.000	S
Farm size	0.009	0.000	0.884	NS
Farming experience	-0.264**	0.070	0.000	S
Farm-market distance	-0.182**	0.033	0.003	S
Healthcare facility distance	0.012	0.000	0.849	NS

NS=Not significant; S=Significant at $p \leq 0.05$

**Correlation is significant at $p \leq 0.01$

*Correlation is significant at $p \leq 0.05$

Regression analysis of the relationship between the selected socio-economic characteristics and the knowledge, attitude and practices (KAPs) of rural farmers towards COVID-19

The negative r-value implied that the higher the age of the rural farmers the less their knowledge, attitude and practices towards COVID-19. The higher the number of family size the less the knowledge, attitude and practices towards COVID-19. Similarly, the higher the number of household size the less the knowledge, attitude and practices towards COVID-19. The higher the number of years of farming experience, the less the knowledge, attitude and practices towards COVID-19. The farther their farm to the nearest market the less their knowledge, attitude and practices towards COVID-19. The positive r-value indicated that the more the number of years spent in school by the rural farmers the more their knowledge, attitude and practices towards COVID-19.

We used dummy variable regression analysis to examine the influence of selected socio-

economic characteristics on knowledge, attitude and practice of rural farmers. Results in Table 6 revealed that there were significant relationships between the selected socio-economic characteristics and knowledge, attitude and practices towards COVID-19. This is because the observed probability value associated with F-statistic of 4.55 is small [$F(26, 243) = 4.55$; $p < 0.01$].

Table 6. Regression analysis of relationship between the selected socio-economic characteristics and KAPs of rural farmers towards COVID-19

Variable	Beta coefficient	T	p-value	Decision
Age	-0.659	-1.80	0.074	NS
Sex	2.155	0.42	0.673	NS
Marital status (Married)	-5.277	-0.66	0.513	NS
Marital status (Separated)	-9.619	-1.08	0.283	NS
Marital status (Divorced)	-4.424	-0.32	0.753	NS
Marital status (Widowed)	-22.74	-1.65	0.101	NS
Family size	-0.918	-0.75	0.456	NS
Household size	-0.584	-1.20	0.230	NS
Religion (Islam)	-3.711	-0.75	0.456	NS
Religion (African traditional religion)	17.778	1.79	0.075	NS
Years spent in school	-1.962*	-2.14	0.033	S
Farm size	0.432	0.64	0.521	NS
Farming experience	0.174	0.48	0.630	NS
Farm-market distance	-0.909**	-3.17	0.002	S

S=Significant ($p < 0.05$); NS=Not significant ($p > 0.05$)

**Regression significant at $p \leq 0.01$, **Regression is significant at $p \leq 0.05$

Number of obs = 270

$F(26, 243) = 4.55$; $p = 0.0000$

R-squared = 0.3276; Adj R-squared = 0.2556

Source: Field survey, 2021

The number of years spent in school ($t = -2.14$, $p \leq 0.05$) is significantly related with knowledge, attitude and practice. Furthermore, rural farmers who engaged in artisanship ($t = -2.95$, $p \leq 0.01$) as their secondary occupation were more likely to have higher scores on KAP scale than those that were involved in farming, civil service, trading and those working with private organisations. More so, the rural farmers' farm-market distance

($t = -0.909$, $p \leq 0.01$) is significantly related to their KAPs towards COVID-19.

CONCLUSIONS

Many of the rural farmers had moderate knowledge of COVID-19 which covers the symptoms (such as cough and sneeze), mode of transmission (such as direct close contact, droplets from cough and sneeze and being in crowded places), preventive measures (such as wearing of facemask, restriction on movement and avoiding crowded places) and introduction of vaccines.

Though, some of the rural farmers still consider the pandemic as a sickness that affects the rich and influential; a good number of them agreed that anyone can be infected irrespective of his or her social status and most of them believed that isolation of infected patients in government facilities could lead to stigmatization of such persons. Level of compliance towards the preventive measures as advised by NCDC was moderate. In the light of the above findings, understanding of knowledge, attitude and practice of rural farmers towards Covid-19 will help the government through relevant ministries and departments in designing adequate interventions and policies that are useful and comprehensible in aiding the activities of the rural populace, thereby sustaining the agricultural food supply chain during the fight against COVID-19 pandemic and thereafter. This could be through campaigns that are capable of changing the attitudes and behaviours of the rural populace in the positive direction.

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