ASSESSMENT OF KNOWLEDGE AND INFORMATION SOURCES OF CROP FARMERS COVID-19 PANDEMIC IN SOUTH-EAST NIGERIA.

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ABSTRACT

The present study assessed the knowledge and information sources of crop farmers Covid-19 pandemic in South-East Nigeria. Multistage sampling techniques ~~was~~ adopted in the process of sample selection. A total of 378 respondents were selected for the study. The instruments for data collection was questionnaire. Data were analyzed using frequencies, means, mean score, grand mean, standard deviation and the multiple regression. The t-value generated from the Regression was used to indicate the level of relationship. The result showed that crop farmers in the study area had knowledge of the pandemic, recommended prevention methods, Covid-19 transmission route and symptoms in line with recommended practices of NDDC. Family and friends, Television, Religious organizations, Radio and Peer group were the major sources of information available to farmer during the pandemic, however, information through extension services were not possible due to restriction of movement during the pandemic. The study recommended that the Revitalization and rejuvenation of the agricultural extension sector which is the familiar source of information among farmers in Nigeria should be given priority so as to provide needed information to farmers during pandemics.

Keywords: COVID-19, crop farmers, pandemic, Southeast, Regression model

COVID-19 is an emerging coronavirus disease caused by SARS- CoV-2, initially expressed as pneumonia of unknown origin, thus posing a significant threat to public health across the globe (Deng & Peng, 2020). It is a mild-to-severe respiratory illness that is caused by a coronavirus (genus: *Betacoronavirus*), it is characterized, especially, by fever, cough, and shortness of breath and may progress to pneumonia and respiratory failure (Zhu., Su., Wang., Liu., Wu., and Li, 2020).

The pandemic is the latest threat to health today, since the first occurrence of COVID-19, the report of globally confirmed cases of infection with this new virus has had an alarming growth (Adnan, S. M., Suliman K., Abeer K., and Nadia B, 2020). At the time of writing this paper (July 30, 2023), 768,560,727 confirmed cases of COVID-19 have been reported worldwide, including 6,952,522 deaths (https://covid19.who.int/?gclid=EAIaIQobChMIxOvAspu1gAMVOIBQBh2wPAsoEAAYASABEgJZrPD_BwE).

In Nigeria, the first confirmed case of COVID-19 was reported on 27 February, 2020. As of 25 july 2023, a total 266,675 confirmed cases and 3155 death recorded due to COVID-19 pandemic (https://www.who.int/countries/nga/).

COVID-19 mainly spreads through contact with infected material, from person to person via small droplets or aerosols, as an infected person breathes cough, sneezes, sings, or speaks. Preventive measures for the COVID-19 pandemic include hand washing, maintaining social distance, covering one's mouth when coughing, wearing a face mask, in public settings, and monitoring and self-isolation from people who suspect they are infected (https://en.wikipedia.org/wiki/COVID-19-pandemic).

The emergence of COVID-19 pandemic among countries continues to impact severely on every aspect of what has been known as the 'normal' life. The pandemic has led to disruptions in daily life, agricultural practices, social interactions, education, health, livelihood/employment, food security, safety and nutrition, politics, and economic activity and crop farmers' active participation in agricultural activities.

In Nigeria, Nigeria center for disease control were actively involved in the campaign of mass diagnosis of COVID -19 pandemic to surmount their national and ethical responsibilities aiming to tackle the spread of the infection. However, the majority of the peoples in the rural area of South East Nigeria do not have accesses to a major media outlet through which the national health authority passes the appropriate preventive and control measures of COVID-19.

Additionally, media and internet coverage as well as access to social media are very poor among the farmers so that they will not obtain timely and updated information about this emerging infectious disease and possible coping strategies in managing the disease. Thus, the present study was conducted to assess the knowledge and information sources of crop farmers about COVID-19 in the study area and to appreciate any existing gaps among the farmers on how they accept and use any available information to mitigate the spread of COVID-19 outbreak.

OBJECTIVES OF THE STUDY

The broad objective of the study was to ascertain the knowledge and information source of crop farmers covid-19 pandemic in south-east Nigeria. The specific objectives were:

1. ascertain crop farmers level of knowledge about COVID-19 Pandemic;
2. identify the sources of information about COVID-19 pandemic among the crop farmers;

Hypothesis of the study:

There is no significant relationship between socioeconomic characteristic of the crop farmers and their sources of information on Covid-19 pandemic.

METHODOLOGY

2.1 The Study area

This study was conducted in South-East zone of Nigeria. The South-East zone lies within latitude 5°N to 6°N of the equator and longitude 6°E and 8°E of Greenwich meridian. Southeast Nigeria is made up of five (5) states viz Abia, Anambra, Ebonyi, Enugu and Imo. The zone occupies a total land mass of about 10, 952, 400 hectares with a population figure of 23, 542, 621 person in 2019 projected from 2006 (National Population Commission Census figure (NPC, 2006). There are two major seasons experienced in this zone. These are dry and rainy seasons. The dry season lasts between November and March, while the rainy season occurs between April and October. Although,

over the recent decades, it appears very difficult to create a clear cut distinction between the periods referred to as rainy season and dry season especially between March and April, due to climate change. This is epitomized by heavy rainfall during the supposed dry spells suffered during the season that heavy rains are expected. Despite this observed erratic nature of both rainfall and dry spells, the location of the zone within the tropical forest belt of the country encourages and allows the growth and survival of most tropical food crops like yam, cassava, vegetables, rice, etc and livestock production. Again, there is also the growth of ever green succulent grasses for fodder and forage which draws the nomads to the zone. Hence about 60-70% of the inhabitants of the zone are observed to engage in agriculture, mainly crop farming and animal rearing (Okoye *et al.,* 2010). The South-East states have a scintillation features. The climate is influenced by three major air masses name the equatorial estuaries and the tropical continental air masses.

2.2 Sampling Procedure and Data Collection

Multistage sampling techniques was adopted in the process of sample selection. The first stage will involve the purposive selection of three states from South-East Nigeria where cases of Covid-19 pandemic have been recorded, reported widely and areas with high number of victims of COVID-19, whose farming activities were drastically affected. Here, Abia, Enugu and Imo State was selected because according to (WHO, 2021), they faced more hit of COVID-19 than Anambra and Ebonyi. The second stage involved the selection of two Local governments areas from each of the selected states using purposive sampling techniques based on the high concentration of crop farmers in the area to give a total of six Local Government Areas. This will be based on a reconnaissance survey that will be conducted to explore areas where farming is predominantly practiced. The third stage involved the selection of three autonomous communities from each of the selected local government areas in the state using random sampling techniques to give a total of 18 autonomous communities. The fourth stage involved the random selection of seven crop farmers from each of the villages which will give a sample size of three hundred and seventy eight (378) farmers, and to be used as the respondent for the study. The sampling frame will also include the list of crop farmers actively involved crop production and this will be supplied by the extension service unit in Agricultural Development Program in the headquarters, zones and block/circles in the states involved in the study.

The primary data used for the study were collected from the field using structured validated questionnaire. Data collected were analyzed using frequencies, means, mean score, grand mean, standard deviation and the multiple regression. The t-value generated from the Regression was used to indicate the level of relationship.

The model is implicitly specified as follows;

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, e) \ldots\ldots\ldots\ldots (1)$$

Where:

Y = Dependent Variable (respondents sum rating of sources of information)

X_1 = Sex (dummy male=1, otherwise 0)

X_2 = Age (years)

X_3 = Marital status (single =1, married =2, divorced/separated =3, widowed =4)

X_4 = Educational level (No formal education =0, Primary attempted =1, Primary school completed =2, etc).

X_5 = Family size (numbers of persons)

X_6 = Farming experience (number of years in farming business)

X_7 = Farm size (hectare of farmland cultivated)

X_8 = Membership of social organization (Dummy Yes=1, otherwise =0)

X_9 = Sources of agricultural inputs (No. of sources of inputs)

X_{10} = Number of farmers' organizations belonged (number)

e = error term.

3.0 RESULTS AND DISCUSSIONS

3.1 Ascertain Crop Farmers Level of Knowledge about COVID-19 Pandemic;

Table 1 above showed that crop farmers were knowledgable and aware of the emmeregnce of Covid-19 pandemic. based on their knowledge about the Covid-19 pandemic. A total of 12 out of 14 knowledge indicators used for measuring the crop farmers knowledge level about Covid-19 pandemic were above the discriminating mean score of 2.5. From the results above, farmers noted that the spread of Covid-19 is as a result of human to human transmission ($\bar{X}$=3.7), clinical symtoms of Covid-19 are fever, fatigue and dry cough and shortness of breath ($\bar{X}$=3.7). According to this table, farmers agreed that Covid-19 is spread through contact with an affected person when they cough or sneeze ($\bar{X}$=3.5), Crop farmers also indicated that isolation and treatment of people who are infected are effective ways to reduce the spread of the virus ($\bar{X}$=3.4), Crop farmers indicated that Covid-19 is spread through touch of eyes, nose and mouth of infected persons ($\bar{X}$=3.2). avoiding hugging with infected people limits Covid-19 transmission ($\bar{X}$=2.8). They further noted that Covid-19 started in 2019 ($\bar{X}$=2.7), they indicated that people with Covid-19 should be immediately isolated for the recommended 14 days conservative periods ($\bar{X}$=3.5). This implies that, farmers are armed with relevant knowledge about Covid-19 and are willing to implement recommended practices for their safety.

The findings of this research agrees that their knowledge about Covid-19 is consistent with the study of Cortegiani and Luo (2020), who opined that Covid-19 is spread through human to human contact, he further noted that if droplets from infected persons fall on surfaces, people could get infected by touching an

already contaminated surface. Also, according to Lauer (2020), the best method of control is to keep safe distance from infected persons, constant washing of the hands and cleaning of possibly contaminated surfaces as the symptoms are irregular, so it is difficult to clearly identify an infected person without testing. The result is also consistent with the finding of (WHO, 2019), who noted that wearing masks, using sanitizers, regular washing their hands, and cleaning and decontaminating contaminated surface are most effect means of controlling the spread Covid-19 virus.

Crop farmers' knowledge of Covid-19 pandemic and response were also consistent with the submissions of (NCDC, 2020), who noted that the clinical symptoms of Covid-19 includes; fever, dry cough, shortness of breath or difficulty in breathing, muscle aches, headache, sore throat, or diarrhoea, runny nose and tiredness. Result of the analysis also shows that the knowledge of crop farmers is up-to-date and in accordance with the guidelines of (NCDC, 2020) on Covid-19 controls measures which include; alcohol-based sanitizer frequently; maintaining social distance of not less than 2 meters; using face masks; avoiding facial contact with an infected person; not touching your face; coughing into your elbow; staying at home if you can; seeking medical care early in febrile condition, cough, and difficulty in breathing; throwing used tissues in the trash; cleaning and disinfecting frequently contaminated surfaces; staying informed; and following advice given by a health-care provider and reducing contact with people or taking preventive measures as vital to prevent Covid-19, indicating the crop farmers had ample of knowledge about Covid-19 symptoms, incubation period, transmission route and appropriate prevention measure of the disease.

Crop farmers' knowledge of Covid-19 Pandemic

Table 1: Distribution of Farmers by Knowledge of Covid-19 Pandemic

Statements	Highly Knowledgeable	Moderately Knowledgeable	Knowledgeable	Not Knowledgeable	Mean	SD
What year did Covid-19 Start						
Year 2018	42	-	-	336	1.3	0.8
Year 2019	208	-	-	170	2.7*	1.1
Year 2022	110	-	-	268	1.9	1.1
Year 2017	68	-	-	310	1.5	1.3
What means is Covid - 19 is Spread						
a) Contact with an affected person when the cough or sneeze	283	38	4	53	3.5*	1.7
b) Sexually transmitted	67	36	19	256	1.8	1.3
c) Contact with infected surface	201	39	100	38	3.1*	1.8
d) Touching eyes, nose and mouth of infected person	276	-	4	98	3.2*	2.0

Spread of Covid-19 is as a result of human -to-human transmission	314	32	4	28	3.7*	2.4
Clinical symptoms of Covid-19 are fever, fatigue and dry cough, shortness of breath, acute respiratory distress syndrome	307	38	33	-	3.7*	2.5
Isolation and treatment of people who are infected are effective ways to reduce the spread of the Virus	**277**	**37**	**4**	**60**	**3.4***	**2.3**
To avoid intake of caffeine, alcohol, food prevents Covid-19	29	47	62	240	1.6	1.2
Trouble seeing, walking, loss of balance, lack of co-ordination are symptoms of Covid-19	107	15	126	130	2.3	2.3
Weakness of the face, night sweats, chills, fatigue, weight loss are associated with Covid-19	92	60	183	43	2.5*	1.4
People with Covid -19 should be immediately isolated and 14 days conservative period recommended	307	8	4	59	3.5*	1.5
Covid-19 is made for Children, young adult alone	59	9	-	310	1.5	1.3
Reducing my contact with people or taking preventive measures is very vital to prevent COVID-19?	276	9	32	61	3.3*	1.5
I can contact Covid-19 through Participate in blood transfusions	142	39	34	163	2.4	1.6
Hugging people with Covid-19 transmit the virus	119	135	64	60	2.8*	1.4
Avoiding hugging with infected people limits Covid-19 transmission.	**88**	**188**	**42**	**60**	**2.8***	**1.3**
Grand Mean					2.6	**1.6**

Source: Field survey data, 2023

* No above the discriminating index of 2.5 (perceived knowledgeable)

3.2 Identify the Sources of Information about COVID-19 Pandemic among the Crop Farmers;

Table 2 shows the distribution of crop farmers based on their sources of information about Covid-19 pandemic. The result revealed that Family and friends (93.4%) was the most prominent source of information engaged by crop farmers during the Covid-19 pandemic. This was closely followed by television (93.1%); religious organizations (86.2%); radio (81.4%); peer groups (74.6%), the social media (72.8%) and farm organizations (71.4%). Thus, crop farmers maintained a good relationship with their family members, friends and peer groups as well as listened to their religious leaders and relevant news from the television and radio stations to stay updated.

Corroborating this result, Strömbäck et al., (2020) posited that television and radio and peer groups have been consistently found to be among the most common and trusted sources of information during pandemics. They play a central role in risk communication because media representations contribute to identifying and characterizing hazards by visualizing risks and potential dangers and rendering them perceptible to the wider society. According to Alzoubi et al., (2020), television and radio remain the most common source of information for farmers during Covid-19 as the two play key roles in wide coverage and dissemination of designed message. He further noted that the manner in which information is formulated, the channels through which it is disseminated, and the populations that are targeted must be considered when developing messages, designing and implementing risk communication strategies.

According to Technoserve (2020), updating farmers with relevant information through various channels of information allow farmers to carry out their agricultural activities and non-agricultural work safely. Nisar and Shafiq (2019) noted that better understanding of pandemic situation is enhanced, when crop farmers have an intense need to seek information from various sources and maintain contact with their farm and religious organizations. Henrich and Holmes (2017) further noted that multiplicity of information sources under the current information age remain vital in ensuring wider coverage and better comprehension of the end user.

The result is consistent with the findings of Chikaire, J.U., Nnadi, F.N., Anaeto, F.C. , Echetama, J.A.and Ejiogu-Okereke, N (2017), who noted that religious organizations act as intermediaries to reach out to crop farming communities that may have difficulties in accessing health services or are resistant to implementing evidence based measures. They further noted that some religious organizations provided Covid-19 guide handouts, trainings, provided the religious faithful with disinfection supplies, personal protective equipment (nose mask and hand sanitizers), and free Covid-19 testing during the pandemic.

The result also showed low responses in their degrees of use of sources such as extension officer, health organizations, print media, medical websites and Ministries of Agriculture. These were considered as less effective sources of information by crop farmers during the Covid-19 pandemic period. Extension agents' face to face contact during the Covid-19 was not possible, unless where the officers used social media. The same applied to Ministries of Agriculture and Health Organizations as there was restriction in movement. For print media,

accessing the vendor was difficult unless online. For medical website, it required digital literacy of which most rural farmers were lacking in it.

The implication of this result is that crop farmers are likely to show interest on information sources that are cost effective, accessible and close to their primary environment. As such, close information sources stimulates farmers' interest and allow farmers to carry out their agricultural activities and non-agricultural work safely.

Sources of Information on Covid-19 pandemic used by crop farmers

Table 2: Distribution of Farmers by Sources of Information on Covid-19 pandemic

Source of information	YES	%	No	%	Rank
Social Media	275	72.8	103	27.2	6th
Television	352	93.1	10	2.6	2nd
Extension officers	13	3.4	365	96.6	12th
Health Organizations	74	19.6	304	80.4	11th
Print media	143	37.8	235	62.2	8th
Religious Organizations	326	86.2	52	13.8	3rd
Family / Friends	368	93.4	26	6.9	1st
Medical Websites	108	30.3	249	69.7	10th
Ministry of Agriculture	121	32.0	257	68.0	9th
Farm Organizations	270	71.4	108	28.6	7th
Peer group	282	74.6	96	25.4	5th
Radio	308	81.4	70	18.6	4th

Source: Field survey data, 2023

Hypothesis of the study: There is no significant relationship between socioeconomic characteristic of the crop farmers and their sources of information on Covid-19 pandemic.

Multiple regression model was used to examine the relationship between the socioeconomic characteristics of the crop farmers and their sources of information during the Covid-19 pandemic. From the result, the coefficient of determination R^2 was 0.6026 which implies that about 60.3% of changes observed in the dependent variable (sources of information) were explained by the independent variables (socio-economic characteristics). The result also revealed that age, educational attainment, farm size, social organization and sources of inputs were statistically significant at different levels of probability.

Age was statistically significant at 1% with t-value of 6.458 and p-value of 0.01. This implies that an increase in age of crop farmers will increase number of information sources used during Covid-19 pandemic. Order farmers'

used more of sources of information than the younger farmers. This could be explained by their knowing more sources overtime. The result of the analysis agrees with the finding of Yue (2014) who noted that age of farmers influences their need and source of information. He opined that farmers in different ages have certain differences and preferences on their information sources, noting that older farmers pay more attention to agricultural market information, administrative information and information about their livelihood, about their farming activities. Going further, he noted that as farmers advance in age, their interest, preference, need and access to information increase while utilizing available sources within their environment, example, interpersonal communication with friends and neighbours, radio, television and other mass media. Thus, age of crop farmers may have certain influence on the information sources and channels, having higher degree of dependence on modern information media than younger farmers.

Education was positively related and statistically significant at 1% with t-value of 14.59 and p-value of 0.01. This implies that an increase in the educational level of the crop farmers will increase the number of sources of information on Covid-19 pandemic. This means that education exposes farmers to informations from different sources and channel than less educated farmers on measures to take during the Covid-19 pandemic. Education is a priceless asset, it enlightens people and exposes them to information. The findings of the result agrees with Anonguku *et al.* (2010) that education is crucial in understanding the value of and use of information for increased agricultural success. The result also agrees with the assertions of Chikaire *et al.* (2017) who noted that higher educational attainment of crop farmers could be a pointer to their level of consciousness in the utilization of information channels to better their welfare. Crop farmers with higher educational attainment are more likely to value information, access information and appreciate different information choices than less educated farmers during the Covid-19 pandemic. This is in agreement with findings of Kaassie *et al.* (2014) that a significant link existed between the level of education and utilization of information sources.

Farm size has an inverse but significant relationship with the sources of information with t-value of -4.356 and p-value of 0,01. This implies that an increase in farm size of the farmers will lead to decrease in the number of sources of information used by the crop farmers. This result could be, due to the fact that households with large landholdings may accumulate assets to be able to be resilient from shocks and stresses hence, may not need more sources of information on Covid-19.

The coefficient of social organization membership (0.1018) of farmers was positively significant at 1% level of probability with t-value=7.125. This implies that the number of sources of information among crop farmers increases as the farmers became members of social organizations. Through social organizational membership the crop farmers could access more informations' on Covid-19, its economic effect and possible coping strategies from their association with organization members and Social organization exposes farers on experience sharing about Covid-19 pandemic. Social organization refers to a network of relationships in a group and how they interconnect. This network of

relationships help members of a group stay connected to informations. Through membership of social organization, farmers interact, receive informations, share knowledge and experience through contact and cross fertilization of ideas.

The coefficient of number of sources of input (-0.015) by crop farmers was negative and statistically significant at 5% level of probability with the t-value of -2.123. This means that there is a negative relationship between number of sources of farm input and number of information sources used during the Covid-19 pandemic. The implication is that as the crop farmers' number of sources of farm input increased, their sources of information during the Covid-19 pandemic decreased.

From the fore-going, the null hypothesis which states that there is no significant relationship between the socio-economic characteristics of the crop farmers and their sources of information during the Covid-19 pandemic in the area is rejected and the alternative hypothesis is accepted.

Hypothesis: Relationship between socioeconomic characteristics of the crop farmers and their sources of information on Covid-19 pandemic.

Table 3: Multiple Regression Results on the relationship between the socioeconomic characteristics of the crop farmers and their sources of information during the Covid-19 pandemic

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*	
Constant	1.8597	0.0780	23.84	<0.0001	***
Sex (X_1)	-0.0010	0.0007		0.1610	
Age (X_2)	0.0918	0.0142	6.458	<0.0001	***
Marital status (X_3)	0.0038	0.0117	0.3254	0.7451	
Educational attainment (X_4)	0.1203	0.0082	14.59	<0.0001	***
Household size (X_5)	−0.0055	0.0037	−1.499	0.1349	
Years of Experience (X_6)	0.0016	0.0012	1.368	0.1722	
Farm size (X_7)	−0.0405	0.0093	−4.356	<0.0001	***
Social organization membership (X_8)	0.1018	0.0142	7.125	<0.0001	***
Sources of Input (X_9)	−0.0154	0.0073	−2.123	0.0345	**
Extension Contact (X_{10})	0.0021	0.0115	0.1847	0.8536	
Diagnostic Statistics					
R-squared	0.602649				
Adjusted R-squared	0.591064				
F(10, 368)	17.0234				

Source: Field survey data 2023, Note: ***significant at 1% **significant at 5%.

Conclusion:

The findings of the study revealed that crop farmers' knowledge about Covid-19 pandemic in South-East Nigeria was up to date as they were aware of the pandemic, year of emergence, prevention strategy as well as recommended guidelines in accordance with (NDDC, 2020) to shield themselves from the infection. The result also showed that Crop farmers in the study area were aware channels through which Covid-19 is transmitted, aware of the Covid-19 clinical symptoms, aware of the recommended 14days conservative period recommended for person with Covid-19. Our examinations uncovered that family and friends, religious organizations, television, radio, peer group, social media, farm organizations were the primary sources of information available to farmers during the Covid-19 season. However, ministries of agriculture, health organizations, extension officers, and medical websites were considered by crop farmers as less effective source of information during the pandemic. The result of the hypothesis revealed that there was a significant relationship between socio economic characteristics of Crop Farmers and their sources of information during the Covid-19 pandemic in the study.

Recommendation:

1. Revitalization and rejuvenation of the agricultural extension sector which is the familiar source of information among farmers in Nigeria should be given priority so as to provide needed information to farmers during pandemics.
2. Extension organizations and its officers should develop cost effect channels of information for farmers use during period of emergencies.
3. Government, ministries of agriculture and development agencies /partners should intervene by providing the needed infrastructures and (crop processing machine) that can process crop to eliminate crop waste in general and ensure farmers resilience from the pandemic

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