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IMPACTS OF COVID-19 LOCKDOWN RESTRICTION ON RURAL HOUSEHOLD FOOD SECURITY AND LIVELIHOOD ACTIVITIES OF ARABLE CROP FARMERS IN YENAGOA AGRICULTURAL ZONE, BAYELSA STATE, NIGERIA

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ABSTRACT

With economic recoveries slowing, COVID-19 uncertainties and disruptions continuing, and worsening fiscal capacity, the outlook for food and nutrition security for many low- and middle-income farmers and their livelihood is of significant concern. The study analyzed the effect of COVID-19 lockdown restriction on rural household food security and livelihood activities of arable crop farmers in Yenagoa Local Government Area of Bayelsa State, Nigeria. Data were collected through well-structured questionnaire from 100 arable crop farmers. Data were analyzed using simple descriptive and inferential statistical tools. The result showed that fever ($\bar{x}$=3.8), cough ($\bar{x}$=3.1), shortness of breath ($\bar{x}$=3.5), headache ($\bar{x}$=3.5), sore throat ($\bar{x}$ =3.3) and congestion or running nose ($\bar{x}$=3.2) were perceived COVID-19 symptoms. Transportation (tricycle and taxi driving) ($\bar{x}$=3.7), arable crop farming ($\bar{x}$=3.4), handicraft ($\bar{x}$=2.5), oil palm farming ($\bar{x}$=3.4), fish farming ($\bar{x}$=3.2), vegetable farming ($\bar{x}$=3.4) and snail farming ($\bar{x}$=3.1) were livelihood activities affected by COVID-19 movement restriction. Food availability ($\bar{x}$=2.9), feeding efficiency/sufficiency ($\bar{x}$=2.6), economic access to food ($\bar{x}$=2.5) and food quality ($\bar{x}$=2.5) were food status of the sample arable crop farmers. The regression result showed that the coefficient of COVID-19 movement restriction (2.531) was positive and statistically significant at 1%. The study concluded that COVID-19 movement restriction significantly affected food security status and livelihood activities of arable crop farmers negatively. Hence, the study recommended effort should be made by government and other agricultural agencies to establish food storage, preservation and processing facilities so that during movement restrictions farmers can have access to food and to avoid malnutrition for the aged farmers which immune system is susceptible to infections.

Keywords: COVID-19, Lockdown Restriction, Rural Household, Food Security, Arable Crop Famers

INTRODUCTION

COVID- 19 is a respiratory illness and there's no substantiation that food itself is a vector of its transmission (International Commission on Microbial Specifications for Foods, 2020). Still, the contagion, and measures to contain its spread, have had profound counteraccusations for food security, nutrition and food systems (High position Panel of Experts on Food Security and Nutrition, 2021). Spreading through East Asia, Europe, and North America in early 2020, the COVID- 19 global epidemic started affecting countries in Africa and Latin America.

Nigeria been the most populous in Sub-Saharan Africa, and a trade links with other Africa nations and the rest of the world, it sounded ineluctable that the pandemic would ultimately reach Nigeria (Kwaw, Hyacinth and Thurlow, 2020). In February, Nigeria recorded the first case, after which it began to spread throughout Lagos, Ogun State, and the Federal Capital Territory.

Appearance of the epidemic set off a chain of policy conduct, including public health and education juggernauts, financial and financial measures, restrictions on large sections of the frugality, and compensating measures in the form of social protection for poor and vulnerable people (Onyekwena and Amara- Mma, 2020).

Ongoing query girding the nature of the spread of COVID- 19 led to the perpetration of strict lockdown and physical distancing programs in a number of countries. These measures caused a serious retardation in profitable exertion and disintegrated force chains, unleashing fresh dynamics with slinging goods on food systems and people's food security and nutrition (HLPE, 2021). Food instability is a lack of steady access to enough food for active and healthy living (USDA, 2020).

High food security is linked to homes with no problems or anxiety about harmonious access to acceptable food; and for borderline food security, homes have problems or anxiety at times about penetrating acceptable food, but the quality, variety and their food aren't mainly reduced (Yeboah, Shaik and Musah, 2021). With respects to low food security, homes reduce the quality of diet (Yeboah, Shaik and Musah, 2021). Multitudinous countries are passing high food price which has led to rise in the price of toxin. Rising food prices have a lesser impact on people in low- and middle- income countries since they spend a larger share of their income on food than people in high- income countries (World Bank, Food Security and COVID- 19, 2022). Livelihood conditioning of growers relate to the mortal, social, land, fiscal and material coffers that can be used by family members and the family, as well as the being development capacity of the growers (Yograj Gautam and Peter Anderson, 2018). On this basis it is imperative to analyze the impact of covid-19 lockdown restriction on rural household food security and livelihood activities of arable crop farmers in Yenagoa agricultural zone. The objectives of this study includes: The perceived pandemic symptoms, livelihood activities affected by movement restriction enforced by Bayelsa State during the Covid-19 lockdown; the food security status of arable crop farmers and the effects of COVID-19 lockdown movement restriction on rural household food security. The study hypothesized that COVID-19 lockdown movement restriction has no significant effect on the livelihood activities of arable crop farmers. COVID-19 lockdown movement restriction has no significant effect on the rural household food security.

MATERIALS AND METHODS

This study was conducted in Yenagoa Local Government area of Bayelsa state, Nigeria. It is located at the southern part of the country with coordinates 4°55'29" N 6° 15'51'E. The Local government area has an area of 706 kilometer square and a population of 352,285 at the 2006 Census (National Population commission of Nigeria). Yenagoa Local Government area lies within the rain forest zone with a humid equatorial climate and mean annual rainfall ranging from 2000 to 4000mm alternating rainy (March to November) and dry (December to February) seasons. English language is the official language, but Epie-Atissa language is one of the local languages spoken in Yenagoa, others such as Ekpetiama, Gbarain, Biseni and Zarama are ijaw dialect in Yenagoa local government area. (Yenagoa Physical Setting, 2003). Purposive sampling technique was used in the selection of Yenagoa Local Government area, which has major health facilities. Stratified sampling technique was used in the selection of the sample of 100 arable crop famers. In the first stage, wo extension blocks were randomly selected from the Zone, while in the second stage, 2 sub-circles were selected from each block, giving a total of 6 sub-circles. In the third stage, twenty farmers were randomly selected from each sub-circle, giving a sample size of one hundred and twenty (100) farmers. Data collected through well-structured questionnaire were analyzed with descriptive statistic, simple linear regression was used to test the hypotheses. The questionnaire was a 4-point likert type of strongly agree, Agree, Disagree and Strongly disagree to which numerical values 4, 3, 2 and 1 were assigned respectively. Hence, the cut-off point of 2.55 as the upper limit was used to determine a positive response (i.e., 2.5 + 0.005 = 2.55).

RESULT AND DISCUSSIONS

Result in Table 1 show the perceived COVID-19 pandemic symptoms. The result showed that the perceived COVID-19 symptoms are fever ($\bar{x}$=3.8), cough ($\bar{x}$=3.1), shortness of breath ($\bar{x}$=3.5), headache ($\bar{x}$=3.5), sore throat ($\bar{x}$ =3.3) and congestion or running nose ($\bar{x}$=3.2) were ranked 1st, 2nd, 3rd, and 4th respectively. This implies that the various COVID-19 symptoms affected arable crop farmer through imposition of movement restriction by Government. This finding is in line with the assertion of Kharel *et al*, (2022) who submitted that in extreme cases, public parks were also closed, and people were not allowed to go out, except for emergencies.

Table 1: the perceived covid-19 pandemic symptoms

Variables	SA	A	D	SD	Sum	Mean	Rank
Fever	83	17			383	3.8	1st
Cough	66	15			309	3.1	5th
Shortness of Breath	56	39	5		351	3.5	2nd
Muscle or Body Aches	33	50	14	3	311	3.1	5th
Emotional Tension	30	48	9	13	295	2.9	7th
Headache	48	50	2		346	3.5	2nd
Sore Throat	34	61	5		329	3.3	3rd
Diarrhea	44	26	16	14	300	3.0	6th
Nausea	41	32	18	9	305	3.1	5th
Congestion or Running Nose	37	45	18		319	3.2	4th
Decision cut-off point						**2.5**	

Source: Field survey data, 2023

Note: SA=strongly agree, A= agree, D= disagree and SD= strongly disagree.

Result in Table 2. Show livelihood activities affected by COVID-19 movement restriction. The result showed that COVID-19 movement restriction affected livelihood activities significantly; Transportation (Tricycle and taxi driving) ($\bar{x}$=3.7), arable crop farming ($\bar{x}$=3.4), handicraft ($\bar{x}$=2.5), oil palm farming ($\bar{x}$=3.4), fish farming ($\bar{x}$=3.2), vegetable farming ($\bar{x}$=3.4) and snail farming ($\bar{x}$=3.1) which ranked 1st, 2nd, 3rd, 4th and 5th respectively. This implies that COVID-19 movement restriction has adversely affected the livelihood activities arable crop farmers. This is in line with Nwosu and Okringbo (2016), lockdown situations pose harsh economic impact on rural farmers which impact their food security status negatively.

Table 2: livelihood activities affected by COVID-19 movement restriction

Variables	SA	A	D	SD	Sum	Mean	Rank
Handicrafts	47	46	6	1	247	2.5	
Transportation (Tricycle and taxi driving)	73	26	1		372	3.7	1st
Fashion designing	37	62	1		274	2.7	6th
Brick laying	31	64	2	3	323	3.2	4th
Arable crop farming	40	58	2		338	3.4	2nd
Oil palm farming	40	58	2		338	3.4	2nd
Livestock farming	31	64	4	1	325	3.3	3rd
Fish farming	27	63	10		317	3.2	4th
Vegetable farming	35	65	1		337	3.4	2nd
Snail farming	18	75	7		311	3.1	5th
Decision cut-off point						25	

Source: Field survey data, 2023

Note: SA=strongly agree, A= agree, D= disagree and SD= strongly disagree.

Table 3 show the food security status of arable crop farmers. The result showed that food security status of arable crop farmers; food availability ($\bar{x}$ = 2.9), feeding efficiency/sufficiency ($\bar{x}$ =2.6), economic access to food

($\bar{x}$=2.5) and food quality ($\bar{x}$=2.5) were ranked 1st, 2nd, 3rd and 4th respectively. This implies that COVID-19 movement restriction significantly impacted food security of arable crop farmers negatively. This finding corroborate the assertion of (USAID, 2021) who reported that Nigeria is facing a food security crisis that is compounded by the COVID-19 global pandemic and its effects on the food value chain in the country.

Table 3: Food Security Status of Arable Crop Farmers

Variables	SA	A	D	SD	Sum	Mean	Rank
Food Availability	36	35	15	14	293	2.9	1st
Ability to access food	27	46	18	9	291	2.9	1st
Economic access to food	13	37	35	15	248	2.5	3rd
Food Quality	21	34	23	22	254	2.5	3rd
Feeding Efficiency/Sufficiency	13	40	38	9	257	2.6	2nd
Food Distribution	21	34	23	22	254	2.5	3rd
Utilization of food	16	34	39	11	255	2.6	2nd
Stability	13	23	54	10	239	2.4	4th
Malnutrition	24	53	16	7	294	2.9	1st
Decision cut-off point							

Source: Field survey data, 2023

Note: SA=strongly agree, A= agree, D= disagree and SD= strongly disagree

Table 4 show the effects of COVID-19 lockdown movement restriction on rural household food security. The result showed that diet diversification ($\bar{x}$=4.6), food safety ($\bar{x}$=4.5), access to sufficient food to meet the dietary need ($\bar{x}$=4.5), food affordability (price of food stuff in the market) ($\bar{x}$=4.0) and food consumption ($\bar{x}$=4.2) which were ranked 1st, 2nd, 3rd and 4th, respectively. This implies that as a result of lockdown imposed by government, schools, businesses and other non-essential services were closed, and people were advised to stay inside their homes without considering their food security status, many lost their lives as a result of starvation.

Table 4: Effects of COVID-19 lockdown movement restriction on rural household food security

Variables	VE	E	PE	I	VI	Sum	Mean	Rank
Food consumption	52	23	17	6	2	417	4.2	4th
Access to sufficient food to meet the dietary need	50	28	22	10		448	4.5	2nd
Diet diversification	68	17	11	9		459	4.6	1st
Food safety	66	25	5	2	2	451	4.5	2nd
Food availability	37	31	24	5	3	391	3.9	6th
Food affordability (price of food stuff in the market)	58	19	17	6		429	4.3	3rd
Utilization of food	42	31	16	11		404	4.0	5th
Decision cut-off point								3.0

Source: Field survey data, 2023

Note: VE= Very effective, E= Effective, PE= Partly effective, I= Ineffective and VI= Very ineffective

Result in Table 5 shows that four functional forms – linear, exponential, semi-log and double-log were tried for choice of a lead equation. Based on the magnitude of the coefficient of simple determinations (r^2), the significance of the regression coefficient, and the sign of the significant variable as they conform to *a priori* expectations as well as the significant of the entire model as shown by the F- statistic, the linear model was chosen as the lead equation. The value of the coefficient of multiple determinations (r^2) was 0.381, implying that about 38.1% of the variations in the livelihood activities of the farmers in the study area was explained by the explanatory variable included in the model.

The regression result indicated that the coefficient of COVID-19 movement restriction (2.531) was positive and statistically significant at 1%. This implied that COVID-19 lockdown movement restriction was positively related to changes in the livelihood activities of arable crop farmers. Thus, as the duration in the restriction of movement became prolonged, livelihood activities increased. This could be attributed to farmers' involvement in other farming livelihood activities which were not vulnerable to the COVID-19 pandemic as confirmed by the study of Middendorf *et al.* (2021). Consequently, the COVID-19 pandemic may have collapsed other off-farm or non-farm livelihood activities due to the movement restrictions and other containment measures. Hence, male and female headed households had better means including the labour force to engage in diversified income generating activities within their rural communities. Contrary, Asegie *et al.* (2021) reported that that the livelihoods of households were affected by the pandemic. The pandemic significantly affected and forced households to cease their livelihood activities such as daily labor, small business trade, and livestock trading, in come from remittance and labor migration. Information from respondents described that the COVID-19 pandemic provided the opportunity to use family labour due to the lockdown of schools and places of work of civil servants and markets. In this case, households having large family sizes benefited to allocate their labour to other farming and farm related activities.

Table 5: COVID-19 lockdown movement restriction has no significant effect on the livelihood activities of arable crop farmers

Variables	Linear+	Exponential	Semi-log	Double log
Constant	12.151 (13.934)***	1.083 (40.410)***	14.543 (36.707)***	1.152 (94.892)***
Movement restriction	2.531 (3.958)***	0.074 (3.748)***	7.949 (3.380)***	0.233 (3.227)***
r^2	0.381	0.354	0.323	0.310
Adj r^2	0.371	0.116	0.306	0.290
F-statistic	15.665***	14.051***	11.424***	10.412***

Note: *** indicates statistically significant at 1% level . + stand for the lead equation. Figures in parentheses are t-values.

Result in Table 6 showed the magnitude of the coefficient of simple determinations (r^2), the significance of the regression coefficient, and the sign of the significant variable as they conform to *a priori* prospects as well as the significant of the entire model as shown by the F- statistic, semi-log model was chosen as the lead equation. The value of the coefficient of simple determinations (r^2) was 0.890, inferring that about 89% of the variations in rural household food security in the study area was explained by the explanatory variable included in the model.

The regression result showed and inverse relationship existed between COVID-19 movement restrictions and rural household food security. Thus, increase in the duration of the COVID-19 movement restriction, reduced the food security status of arable crop farmers in the study area by a factor of 2.735. This inferred that farm households with large family sizes were anticipated to be affected by the pandemic adversely due to the reason that being a large size may increase the quantity of food consumed for each family member. In addition, it is anticipated that households with large family sizes are more likely to face a shortage of food as a result of diminished household income or no income coming from off-farm and non-farm livelihood activities during the pandemic. Also, lack of income from remittances from family members staying in urban centers as a result of COVID-19 pandemic could have also affected food security status of rural households in the study area. The study conducted in Pakistan on socioeconomic impact of COVID-19 by Ali *et al.* (2020) verified the result of this study reporting that the income of repliers dropped due to the pandemic.

Table 6: COVID-19 lockdown movement restriction has no significant effect on the rural household food security

Variables	Linear+	Exponential	Semi-log+	Double log
Constant	30.200 (20.928)***	1.484 (52.320)***	27.944 (44.046)***	1.440 (115.362)***
Movement Restriction	-2.735 (-2.585)***	-0.052 (-2.525)***	-11.674 (-3.100)***	-0.222 (-3.002)***
r^2	0.640	0.610	0.890	0.840
Adj r^2	0.540	0.520	0.800	0.750
F-statistic	6.680***	6.375***	9.609***	9.012***

Note: *** indicates statistically significant at 1% level. + stand for the lead equation. Figures in parentheses are t-values.

CONCLUSION

The study concluded that COVID-19 movement restriction significantly affected food security status and livelihood activities of arable crop farmers negatively. There was an inverse relationship between COVID-19 movement restrictions and rural household food security. Thus, increase in the duration of the COVID-19 movement restriction, reduced the food security status of arable crop farmers in the study area. Based on the result of the findings, the following recommendation were made: There is need for rural farmers to check their health regularly and quickly if they perceived symptoms like fever, shortness of breath, headache, sore throat and congestion or running nose in other not to affect food security status. There is need for government to make soft loan and palliative available for future occurrence for transporters which livelihood depends on. Still, government should release seedlings to vegetable farmers and arable crop farmers. Effort should be made by government and other agricultural agencies to establish food storage, preservation and processing facilities so that during movement restrictions farmers can have access to food and to avoid malnutrition for the aged farmers which immune system is susceptible to infections.

REFERENCES

Ali, A., Ahmed, M., and Hassan, N. (2020). Socioeconomic impact of COVID-19 pandemic: Evidence from rural mountain community in Pakistan. *Journal of Public Affairs*, 1-10.

Asegie, A. M., Samuel Tadesse Adisalem, S. T., and Eshet, A. A. (2021). The effects of COVID-19 on livelihoods of rural households: South Wollo and Oromia Zones, Ethiopia. *Heliyon*, 7, e08550. Pp. 1-10

International Commission on Microbial Specifications for Foods (2020). ICMSF Opinion on SARS-CoV-2 and its relationship to food safety.

Kwaw Andam, Hyacinth Edeh, Victor Oboh, Karl Pauw and James Thurlow (2020). Impacts of COVID-19 on food systems and poverty in Nigeria. Published by Elsevier.

Middendorf, B. J., Faye, A., Middendorf, G., Stewart, Z. P., Jha, P. K., and Prasad, P. V. V. (2021). Smallholder farmer perceptions about the impact of COVID-19 on agriculture and livelihoods in Senegal. *Agricultural Systems*, 190.

Nwosu, I. E. and Okringbo, J. I (2016). Effects of Oil Spillage on Livelihood Activities among Rural Farmers in Bayelsa State, Nigeria. *Journal of Community and Communication Research* 1(2):121-124

Onyekwena Chukwuka and Mma Amara Ekeruche (2020). Understanding the impacts of the COVID-19 outbreak on the Nigerian economy.

United States Agency for International Development (USAID), (2022). USAID/Nigeria COVID-19 Food Security Challenge. www.usaid.gov/innovation/nigeriacovid19.

United States Department of Agriculture, USDA (2020). Household Food Security in the United States. No. 298.