

Counting the Cost: The effect of Covid -19 Lockdown on households in South East Nigeria

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Abstract:

The present study measured household hunger in South-East Nigeria amidst COVID-19 lockdown. A total of 1209 households (urban and rural locations) were sampled. Household hunger was determined using Radimer/Cornel hunger scale, while Chi-square test was done with significance of $P < 0.05$. Results of this study revealed 82.7% prevalence of hunger among households before Covid-19 pandemic, while during Covid-19 lockdown, hunger prevalence rose to 98.6%. It was also observed that covid-19 lockdown significantly affected food prices. The major coping strategy employed by households was relying on less expensive foods (81.14%). High household hunger was identified as a short term cost of Covid-19 lockdown in Southeast Nigeria. Only few households benefited from the food aid programs and other forms of palliatives by Government. It is recommended that the Government should setup a formidable unit which will develop physical and digital plans for effective implementation during Covid-19 lockdown situation or other emergencies.

Keywords: Food insecurity; Food insufficiency; Household Hunger; Coping Strategy; COVID-19; Pandemic

Introduction

The novel coronavirus disease (COVID-19) outbreak emerged late 2019 (WFP-VAM 2020). In the month of March, 2020, it was declared as a pandemic by World Health Organization (Cucinotta and Vanelli, 2020). Consequently, governments were beckoned to take aggressive and urgent steps towards suppressing and controlling its spread (WHO 2020). Containment of the widespread of COVID-19 pandemic in Nigeria necessitated the initiation and implementation of diverse strategies by the various levels of government (Gardaworld, 2020).

The strategies included mass orientation on improved personal hygiene, travel bans/restrictions, social distancing, and partial/total lockdown in many countries. Some of these especially the partial/total lockdown impaired daily economic activities. As the pandemic ravages, the people and food system interaction changed at an indescribable alacrity, hence impacting on the choice of diet and nutrition generally (UNSCN 2020). During the lockdown, people were obligated to stay at home for safety, but can only go out to meet the most urgent needs like buying food (Jribi et al. 2020).

Coincidentally, the lockdown and social distancing being implemented by Governments brought about the following: shut down of marketplaces, ban of vendors from selling, imposed limits on the number of shoppers and development of long queues at points of food purchase. Empty shelves unfortunately have become visible signs of the coping mechanism many are adopting (UNSCN 2020) as citizens buy off commodities in shops and supermarkets. Grounding of economic activities occasioned by covid-19 pandemic, consequently threatened household food security and elevated hunger exponentially in the society.

Grounding of economic activities occasioned by covid-19 pandemic, consequently threatened household food security and elevated hunger exponentially in the society. Global Network Against Food Crises noted that impact of COVID-19 pandemic on livelihood, national budget, supply chain and trade will compound the problems of food security and increase effect of hunger globally (Welsh 2020). The food production and supply chain especially in the sub-Saharan Africa suffered a serious crack, caused by economic contraction and diverse cushiony policies geared towards mitigating the impact of Covid-19 pandemic (Agyei-holmes et al. 2021).

A survey on the impact of Covid-19 on food systems in sub-Saharan Africa revealed significant effects on livelihood, food security and socio-economic dispositions of both farmers and non-farmers in the region (Agyei-holmes et al. 2021). Kansiime et al. (2021) reported a negative implication of COVID-19 on household incomes and food security in two East African countries – Kenya and Uganda. Impacts of Covid-19 pandemic have also been reported in various African nations including Nigeria (Liverpool-Tasie et al. 2020).

Nigeria is one of the countries located within the sub-Saharan African region, with a growing population of over 200 million people (Onyeneke et al. 2017). The country is geo-politically divided into six zones, and South-east inclusive with a teeming population of over 20 million people. The South-eastern region is an important economic zone, characterized by diverse economic activities such as agriculture, aquaculture, e-commerce, mining, artisanship, craftsmanship etc.

The Covid-19 lockdown crumbled many economic activities, especially the small and medium enterprises (SMEs), thereby constraining individual and households' income flow and consequently weakened their financial ability to purchase food items, which may impact negatively on nutrition and food security in general.

The objective of this study was to measure the intensity of household hunger in South-East Nigeria aggravated by COVID 19 lockdown using the Radimer/Cornell hunger scale. The key potency of Radimer - Cornell scale is that it is well conceptualized and based on thorough understanding of food insecurity experience in households (Marques et al. 2015). Henjum et al. (2019) confirms that each set of questions on food insecurity and hunger in Radimer -Cornell Scale address a diverse degree of severity that illuminates the varied levels. Welch et al. (1998) observed that the Radimer/Cornell scale has been attested to have decisive factor related legitimacy in that socioeconomic and demographic characteristics associated with hunger are highly linked to hunger status of households. Radimer and his collaborators deployed the perception of food insecurity to develop an index for hunger by qualitatively interviewing women from poor households (Radimer et al. 1992). The index has been proved to be effective, dependable and consistent in the framework for which it is developed (Kendall et al. 1995).

This study assessed the hunger situation among households and possible interventions provided by the government. The coping strategies by households were also evaluated.

2. Materials and Methods

2.1. Study Area

All households in the South-East Nigeria make up the study population. The South-East has five (5) states which are: Abia State, Anambra State; Ebonyi State; Enugu State; and Imo State. There are six geopolitical zones in Nigeria and South-East is one. South-East lies within 5°N to 6°N latitudes and 6°E and 8°E longitudes. Land mass the zone measure about 11 million Hectares, and a population of about 16 million (Onyeneke et al. 2017). The climatic condition of the zone is that of the tropical rainforest and favors agriculture. The zone has two prominent seasons which are; dry season and the wet seasons. The zone experiences wet season from the month of April to October. Dry season runs from November to March. The daily temperature average all through the year falls between 25°C and 35°C. The annual rainfall ranges from 1600 mm to 2500 mm. The zone is made up large demography, whose occupational status include farming, fishing, craftmanship, etc. As at the time of study, the zone had not recorded any death as a result of COVID 19 pandemic, but has been affected by the lockdown pronounced by the federal government as one of the numerous actions to curb the spreading of COVID 19.

2.2. Survey/Sampling technique

The survey took place after 5 weeks of the COVID-19 lockdown which started from March 20, 2020 in Nigeria (GardaWorld, 2020). All the five states in South- East Nigeria were purposively selected. Four (4) Local Government Areas (LGAs) were selected from each State (20 in total). A purposive sampling was used to sample two town communities (one rural and one urban) from each LGAs. These were within the subpopulations of rural and urban communities. In all a total of 40 communities were selected. In each community, 30 households were sampled using the simple random sampling. This gave a total of one thousand two hundred and nine (1209) households selected and used for the study.

2.3. Instrument and Adaptation

Instrument for this study was a designed questionnaire to measure level of hunger and food security in households. The study made use of an adapted version of the Radimer-Cornell tool in assessing hunger and food security (Welch et al. 1998, Ballard et al. 2011). This questionnaire items were in line with the Household Food Insecurity Access Scale (HFIAS) and the Household Hunger Scale (HHS), developed by the Food and Nutrition Technical Assistance Project (Regassa and Stoecker, 2011). Following the protocol of Ballard et al. (2011) a 4-week (30-day) recall period was used for data collection

and 4 Radimer/Cornell hunger items out of the 9 Radimer/Cornell food security items were administered to a research population during the lockdown.

The questionnaire was structured into three sections which included socioeconomic information, Radimer/Cornell hunger scale and coping strategies. The questionnaire was designed to have two parts ('a' and 'b'). The 'a' part addressed household hunger before the lockdown while the 'b' part addressed household hunger during the lockdown. The questionnaire was developed and administered in English language. The mode of administration was through printed questionnaire by both researchers and assistants across the five states.

Researchers are aware of the health risk involved by adopting the questionnaire as instrument for the study especially during the COVID 19 Lockdown period, however, the need to understand the hunger situation among households (*including those in the most remote rural locations, who lack socio-infrastructure amenities such as internet*) especially during the period necessitated the choice of instrument.

2.4. Data collection

Volunteers were engaged as respondents. Research assistants who had good idea of the research area were used for data collection. They are also experienced in nutrition counselling and are able to speak the local dialect of the communities. Prior to data collection, research assistants were trained online using the nutrition baseline survey interview guide and quality control procedure for interviewer (Evang and Kuchenbecker, 2015). Research Assistants took advantage of limited intra state movement allowed by State Governments to collect data during the lockdown.

2.5. Precautionary measures

Due to COVID 19 pandemic, the research assistants conducted the survey, observing the social distancing (at least 2-3meter away from contacts) as directed by the Nigerian National Centre for Disease Control (NCDC), Ministry of Health and the World Health Organization (WHO). In addition, the Research Assistants were armored with personal protective equipment such as face mask, hand gloves, hand sanitizer, and avoided bodily interaction/close contact such as hand shaking, hugging etc. The respondents also complied by cooperating with the Research Assistants regarding health safety measures.

2.6. Analysis of Data

Household hunger levels were determined by adopting the methods of Welch et al (1998), Frongillo et al. (2010) and Ballard et al. (2011). Data analysis was executed using frequency counts and percentages. Chi-square tests of independence were employed to test for associations between households hunger values and location of respondents. A Cramer's V test was further used to ascertain the extent of association between them. The software used was SPSS version 20. Significance of values was determined statistical at $p < 0.05$.

3. Result

3.1. Sample characteristics

The States which are the sub-federations in Nigeria were all equally sampled but a few states had one or two poorly filled copies of questionnaire as such were not used. Table 1 shows the Socio-demographic characteristics of respondents. The studied sample comprised of 1209 households. The result shows that the half (50.1%) of the households used for this study were households in Urban areas while the other half (49.9%) were rural dwellers. The majority (65%) of these households had married household heads whose marriages are monogamous, while only 3.6% were divorced. A greater proportion (43.2%) had heads of their household who have at least completed secondary school education. Thirty two percent

(32%) of the household heads had post secondary school education. Figure 1 presents the percentage distribution of the sex of Heads of Households across the states in South-East Nigeria. More men were heads of household across all the state of the Southeast sampled households. Only 37.7% in Abia State, 28.2% in Ebonyi State, 25.5% in Enugu State, 34.2% in Anambra and 24.2% in Imo state were the female heads of households. (Test of association between sex heads of households and states; $X^2=109.130$, $P<0.000$; Cramer's $V=0.300$)

3.2. Household Hunger Measurement

A total of 1209 households were surveyed using the Radimer –Cornell hunger scale (Table 2). Radimer/Cornell questionnaire has been adjudged a valid and reliable instrument to measure household food insecurity and classifies individuals on the basis of household and individual hunger (Welch et al. 1998). The result shows an 82.7% prevalence of hunger among households before the Covid-19 pandemic, while during the Covid-19 lockdown, it rose to 98.6%. On the hunger item, no 1 (worried whether food will run out before the household gets money to buy more food) it was observed that 42.1% of the household were worried before Covid-19, the value increased to 92.5% during the Covid-19 lockdown. A similar trend was observed on item no 2 (the food bought just did not last and I did not have money to get more). Before Covid-19, 39.5% of households gave affirmative response while during the Covid-19 lockdown it rose to 93.6%.

From the foregoing Table 3 shows that the number of Southeastern Nigeria households (1000) in hunger before Covid-19 lockdown by 192 households during the lockdown. This implied that 15.9% additional households were added to the already high hunger status (82.7%) in existence in Southeastern Nigeria. A test of association between the hunger status of these households shows a significant association ($\chi^2=10.688$, P-value for exact= 0.004). The Cramer's V test for test shows a 9.4% strength of association between the household hunger before and during the Covid-19 lockdown in Southeast Nigeria. The Cramer's V coefficient though low was statistically significant implying that the hunger level during the Covid-19 lockdown is associated with their hunger status before the lockdown. This means that those hungry households before the lockdown were still hungry during the lockdown whereas more households not hungry became hungry during the lockdown. This shows that the Covid-19 only made bad matter worse.

Table 4 showed the test of association between prevalence of household hunger and location of households (urban or rural) before and during the Covid-19. Results show that before Covid-19, the prevalence of hunger in the urban areas was 85.5% whereas the prevalence in the rural areas was significantly lower at a prevalence of 79.9%. The test shows a 7.3% level of association ($X^2=6.499$, $P=0.012$). During Covid-19 lockdown the prevalence of hunger in the urban areas rose to 98.0% and 99.2% respectively in the urban and rural areas. The test shows no significant association between the household's location and prevalence of household hunger during the Covid-19 lockdown. The level of association was 4.9% ($X^2=2.888$, $P=0.089$). This means the situation was not any different whether in the rural or urban areas during the Covid-19 lockdown with respect to hunger, though it was not the case before Covid-19.

3.3. Food and Government Safety Net Accessibility by Households

Figure 2 presents opinion of respondents (percentage distribution) about factors affecting food access and price increase during lockdown. Responding to the questionnaire item about reasons for hunger situation faced by households, upto 68.6% of households in southeast Nigeria opined that there are changes in the prices of foodstuffs due to the Covid-19 Lockdown. More households (88.7%) blame the increase in price

on the Covid-19 lockdown also. Changes in prices of foodstuff are indicated by 63.4% of these households to be caused by scarcity or unavailability of essential and stable food stuff. Others (53.4%), of these households have the view that the Covid-19 Lockdown did not allow them go out to buy foodstuff.

Figure 3 shows the government intervention programs were not popular among households across the southeast Nigeria,. Only 16.9% of the households benefited from the Government cash transfer program during the Covid-19 lockdown. Only 16.3% of households benefited from the government food aid program as Covid-19 palliative.

3.4. Coping Strategies

This study was carried out during the COVID 19 Lockdown in Southeast Nigeria when demand for food was highly acute. Households employed different coping strategies to lessen the effects of food scarcity (Figure 4). Top three strategies used by households to cope during the lockdown are: use of less expensive foods (81.14%), skipping meals (69.31%), and reducing the size of food served at meal times in the family (67.67%). The least adopted strategies were to send out household members for begging (1.82%) and sending household members to eat elsewhere (5.13%).

4. Discussion

This study measured household hunger in South-East Nigeria during COVID 19 lockdown. It attempted to assess actual cost of the lockdown in terms of household hunger situation. The study collected data regarding accessibility of governments' safety-net actions by households and the household adopted coping strategies. It generated information from respondents about factors supporting household hunger in South-East Nigeria.

The demographic characteristics of respondents in this study showed that the 50.1% and 49.9% of the households respectively were located in the Urban and rural areas. A little more heads of household (43.2%) have at least completed secondary school education. With reference to previous research reports it is important to note that household food security and hunger status are affected by a cocktail of socio-economic and demographic factors than location alone (Zalilah and Khor 2008, Kirkpatrick and Tarasuk, 2010, Regassa and Stoecker 2011). It has been reported that the level of education of household head enhance household food security (Amaza et al., 2006, Bashir et al., 2012).

Food security, according to World Food Summit (FAO, 1996), is a concept which includes economic and physical accessibility of food by man to the extent that it meets not only his dietary needs but also the food preferences. Deitchler et al. (2011) went further to outline the three basic elements on which food security is based as follows: 1) satisfactory availability of food; 2) ability of households to obtain adequate quality and quantity of food needed by members which meet their nutritional requirements for healthy living; and 3) suitable consumption and utilization of food. Faye et al (2011) indicated an important consideration about food insecurity demonstrating that the food security experience is not static but dynamic. They poisted that levels of food insecurity varies from doubt and apprehension about food availability to the acute case of hunger. Hunger therefore stands for the more rigorous form of food insecurity.

In this study it was observed that the prevalence of hunger among South-East Nigeria households before the Covid-19 pandemic was already very high (82.7%) but Covid-19 lockdown heightened the household hunger (98.6%). Similar to this finding Tiensin (2020) stated that before the coronavirus disease outbreak, food insecurity and hunger among households were already highly problematic. More than 820 million

people do not have adequate food to eat (FAO 2019). Out of these, 113 million are surviving with hunger so severe that it poses an instantaneous menace to life and livings (FAO 2018). The economic impact of COVID 19 will bring about a radical increase in the number people who are food insecure and hungry. Tiensin (2020) posits that the most susceptible groups are the poor people in urban areas, those living in remote areas, migrants, casually workers, individual living in conflict areas, and other vulnerable groups.

Akerele et al. (2013) reported that many Nigerians are surviving on less than a dollar per day (70%) and the prevalence of food insecurity and hunger in the poor urban households and rural areas stands at 79% and 71% respectively. High food insecurity rate and hunger have also been reported previously among surveyed households in South East Nigerian States - Imo and Anambra States (Uzondu et al. 2017). The result of this study has provided real data to show the household hunger situation in South East Nigeria. It has also showcased the actual negative impact of the COVID 19 Lockdown on households in the area.

This study also observed a greater increase of household hunger in rural areas (99.25%) relative to urban areas (98%) during the Lockdown. It has been reported that about 33% of rural people globally live in small farm households and are working on land plots smaller than 2 hectares (Nagayets 2005). Many of these people are poor and are disposed to food insecurity that is made worse due to limited access to markets and services (FAO 2015). The lockdown offered such situation. For the fact that most of the rural people do not produce all they need as food the shut down of marketplaces, ban of vendors from selling (UNSCN 2020), and imposed sit at home made it difficult for the households to make additional money by selling farm products or buying needed items of food. Also the lockdown situation affected the off-farm employment as a diversifying income source, which should have complemented farm income and contributed towards food security cum poverty alleviation (FAO 2015). It should also be noted that the lockdown period coincided with the planting season in Southeast Nigeria. As such the farmers usually have total shortages of cash because of their investment in farm cultivation.

Adverse hunger situation faced by South East Nigeria households as observed in this study was attributed by respondents to changes in the prices of foodstuffs due to the Covid-19 Lockdown; increase in prices; scarcity or unavailability of essential and stable food stuff; inability to go shopping due to lockdown (Figure 1). These factors are similar to the observations of Mousa, and Freeland-Graves (2019) whose research respondents ascribed their hunger situation to lack of food; shortage in resources; inability to travel to shops that sell good-quality foods or the needed types. UNSCN (2020) observed that food environment disruptions which in most cases affect food security and hunger situation are caused by both external and personal dimensions. External dimensions include food availability, prices, and vendors, while personal dimensions include geographical access, affordability, convenience and desirability. Agyei-holmes et al. (2021) have affirmed that the total or partial lockdown policies initiated by the government, in form of prevention measures to curb the spread Covid-19 exerted significant influence on the house hold economic activities in the region. These limited household purchasing power, narrowed access to food items, restrained them from selling and buying, and subjected households to certain diet lifestyle with obvious nutrition and health implications (Liverpool-Tasie et al. 2020).

In a way to assist families under food pressure the Nigeian Government reportedly embarked on Covid-19 Lockdown intervention programs. Unfortunately, result from this study shows that the government intervention programs were not popular among households (Figure 2). Only few households benefited from the food aid programs and other forms of palliatives. Mousa and Freeland-Graves (2019) reported that their experimental groups were not able to benefit from government food assistance programmes due to pre-enrolment difficulties. It should be noted that the present study was carried out after five weeks of COVID 19 lockdown when the governments may be fine tuning the plans of reaching out to the households hence this observation.

The result of this study shows the serious effect of COVID 19 Lockdown on households hunger in South Eastern Nigeria. Sampled households employed the following coping strategies more frequently than others: i) purchase and use of less expensive foods (81.14%), ii) skipping meals (69.31%), and iii) reducing the size of food served family members (67.67%). As least strategies employed, households did not send members to beg (1.82%). They did not also send household members to eat elsewhere (5.13%). This finding was similar to observations made in earlier studies carried out in other countries. The following strategies were the most selected ones: depending on less favored and/or low-cost food, borrowing food, taking money on borrows, and requesting help from friends or relatives for food. Others are keeping to budget and reducing food portions, skipping meals, and purchasing food on credit (Cordero-Ahiman et al. 2018, Shisanya and Hendriks, 2018, Chagomoka et al. 2016, Ngidi and Hendriks 2014, Zalilah and Khor 2008)

4.4. Conclusion

A situation of household hunger was observed in this study. This has become an extreme pointer to a food insecure household (Faye et al. 2011) in Southeast Nigeria. This unexpected cost of the COVID-19 lockdown became possible because families were unsure about how to get food and they were uncertain about the quantity and the kind to meet their nutritional needs as such hunger set in. Additional cost of the if the lockdown lingered may be serious health challenges. An enduring unfavorable physical and mental health effects are observed among children not receiving adequate food (Alaimo et al, 2001; Jyoti et al. 2005; Rose-Jacobs et. al. 2008). A lot of work is needed world over; more effort should be employed by governments to stem the tide of a geometric increase of acute hunger as predicted by World Food Program (Anthem 2020).

Urgent social interventions have become necessary in order to cushion the post- impact of Covid-19 lockdown on households in the region. These include food aid/basic needs packages, cash transfers, support for businesses, tax reduction or postponement, farm input subsidies or distribution, food price controls, price support to farmers through procurement or regulation, and unemployment benefits (Agyei-holmes et al. 2021), among others.

For the fact that the prevalence of hunger among South-East Nigeria households before the Covid-19 pandemic was already very high, the governments must implement programmes to solve household food security problems. Such policy interventions that will promote food security and thus reduce hunger should target, food production cum supplies as well as improving access to food. The following are suggested:

- i) The government should seriously focus on measures to boost mechanization of agriculture, provide quality input delivery and accessibility. Climate smart agricultural practices should be canvassed.
- a) Southeast Nigeria Governments are encouraged to embrace international and national food security interventional funded programs whole heartedly. They should show strong commitment of drawing counterpart funding from the central government (from part of that State's share).
- b) The area of value chain development should be seen as very important by the governments. There is need to formulate guidelines by the government for the development of value chains of various farm produce to ensure value addition and infrastructural development put in place for the support of the value chain development.
- c) To avoid uneven distribution of items and materials among households during situations like Covid-19 lockdown, the Government Should setup a formidable unit which will develop physical and digital plans for effective implementation.

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Conflict of Interest

Authors declare no conflict of interest

Author contributions

All authors made contribution to the study concept, design, methodology, data collection and data entry. Data analysis was performed by JO and MO. The first draft of manuscript was written by JO, and all authors made their copious input to standardize the manuscript. All authors contributed in the correction of manuscript the also read cum approved the final manuscript.

Compliance with ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

Ethical standards

Following the guidelines of Alex Ekwueme Federal University, it was determined that there was no need for consent procedures since the research is non-sensitive in nature and upholds subject anonymity. However, during data collection respondents were recruited on a voluntary basis

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