

Household Food Access and Coping Strategies Adopted during Covid-19 Pandemic Lockdown among people residing in Odeda Local Government Area of Ogun State, Nigeria

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ABSTRACT

Background: Confinement to flatten curves as a protective measure against the novel corona-virus had made it very difficult for the citizens to have sufficient food to sustain themselves.

Objective: This study assessed household's food accessibility and coping strategies adopted during COVID-19 pandemic lockdown in Odeda Local Government Area of Ogun State.

Methods: The study was cross-sectional design and 300 households were randomly selected in the Local Government. Data such as socio-demographic, household food insecurity status, and coping strategies were obtained using a semi-structured questionnaire, Household food insecurity experience scale, and coping strategies index scale questionnaire. Data were analysed and presented using descriptive and inferential statistics. Data was significant at $P\text{-value} \leq 0.05$.

Results: The age of the respondents was between 20-59 years and 60.3% were traders. Food security status showed that 15.7%, 50%, 14.3% and 20.0% of the respondents were food secure, severely, mildly, and moderately food insecure respectively. The major coping strategies adopted were relied on less preferred and less expensive foods (35%), limited portion size at mealtimes (31.3%), and reduced number of meals eaten in a day (34.3%). A significant association exists between Coping Strategy categories and food security status ($P = 0.00$). The result on the nutritional status of the respondents revealed that 51.3%, 11.3%, 25.3%, 12%, 59.7%, 14.3% and 32.4% had normal BMI, underweight, overweight, obese, stunted, wasted, and underweight respectively.

Conclusion: The prevalence of food insecurity was high and most households adopted coping strategies that leads to higher levels of food insecurity.

Keywords: Food Insecurity; Coping strategies; COVID-19; Nutritional status.

Introduction

Food security and nutrition has been an issue that has gained global concern (1) even before the COVID-19 Pandemic (2, 3). According to United Nation (2020), hundreds of millions of people were already suffering from hunger and malnutrition before the outbreak of corona virus disease in 2019. In addition, it was estimated that

821 million people were undernourished between 2016 and 2018, in which majority of these people live in low-income countries (3, 4).

Globally, about a 27million people were reported to be at acute level of food insecurity and also on the edge of famine prior COVID-19 pandemic

(5). The effects of the pandemic posed a tragic impact on the nutritional status of millions of food-insecure people. It was revealed that corona virus crises threaten the food security and nutrition of millions of people, in which many were already suffering and also its poses' various challenges for individuals which makes it difficult for people to maintain a healthy diet (2, 6). The imposition of lockdown by several countries across the world had both direct and indirect effects on people especially the effect on the food system which was directly affected through impacts on food supply and demand. Decreased in purchasing power and the capacity to produce and distribute food which all led to the inability of households to meet their nutritional needs had indirect effects (5). Also, the emerging economic crises resulting from the COVID-19 outbreak pose tremendous challenges for food security and nutrition (3). Most significantly, the incidence of massive job losses for people working in casual labor and restaurants (as a result of social distancing policies and broader economic slowdown) and this, however, will influence their incomes (3, 7) and hence, nutritional status. The resulting low income has led to declined demand for food, which leads to the inability and affect the willingness of farmers and producers to invest and adopt new adequate mechanization, therefore influencing food production and availability (7). According to Global Report on Food Crises (2020), the impact of COVID- 19 leads to increasing unemployment which can reduce people's purchasing power and, as a result, reduce people's ability to access food. Although, several studies have been carried out on food security and coping strategies adopted at households and national levels (8, 9, 10) but more emphasis have not been placed on coping strategies adopted by households to be food secured during Corona Virus pandemic lockdown. Also, most of the studies have employed a tool called household food insecurity assessing scale to assess food insecurity (8, 10, 11). This tool is used only to assess the prevalence of food insecurity rather than the severity. Therefore, this study does not only assessed household food security and coping strategies adopted during COVID-19 pandemic lockdown but also used the newly recommended tool by the Food and Agriculture Organization (2017) known as Food insecurity experience scale which has been used by Akinbule *et al.*, (2020) and found effective in assessing household's ability to access food and the severity of food insecurity.

MATERIALS AND METHODS

Study Design

This study is cross-sectional and descriptive in nature.

Sample Size Determination

The sample size was calculated using (12) at prevalence of 22.4% and the estimate was 268 which was increased to 300 for possible drop out.

Inclusion Criteria

- ❖ Those who were involved in cooking and purchasing of households food
- ❖ The children in the households
- ❖ Households that agreed to participate

Exclusion Criteria

- ❖ Head of the households
- ❖ Those who are not responsible for the meal preparation and purchase in the households.

Sample Population

This study was carried out among mothers who were involved in cooking and purchasing of food from the eligible households including their children (under-five) which were randomly selected from 10 communities in Odeda local government area of Ogun State, Nigeria.

Sample Technique and Procedure

A Multistage sampling technique was used which involved four stages:

First stage:-Five wards were randomly selected out of the 10 wards in Odeda Local Government Area.

Second Stage:-Two communities were randomly selected each from the 5 wards (Orile Ilugun, Olodo, Odeda, Kila and Olugbo) to make a total of 10 communities.

Third Stage: Eligible households were selected from the 10 communities.

Fourth Stage: 300 respondents were randomly selected from the eligible households.

Data Collection

Data on socio-demographic and economic characteristics and social and economic determinant of food security were collected using

a semi-structured questionnaire. Household food insecurity status was assessed using food insecurity experience scale questionnaire (13, 14) which consists of eight questions. The coping strategy adopted by households was assessed using the coping strategy index questionnaires that contained 12 experienced-based questions (15). Anthropometry data such as: body weight, height, waist circumference, hip circumference, and mid-upper arm circumference were measured using standard procedures by Kristen and Lesley, 2018. Body mass index (BMI), waist-to-hip (WHR) was calculated as weight in kilogram divided by height square in m², and waist circumference (cm) divided by hip circumference (cm), respectively. Weight-for-height, Height-for-age, Weight-for-age, BMI-for-age, and Mid-upper arm circumference-for-age of household children below five years of age was analyzed using WHO Anthro.

Statistical Analysis

All statistical analysis was carried out using Statistical Package for Social Science version 20. Association among variables was analyzed using chi-square at $P \leq 0.05$.

Informed Consent

Respondents' consents was sought before data collection and respondent's information were kept confidential and used strictly for research the research purpose.

RESULTS

Table 1 shows the sociodemographic characteristics of mothers and children from the eligible households in selected communities. Respondents were within the age range of 20-59 years. Less than half (44.3%) were between the ages 30-39 years while few (4.3%) of the respondents were between the ages 50-59 years. The children include males (50%) and females (50%). Majority (93.0%) of the respondent's were married. The education distribution showed that 32.7% had primary school certificate while 17.0% of the respondents had no formal education. In addition, majority of the respondents (78%) were Christian, 21% were Muslim, and 1% were traditional worshippers. Also, higher percentages of the respondents (60.3%) were traders while 24% were farmers, 1.7% were civil servants, and 14% belong to other occupation.

Table 2 shows the potential determinant of food security of the respondent's. Majority (92.0%) of the household were headed by father while 8.0% were headed by mothers. Little above half (57.3%) of the respondent earned between

#10,000- #30,999 monthly while 6.3% of the respondents earned more than #50,000. The education distribution showed that the educational status of household head with the highest percentage was secondary school completed (42.3%) while 0.3% of the respondents did not complete tertiary school. Furthermore, 46.7% of the respondents had the highest household dependency ratio between the ranges of 3-5 while 22.7% had household dependency ratio more than 5. Above half of the respondents (64.3%) purchases their food weekly while 52.7% of the respondents spent less than #5,000 on food purchases weekly. Also, 67.3% purchases food in small quantity at once and almost all (99.7%) of the respondents' purchases their food in open market. The market distribution showed that majority (82.7%) of the respondent's distance to market was between 0-1.9 km while 3.3% of the respondents attended market far more than 5km. In addition, the majority (64%) of the respondents often trek to market to purchase food while only 0.7% goes to market with their personal vehicles. Most (92.0%) of the respondents store their food using traditional methods. Little above half of the respondents (50.7%) had access to credits such as purchases food on credits and 44% of the respondents use well water.

The analysis of household food insecurity status showed that half (50%) of the respondents were severely food insecure during the COVID-19 pandemic lockdown, while 15.7%, 14.3%, 20% were food secure, mildly food insecure and moderately food insecure, respectively (Table 2).

Table 3 shows the anthropometry indices of the respondents. About half (51.3%) of the respondents had normal body mass index while 11.3%, 25.3%, 12.0% were underweight, overweight, and obese respectively. Also, 60.3% were at high risk of cardiovascular diseases, 18.0% were at lower risk while 21.7% were at moderate risk from the assessment of their waist to hip ratio.

Furthermore, table 3 also shows the anthropometry indices of under 5 years children in the selected household. The result of the Nutritional status of the children showed that majority (86.3%) had normal mild upper arm circumference. However, 13.3%, and 0.3% were moderately and severely malnourished, as reflected by their mild upper arm circumference measurement. The prevalence of wasting, stunting and underweight among the children was 14.3%, 59.7% and 32.4%, respectively.

Table 4 shows the coping strategies (CSs) adopted by households during COVID-19 pandemic lockdown. It was observed that 35% of the households relied on less preferred and less expensive foods, 31.3% of the households limited portion size at mealtimes, and 34.3% reduced number of meals eaten in a day. These were the most frequent coping strategies adopted by households to mitigate the stress and shock of food insecurity during COVID-19 pandemic lockdown and these strategies occurred pretty often (3-6 days per week).

Furthermore, little above half (54%) of the households never borrowed food, or relied on help from a friend or relative, 39.3% never purchased food on credit, 42.3% never gathered wild food, hunt, or harvest immature crops, 59.7% never consumed seed stock held for next season, 73.3% never send household members to eat elsewhere, 81% never send household members to beg, 32% never restricted consumption by adults in order for small children

to eat, 73% never feed working members at the expense of non-working members, and 65% never skipped entire days without eating, respectively.

Higher percentage (60.0%) of the respondents had low coping strategy index score, 29.0% had moderate coping strategy index score while few (11.0%) had high coping strategy index score.

Table 5 shows the association between respondents' nutritional status and coping strategies mostly adopted by households. There was a significant association between relied on less preferred and less expensive foods ($P=0.05$), limited portion size at mealtimes ($P=0.05$), and reduced number of meals eaten in a day ($P=0.02$). This means that the three coping strategies had negative impact on the nutritional status of households. In addition, a significant association exists between the respondents' CSs categories and food insecurity status ($P=0.00$).

Table 1: Socio-demographic Characteristics of the Respondents (n=300)

Variables	Freq	%	Variables	Freq	%
Age Group			Household Size		
20 – 29	91	30.3	<3	25	8.3
30 – 39	133	44.3	3-5	134	44.7
40 -49	63	21.0	6-8	92	30.7
50 – 59	13	4.3	> 9	49	16.3
Children's Age Group			Educational Status		
6-11months	9	3.0	No Formal Education	51	17.0
12-23months	30	10.0	Primary School Completed	98	32.7
24-35months	45	15.0	Primary School not Completed	16	5.3
36-47months	77	25.7	Secondary school completed	88	29.3
48-60months	139	46.3	Secondary School not Completed	27	9.0
Marital Status			Tertiary School Completed	15	5.0
Single	1	0.3	Tertiary School not Completed	5	1.7
Married	279	93.0	Religion		
Divorce	5	1.7	Christian	234	78.0
Widow	15	5.0	Muslim	63	21.0
Ethnicity			Traditional	3	1.0
Igbo	7	2.4	Occupation		
Yoruba	240	80.0	Farming	72	24.0
Hausa	1	0.3	Trading	181	60.3
Others	52	17.3	Civil servants	5	1.7
			Others	42	14.0

Table 2: Potential Determinant of Food Security (n=300)

Variables	Freq	%	Variables	Freq	%
Head of Household			Point of Food Purchase		
Father	276	92.0	Open market	299	99.7
Mother	24	8.0	Supermarkets	1	0.3
Household Monthly Income			Distance to Market		
< #10,000	60	20.0	0-1.9km	248	82.7
# 10,000 - 30,999	172	57.3	2km- 5km	42	14.0
# 31,000- 50,000	49	16.3	> 5km	10	3.3
> #50,000	19	6.3	Means of Transportation to Market		
Head of Household Educational Status			Trekking	192	64.0
No Formal Education	50	16.7	Motorcycle	49	16.3
Primary School Completed	78	26.0	Personal Vehicle	2	0.7
Primary School not Completed	3	1.0	Commercial Vehicle	57	19.0
Secondary School Completed	127	42.3	Storage of Food		
Secondary School not Completed	11	3.7	Modern	18	6.0
Tertiary School Completed	30	10.0	Traditional	276	92.0
Tertiary School not Completed	1	0.3	Others	6	2.0
Dependency Ratio of Household			Access to Credit		
1-2	92	30.7	Yes	152	50.7
3-5	140	46.7	No	148	49.3
> 5	68	22.7	Sources of Water		
Frequency of Food Purchases			Well	132	44.0
Daily	75	25.0	Borehole	141	47.0
Weekly	193	64.3	Stream	8	2.7
Monthly	32	10.7	Tap	19	6.3
Expenses on Food Purchase			Quantities of Food Purchases at Once		
< #5,000	158	52.7	Small	202	67.3
#5,000- 10,000	107	35.7	Medium	90	30.0
> #10,000	35	11.7	Large	8	2.7
Household Food Insecurity Status					
Food Secure	47	15.7			
Mildly Food Insecure	43	14.3			
Moderately Food Insecure	60	20.0			
Severely Food Insecure	150	50.0			

Table 3: Anthropometry Indices of the Respondents

Variable	Freq	%	Variable	Freq	%
BMI			Underweight		
Underweight	34	11.3	Severely underweight	47	15.7
Normal	154	51.3	Moderately underweight	50	16.7
Overweight	76	25.3	Mildly underweight	87	29.0
Obese	36	12.0	Normal	112	37.3
Waist to hip ratio			Overweight	4	1.3
Lower risk of Cardiovascular diseases	54	18.0	BMI- for- age		
Moderate risk of Cardiovascular diseases	65	21.7	Severe thinness	28	9.3
High risk of Cardiovascular diseases	181	60.3	Moderate thinness	13	4.3
MUAC status			Mild thinness	21	7.0
Normal nutritional status	259	86.3	Normal	132	44.0
Moderate acute malnutrition	40	13.3	Overweight	106	35.4
Severe acute malnutrition	1	0.3	MUAC- for- age		
Wasting			Severe malnutrition	16	5.3
Severe wasting	31	10.3	Moderate malnutrition	69	23.0
Moderate wasting	12	4.0	Mild malnutrition	84	28.0
Mild wasting	30	10.0	Normal	126	42.0
Normal	137	45.7	Stunting		
Overweight	90	30.0	Severely stunted	116	38.7
Stunting			Moderately stunted	63	21.0
Severely stunted	116	38.7	Mildly stunted	59	19.7
Moderately stunted	63	21.0	Normal	62	20.6
Mildly stunted	59	19.7			
Normal	62	20.6			

Table 4: Household Coping strategies adopted and Index Score (n=300)

Questions	Freq	%	Questions	Freq	%
Relied on less preferred and less expensive foods?			Sent household members to beg?		
Everyday	71	23.7	Everyday	0	0.0
Pretty Often	105	35.0	Pretty Often	15	5.0
Once in a while	56	18.7	Once in a while	16	5.3
Hardly at all	14	4.7	Hardly at all	26	8.7
Never	54	18.0	Never	243	81.0
Borrowed food, or relied on help from a friend or relative?			Limited portion size at mealtimes?		
Everyday	22	7.3	Everyday	56	18.7
Pretty Often	55	18.3	Pretty Often	94	31.3
Once in a while	36	12.0	Once in a while	60	20.0
Hardly at all	25	8.3	Hardly at all	7	2.3
Never	162	54.0	Never	83	27.7
Purchased food on credit?			Restricted consumption by adults in order for small children to eat?		
Everyday	48	16.0	Everyday	56	18.7
Pretty at all	73	24.3	Pretty often	87	29.0
Once in a while	57	19.0	Once in a while	49	16.3
Hardly at all	4	1.3	Hardly at all	12	4.0
Never	118	39.3	Never	96	32.0
Gathered wild food, hunt, or harvest immature crops?			Fed working members at the expense of non working members?		
Everyday	32	10.7	Everyday	3	1.0
Pretty at all	79	26.3	Pretty Often	30	10.0
Once in a while	54	18.0	Once in a while	33	11.0
Hardly at all	8	2.7	Hardly at all	15	5.0
Never	127	42.3	Never	219	73.0
Consumed seed stock held for next season?			Reduced number of meals eaten in a day?		
Everyday	17	5.7	Everyday	27	9.0
Pretty Often	42	14.0	Pretty Often	103	34.3
Once in a while	47	15.7	Once in a while	73	24.3
Hardly at all	15	5.0	Hardly at all	6	2.0
Never	179	59.7	Never	91	30.3
Sent household members to eat elsewhere?			Skipped entire days without eating?		
Everyday	3	1.0	Everyday	8	2.7
Pretty Often	24	8.0	Pretty Often	22	7.3
Once in a while	31	10.3	Once in a while	44	14.7
Hardly at all	22	7.3	Hardly at all	31	10.3
Never	220	73.3	Never	195	65.0
Household CSs					
0-50 (Low CSs)	180	60.0			
51-100 (Medium CSs)	87	29.0			
>100 (High CSs)	33	11.0			

Table 5: Association Between Respondent's Bmi, Coping Strategy Mostly Adopted By Households, Household Food Insecurity Status And Household Coping Strategy Index Score (N=300)

Respondents' BMI	Underweight		Normal weight		Overweight		Obese		P-value
	Freq	%	Freq	%	req	%	Fre	%	
Relied on less preferred and less expensive foods									
Everyday	5	1.7	34	11.3	24	8.0	8	2.7	0.05
Pretty Often	19	6.3	46	15.3	29	9.7	11	3.7	
Once in a while	6	2.0	34	11.3	7	2.3	9	3.0	
Hardly at all	0	0.0	7	2.3	6	2.0	1	0.3	
Never	4	1.3	33	11.0	10	3.3	7	2.3	
Limited portion size at mealtimes									
Everyday	12	4.0	28	9.3	15	5.0	1	0.3	0.05
Pretty Often	14	4.7	43	14.3	25	8.3	12	4.0	
Once in a while	6	2.0	30	10.0	15	5.0	9	3.0	
Hardly at all	0	0.0	4	1.3	2	0.7	1	0.3	
Never	2	0.7	49	16.3	19	6.3	13	4.3	
Reduced number of meals eaten in a day									
Everyday	8	2.7	10	3.3	8	2.7	1	0.3	0.02
Pretty Often	12	4.0	54	18.0	29	9.7	8	2.7	
Once in a while	9	3.0	32	10.7	20	6.7	12	4.0	
Hardly at all	0	0.0	3	1.0	1	0.3	2	0.7	
Never	5	1.7	55	18.3	18	6.0	13	4.3	
Household Food Insecurity Status									
	Low CSs		Medium CSs		High CSs				
Food Secured	44	14.7	3	1.0	0	0.0	0.000		
Mild Food Secured	41	13.7	2	0.7	0	0.0			
Moderate Food Secured	45	15.0	12	4.0	3	1.0			
Severe Food Secured	50	16.7	70	23.3	30	10.0			

DISCUSSION

This study was carried out for the purpose of assessing household's food accessibility and coping strategies adopted during COVID-19 pandemic lockdown in Odeda Local Government Area of Ogun State, Nigeria. Larger percentage (57.3%) of the respondent's household monthly income fell between #10,000- #30,999 which

means that only 6.3% of the respondents can be classified into high socio-economic status (> #50,000). Furthermore, 42.3% of the respondent's head of house had only secondary school certificate which indicated that they had low education background and this implied that the respondents may not have access to government employment and if they had, their

salary may not be sufficient to meet their endless need. Higher percentage (64.3%) of the respondents' purchases food weekly, and 52.7% spent <#5,000 on food purchases which implied that households earned less and therefore had constrained economic access to food which had great impact on their nutritional status, most especially reflected on their children's nutritional status where 38.7% and 15.7% were severely stunted and underweight respectively. The prevalence of stunting (59.7%) indicated that child malnutrition was high and it was similar to the study of (16). The result on the assessment of household food insecurity status shows that 50% were severely food insecure and this was slightly similar to the findings of (17) where above half (58%) of the households experienced severe food insecurity during the COVID-19 pandemic restrictions. There was a contradiction based on the findings of (18) which reported that 35.0 % of the households in their study were severely food insecure.

The coping strategies used across households are to a greater extent which indicated the level of food insecurity that household experienced. The most frequent coping strategies adopted by all the respondents to mitigate the stress and shock of food insecurity during COVID-19 pandemic lockdown was similar to the study of Onunka *et al*; Orewa *et al*. where relied on less preferred and cheaper food was ranked first among the coping strategies. This coping strategy adopted in the study area could be linked to the increased in price of basic foodstuffs in the country. The low income of the households compared to high food prices, forces households to resort to the consumption of less preferred food such as eating low quality food or buying the type of food (regardless of the quality) that the available resources in which the household can afford just to make sure that food is available.

CONCLUSION

This study reveals a number of factors associated with high prevalence of household food insecurity such as dependency ratio, household size and household monthly income which had negative effect of food security, as well as high prevalence of moderate, mild, and severe food insecurity. Coping strategies widely adopted were relied on less preferred and less expensive foods, limited portion size at mealtimes and reduced number of meals eaten in a day which had a significant association with the household food insecurity status.

RECOMMENDATIONS

- ❖ Nutritious or beneficial coping strategies that will assist household to maintain their nutritional status should be developed for cases of emergency.
- ❖ Promoting sustainable livelihood among households through job-creating programmes and policy of Government, such as National Directorate of Employment (NDE), Graduate Internship Scheme (GIS) and National Poverty Eradication Programme (NAPEP) in order to reduce households' dependency ratio hence, empowering the households to be food secured.
- ❖ The launching of enlightenment programmes on nutrition education especially on the different food groups and dietary diversification practices among the low income households. This will help households re-orient their daily diets and to utilize the available foodstuff towards the consumption of a more diversified diet.

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