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The Struggle Against Hunger: The Victims and the Food Security Strategies Adopted in Adverse Conditions

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Abstract: This study assessed the degree of food insecurity among Nigerian rural and low-income urban households and the food security coping strategies adopted in adverse conditions. The data used for the analysis were obtained from 384 members within 90 households that were randomly selected from two Local Government Areas (LGAs) in Edo state of Nigeria: Orhionmwon and Ikpoba-okha. A 48-hour recall method was used in collecting data on their daily food intake. Data collected were analysed using the food insecurity index (incidence, depth and severity), while the coping strategies were assessed by a rank ordering. The results revealed that 79% of low-income urban households were food insecure as against 71% of the rural households. However the level of insecurity measured by the depth and severity is more within households in the rural area as compared to low-income urban households. As much as 25% increase in daily calorie intake is required by rural households as compared to 23% increase required by low-income urban households to meet the FAO recommended Daily Allowance (RDA). The study also revealed that salary earners and farm families are more food secured than non-salary and non-farm families. The two most prevalent food security coping strategies used by them in the event of adverse food situations is the consumption of less expensive and less preferred food and reducing/rationing consumption.

Key words: Struggle against hunger · Victims · Food security strategies adopted

INTRODUCTION

In Nigeria, the household food security problem is manifested by the fact that calories and protein consumed by household members fall short of the requirements as confirmed by various studies [1-4]. FAO [5] estimated that per capita daily protein intake in Nigeria is about 45.4g as against 53.8g it recommended. Aromolaran [2] estimated the calorie intake of low-income households in Ibadan, Nigeria, to be 61% of the FAO requirement. International conference on nutrition ICN [6] reported that low-income rural and semi-urban adult dwellers in Nigeria consumed less than 60% of their energy needs and less than 40% of their protein needs. During the 1989-95 period the daily calorie per capita intake of an average Nigerian was estimated to be 2130kcal as against the overall average of 2550kcal recommended (minimum requirement) for moderate activity [7]. Recently Addo [8] presented a scary scenario of Nigeria's protein - energy malnutrition and under-nutrition status. According to Addo [8], Nigerian children below the age of 18 years, who make up 47 per cent of the nation's population are still victims of stunting, wasting and under-weight, all of which are evidence of under- nutrition [8, 9]. The report further showed that only 26.6 per cent of under 5 year children met their Recommended Daily Allowance (RDA), while 18.5 % were severely deficient. With the present global food crisis which has resulted in high cost of foodstuffs the situation is expected to have worsen in Nigeria (Table 1).

Against this background this study has attempted to assess the degree of food insecurity among Nigerian households with main focus on the rural populace (who constitute about 52% of the population) and the low-income urban dwellers both of whom have been globally identified as the groups more greatly affected by poverty and hunger.

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Table 1: Food Price Indies in Nigeria

Food Items	1999 (N)	2008 (N)
- Yam tubers (10)	1,000.00	4,000.00
- Rice (1 bag)	2000 - 2,500.00	7,500 - 8000.00 (depending on the type)
- Beans (derica)	20.00	100.00
- Garri (1 bag)	350.00	12,000.00
- Red Oil (25 litres)	400.00	4500 - 5000.00
Vegetable Oil (1 bottle)	40.00	450 - 500.00
- Iced Fish (1kg)	50.00	450.00
- Smoked Fish (5)	200.00	1,500 - 2,000.00
- Stock Fish head (5)	30.00	500.00
- Bunch of Banana	1.00	80 - 400.00
- Tomatoes (1 basket)	100.00	3,000 - 3,500.00
Onions (1 bulb)	10 - 20 kobo	10.00

Source: Culled from Foodbusiness International, Vol 1 No 8, 2008 p 13.

Specifically, the Study Attempted To:

- Determine the degree of food insecurity among rural and low-income urban households in the study area;
- Identify the groups within households that are more severely affected and
- Identify the prevailing food security coping strategies they adopted in the event of adverse conditions.

Definitions of Hunger and Food Security
There Are Basically Two Types of Hunger:

- Under nourished: It defines a situation where one's daily calorie intake is insufficient to provide the recommended kcal (or energy) needed for an active or a moderate day's activity.
- Malnourished: It is a situation where an individual's daily calorie intake is sufficient but level of protein intake and other essential nutrients fall below the specified or recommended daily allowance (RDA).

Food security and some associated terms have been defined by the Food and Agriculture Organization [10, 11] as follows:

- Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.
- Household food security is the application of the food security concept to the family level with individuals within households as the focus of concern.
- Food insecurity exists when people are undernourished due to the physical unavailability of food, their lack of social or economic access and/or inadequate food utilization. Food insecure people are those individuals whose food intake falls below their minimum calorie (energy) requirements.

MATERIALS AND METHODS

Data Collection Method and Analysis: The primary data used for the study were collected between July and October, 2005 from two Local Government Areas (LGAs) in Edo State - Orhionmwon and Ikpoba-okha. Data were obtained through personal interviews using structured questionnaire. A total of 120 households (60 from each LGA) were randomly selected for the study. However questionnaire were retrieved from only 90 households (46 from Orhionmwon and 44 from Ikopba-Okha). The communities in Orhionmwon LGA represent the rural area while those of Ikpoba-okha LGA represent the low-income urban area.

A 48-hour recall method was used in collecting data, from 460 individuals within 90 households, on their daily food intake. However, data used for the analysis, were from three hundred and eighty four (384) members out of the initial 460 selected within the 90 households. The age category of less than 1 year (10 in number) were excluded from the analysis since they were still breast-fed and adequate quantification of the breast -milk intake could not be done. Also another 67 household members were excluded from the analysis because the records of their daily food intake were not fully disclosed while some others were not available for the data collection.

Each household member was asked the food he/she consumed the previous day and a day after. The data collected included type of food and quantity consumed per meal / day. However one gram of yam consumed cannot be equated to a grain of rice except both are converted to gram equivalent before the proportion of each (and other food items) can be estimated from the total food intake. The calorific and protein content in each food item consumed were used in estimating the proportion in the total food intake.

In determining the degree of food insecurity the data collected were subjected to the food insecurity index assessment.

Assessment of the Degree of Food Insecurity: Three food insecurity measures were used to assess the degree of insecurity among the sampled households. This same procedure was adopted by Aromolaran [12, 13]. They include:

- The incidence of food insecurity (F_0): This measures the percentage of individuals within a household or a community whose calorie intake level is below the minimum required.
- The depth of food insecurity (F_1): This gives the mean shortfall of calorie intake below the food insecurity line as a proportion of the food insecurity line.
- The severity of food insecurity (F_2): Rather than assigning equal weights to the food insecure, this measure involves using greater weights for the more food insecure in determining the depth of food insecurity. In other words more weights are given to individuals or households with greater falls from the food insecurity line.

To achieve this, the study used a modification of the FGT poverty index developed by Foster, Greer and Thorbecke [14]. This modified FGT index by Aromolaran [12, 13] was also used by Appleton [15], Ayinde [16] to estimate the FGT food insecurity index. The modified index is given by the general formula:

$$Fa = 1/N\sum_{i=1}^{p}\{FL\text{-}Ci\}/\ FL\}\ a$$

Where:

Fα or Food Insecurity Index (FISI) is a measure of food insecurity level.

When α = 0, it measures the incidence;
When α = 1, it measures the depth;
when α = 2, it measures the severity.
a, is a measure of inequality aversion.

P = Number of individuals within a household whose calorie intake fall below the minimum recommended level.

N = Number of individuals in a household or households in the community.

FL = Food security line, i.e the minimum recommended level of calorie intake for the individual. The FAO/WHO [17] minimum Recommended Daily Allowance (RDA) of 2,400 kcal and 44.4g per capita calorie and protein intake respectively were used as the food insecurity line in this study.

Ci = The calorie intake level of the individual household member. When α = 0, the formula becomes F_0 = P/N

RESULTS AND DISCUSSION

Degree of Food Insecurity in the Study Area: The degree of food insecurity among households in the study area was assessed using the three food insecurity indices - incidence of food insecurity (F_0), depth of food insecurity (F_1) and severity of food insecurity (F_2). The results of the analyses are present in Tables 2 and 3.

Food Insecurity Profile among the Households in the Study Area: The food insecurity measures (F_0, F_1 and F_2) among households in the study area, using the household male adult equivalent per capita calorie intake are presented in Table 2. On the average, head count ratio was 0.75. This implies that 75 % of the households in the study area were food insecured base on the household adult male equivalent per capita daily calorie intake. About 79 % of the low-income urban households were food insecure while that of the rural household was 71 %. This implies that only 21 and 29 % were food secured among the low-income urban and rural households respectively. Therefore the incidence of food insecurity can be said to be very high at both locations.

Table 2: Food Insecurity Profile among Households in Low-Income Urban and Rural Areas

Location	Incidence (F_0)	Depth (F_1)	Severity (F_2)	Head Count
- Low-Income				
Urban	0.79	0.23	0.09	44
Rural	0.71	0.25	0.10	46
Aggregate	0.75	0.24	0.09	90

Source: Field Survey data, July - Oct. 2005

Table 3: Food Insecurity Profile by Type of Occupation of Household Head in the Study Area

	Low-Income Urban				Rural			
Occupation	F_0	F_1	F_2	Head Count	F_0	F_1	F_2	Head Count
Farm family	0.80	0.19	0.06	21	0.70	0.24	0.10	63
Non-farm family	0.79	0.24	0.10	23	1.00	0.27	0.12	27
Salary-earning family	0.67	0.21	0.08	21	0.66	0.22	0.08	28
Non-salary earning family	0.84	0.24	0.25	23	0.73	0.25	0.10	62

Source: Field Survey data, July - Oct. 2005

Table 4: Rank Score for Prevailing Food Insecurity Coping Strategies among Households in the Study Area

	Location																	
	Urban						Rural						Aggregate					
Coping Strategies	1st x5	2nd x 4`	3rd x 3	4th x 2	5th x 1	Total Score	1st x5	2nd x 4	3rd x 3	4th x 2	5th x 1	Total Score	1st x5	2nd x 4	3rd x 3	4th x 2	5th x 1	Total Score
a. Eating less expensive and less preferred food	16	22	11	5	3	214	16	20	10	14	-	218	32	42	21	19	3	432
b. Reducing / Rationing Consumption	10	15	13	9	4	171	3	17	24	8	7	176	13	32	37	17	11	347
c. Borrowing Food or Money to buy food	9	22	7	12	1	103	11	2	6	4	5	94	20	5	13	16	6	197
d. Altering Household Consumption	-	1	-	-	2	6	-	-	-	-	1	1	-	1	-	-	3	7
e. Increase reliance on Wild food	-	-	1	-	2	5	-	-	2	1	2	10	-	-	3	1	4	15
f. Short term Labour migration	-	-	-	-	-	0	-	-	-	-	1	1	-	-	-	-	1	1
g. Short term alteration in crop and livestock	1	-	-	-	-	5	-	-	-	4	4	12	1	-	-	4	4	17
h. Mortgaging and sales of domestic assets	-	-	-	-	1	1	-	-	-	-	-	0	-	-	-	-	1	1
i. Skipping meals within a day	12	11	11	7	5	156	-	6	5	19	12	89	12	17	16	26	17	245
j. Skipping meals for a whole day	-	-	-	-	1	1	-	-	-	-	-	0	-	-	-	-	1	1
k. Backyard Crop farming	4	1	3	1	5	40	13	7	11	7	11	141	17	8	14	8	16	181
l. Backyard Livestock farming	2	2	2	4	1	32	2	3	1	-	1	26	4	5	3	4	1	58
m. Selling Labour Power	-	2	1	3	4	21	8	1	-	-	3	47	8	3	1	3	7	68
n. Engaging in additional small scale productive activities	-	1	2	2	4	18	2	4	1	2	1	34	2	5	3	4	5	52
o. Others	4	-	3	2	-	33	5	-	-	1	1	28	9	-	3	3	1	61

Source: Field Survey, July - October 2005.

In terms of the depth of food insecurity, the results showed that daily calorie intake increases of about 23 and 25% are required by low-income urban and rural households, respectively to meet the minimum RDA (Table 2). From the results it could be seen that though the values of F_0 revealed that more households were food insecure in the low-income urban area, the F_1 and F_2 showed that the level of insecurity (indicated by the depth and severity) is more within the households in the rural area. By implication, we can conclude that though more households were food insecure in the low-income urban area, the severity of this insecurity is less there compared to that of the rural households.

The degree of food insecurity among households was further assessed by type of occupation of household head. The results which are presented in Table 3 showed that among the farm families, 80 and 70% of those in the low-income urban and rural areas respectively were food insecure. For the non-farm families 79% of those in the low- income urban and all of them (100%) in the rural area were food insecure. As to the depth (F_1) of food insecurity among farm families as much as 19 and 24% increases in daily calorie intake are required by the low-income urban and rural households respectively, to meet the Recommended Daily Allowance (RDA). For the non-farm families as much as 24 and 27% of the recommended daily calorie intake (RDA) are required by the low-income urban and rural households respectively to fill the food insecurity gap. This again affirms that the depth and severity of food insecurity is more among the rural households than the low-income urban households.

Considering salary and non-salary earning households, the study found that food insecurity level was generally higher for the non-salary earners at both locations. For the low-income urban and rural households the level of food insecurity for the non-salary earners was

84 and 73%, respectively as against 67 and 66%, respectively for the salary earners. Similarly the depth (F_1) and severity (F_2) of food insecurity was higher for non-salary earners (24 and 25%, respectively for the low-income urban and 25and 10% for the rural households) as against 21 and 8% for the salary earners in low-income urban area and 22 and 10% for the rural area).

The result suggested that farming (cultivation of farm land and raising some livestock) has positive impact on household food security as farming families were relatively less severely affected by the problem of food insecurity at the two locations. Also salary-earning households were less severely affected by the problem of food insecurity as compared to non-salary earners. The latter situation can be attributed to the fact that income in form of salary provides a more stable horizon for consumption as compared to non-salary sources.

Prevailing Food Security Coping Strategies by Households: The prevailing strategies for dealing with short-term food insufficiencies in households are presented in Table 4 using rank score. The rank score shows the number of households using a particular strategy. The result from the table shows that the habit of eating "less expensive and less preferred food" is the most prevalent coping strategy during periods of food insufficiency. The strategy had a total score of 214 and 218 for the low-income urban and rural households respectively. This implies that the first thing that comes to mind in a household in the event of insufficient food at home is to consider the purchase of food that is less expensive and usually less preferred relative to what should have been consumed if food is sufficiently available.

A second strategy adopted by them is "reducing/rationing consumption". In both the low-income urban and rural areas it had total rank scores of 171 and 176 respectively. These first two coping strategies in their order agree with the findings of Maxwell [18] in his work on food insecurity measurement, frequency and severity.

Other strategies adopted in a descending order were, "skipping meals within a day", "borrowing food or money to buy food", "backyard crop farming", "selling labour power" and "backyard livestock farming" with total rank scores of 245, 181, 68 and 58, respectively. The practice of backyard crop farming ranked third in the rural area but fifth in the low-income urban location with a low score of 40. On the aggregate the practice ranked fifth. The low ranking could be as a result of lack of land space at the back of houses in urban areas to carry out backyard crop farming. The highest population density, coupled with the close building arrangement in urban areas, are mostly responsible for lack of land space within household compounds.

CONCLUSION

This study has shown that there is a scarying food insecurity problem among Nigerian households. The depth and severity of the insecurity is however higher among rural households as compared to low-income urban households; higher among non-farming families and non-salary earners as compared to the farming and salary earning households. This means, measures to reduce the incidence and severity of food insecurity among households in Nigeria, must of necessity, try to encourage and help those interested in farming, by providing the basic farm inputs at heavily subsidized and affordable rates, provide basic infrastructures, better market information system and provision of financial support schemes that would allow for large scale agricultural production increase, use of improved inputs in farming in order to boost farm output. Finally the policy implication of the findings of this study is that any effort at assessing the food security status of any community must of necessity be focused at the household level. This should be more so, because a good society is the product of a good household, which actually is the long desired state of our society and the nation at large.

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