GENDER DIMENSIONS OF FOOD SECURITY STATUS AMONG RURAL FARMING HOUSEHOLDS IN DEKINA LOCAL GOVERNMENT KOGI STATE, NIGERIA

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Abstract. This research work examined the gender dimensions of food security among rural farming households in Kogi State, Nigeria. A multi-stage random sampling technique was utilized. A total of 120 respondents were selected, comprising of 60 male headed household and 60 female headed household. Structured questionnaire was used and data was analysed using descriptive statistics, FGT analysis and logit regression model. The result showed that food insecurity exists among both male and female-headed households but more severe with the latter. The factor that influences food security status were household size significant at 1% and 5% level with negative coefficient among the male-headed households' and female headed households respectively. Different coping strategies were employed by both household heads. The study concludes that since food insecurity affects both female and male headed households, but with greater impact on the former. Gender responsive food policies, programs, institutional arrangements be put in place in Nigeria

Keywords: Gender, rural, household, food security, Nigeria

Abbreviations

FAO	-	Food and Agriculture Organization
NPC	-	National Population Commission
FGT	-	Foster, Greer, and Thorbecke

INTRODUCTION

The world has enough food to feed everyone, yet an estimated 854 million people worldwide are still undernourished (FAO 2006). As a result, the recent emphasis on alleviating hunger, reducing malnutrition and the serious consequences of food insecurity on the poor, calls for investigation on food problems particularly in African countries. As reported by FAO (2000), majority of the countries with the most extreme depth of hunger (less than 300 kilocalories per day) are residing in Africa. Since all living things need food to satisfy hunger and nourish the body, the matter of inadequate food becomes a crucial matter. Food also gives a feeling of comfort and satisfaction to man. Adequate nutrition is essential for many human functions that include body growth, motivation, work output and educational attainment (Olabisi *et al.*, 2014).

The definition of food security has evolved over time. Early definitions of food security focused on the availability of food at the national level (Athreya *et al.,* 2008). Food security is defined as a situation that 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 (FAO, 2002). The Food and Agriculture Organization (FAO) during the World Food Summit of 1996, again defined food security as a condition in which: "Food security exists when all people, at all times, have physical and

economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2008). Therefore, food security, at the individual, household, national, regional, and global levels (is achieved) when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for a healthy and active life FAO (2001).

Food security is essentially built on three pillars: food availability, food access, and food utilization. An individual must have access to sufficient food of the right dietary mix (quality) at all times to be food secure (FAO, 2008). Food security not only requires an adequate supply of food but also entails availability, access, and utilization by all—men and women of all ages, ethnicities, religions, and socioeconomic levels. In Nigeria, the percentage of food insecure households was reported to be 18% in 1986 and 40% in 2005 (Sanusi *et al.,* 2006). Ayodeji (2010) asserted that the number of hungry people in the country is over 53 million, which is about 30% of the country's total population of roughly 160 million. The Global Food Security Index (GFSI) of the Economist Intelligence Unit ranked Nigeria as the 80th among 105 countries with food affordability, availability and quality.

Within the framework of government goals of ensuring widespread improvements in the well-being of households and individual welfare, the issue of food insecurity is of high importance to Nigeria because average calorie intake is only at the threshold of adequacy. The inability of Nigeria to sustainably feed its rapidly growing population has remained a matter of growing concern (Olabisi *et al.,* 2014). Absence of access to adequate food impacts human growth. But access to adequate food for all is in question particularly for women as they are discriminated against with denial of certain entitlements Ghale *et al.,* (2018). Even when women are responsible for farm activities, taking care of household responsibilities and managing food for all, they unfortunately suffer more from food insecurity within the household (Ghale, 2010). Moreover, food policies hardly address gender specificities related to all aspects of food security such as availability, accessibility, affordability, stability, and utilization. In addition, discriminatory socio-cultural norms, behaviors and practices hinder access to food for women. Hence, the gender dimension of a food system is also a matter of food governance (Ghale, 2010).

Food security traditionally therefore, focuses on the technical aspects of food production, distribution and supplies. However, it is important to assert that gender-based differences in terms of needs, preferences and priorities, must be ensured by appropriate State policies, programs and institutional mechanisms (Upreti *et al.,* 2016). Evidence shows strong correlations between gender inequality and food and nutrition insecurity. Such inequalities are compounded by women and girls' often limited access to productive resources, education and decision-making. Policymakers are recognizing, in an instrumental way, the value of rural women producers as an 'untapped' resource for both guaranteeing food and nutrition in households and driving economic growth. There is recognition of the need to redress gender imbalances in women's access to productive resources such as land, water and credit (Bridge, 2014). Gender analysis is therefore an important factor in food security analysis. Gender targeting and mainstreaming in food policies and programs is inadequately addressed by the Government of Nigeria. There is therefore need for concerted efforts to increase empirical study in that direction. In view of this inequality among men and women, this study seeks to investigate the food security situation of both male-headed and female-headed households, determinants of food security and provide relevant solutions to the problem of food insecurity in both male headed and female headed households in Dekina local government area of Kogi State, Nigeria. While the specific objectives are to;

1. describe the socioeconomic characteristics of the respondents.
2. determine the food security situation of both male-headed and female-headed households in the study area.
3. identify the factors affecting food security status of both male-headed and female-headed households in the study area.
4. identify the coping strategies adopted by male-headed and female-headed households to mitigate the effect of food insecurity in the study area.

MATERIALS AND METHODS

Study Area

This study was carried out in Dekina Local Government Area of Kogi State, Nigeria. Dekina Local Government area is one of the earliest local governments created under Kwara State as Dekina division in 1969. Dekina local government comprises of three (3) Districts – Dekina, Biraidu and Okura. The local government area is located between longitude 6°45' and 7°31' east and latitude 7°15' and 8°0' north of the equator. Dekina Local Government is located in the eastern part of Kogi State with a total land area of about 5,091km² with a total population of 260,312, with the population of 133,079 for male while that of female is 127,233 According to 2006 Census, The local government share common boundaries with Bassa local government to the north, Ofu local government to the south, Omala local government to the west and Ankpa local government to the east (NPC, 2006). The local government is inhabited mainly by the Igala speaking tribes and minor tribes such as Bassa, Ebiras, Igbos, and Hausas. Majority of the inhabitants are farmers while few are into trading and civil services. Major arable crops grown in the area include yam, maize, cassava, millet, guinea corn, cowpea, groundnut, and tree crops such as oil palm, citrus, mango and cashew. Major livestock raised in the area include cattle, sheep, goat, and poultry.

Sampling Procedure

This study was carried out in Dekina Local Government area. Two (2) wards were randomly selected from each of the three (3) districts in the local government area. Secondly two (2) communities were randomly selected from each ward making a total of twelve (12) communities. Thirdly, was the stratification of the respondents into male headed households and female-headed households. Fourthly, selection of five (5) male-headed household heads and five (5) female-headed household heads were selected from each of the community giving a total of 120 respondents.

Method of Data Collection

The study made use of primary data which were collected through the use of a well-structured questionnaire. The questionnaires were administered to household heads in the selected communities.

Analytical technique

Foster, Greer, and Thorbecke (FGT)

The Foster, Greer, and Thorbecke (Foster et al. 1984) weighted poverty index was adapted for the measurement of the food security status of the households. FGT measures the respondents` food insecurity incidence, food insecurity gap and food insecurity severity each of the indices puts different weights on the degree to which a household or individual falls below the food security line:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{Q}\left(\frac{Z-Y_i}{Z}\right)^\alpha$$

Where;

α = the parameter that measures the prevalence, gap and severity of food insecurity respectively with number 0, 1 and 2 representing the food insecurity incidence, gap and severity respectively.
N = total number of households,
Q = number of food insecure households.
Z = food security line or food security threshold which is the recommended daily calorie intake (2260Kcal)
Y_i = individual calorie consumed (per adult equivalence) i.e. the food consumed by the i^{th} household.

Logit Regression Model

The respondents were classified into food secure and food insecure using the FAO recommended food security threshold. The relative food security line of daily calorie intake of 2260 Kcal. Farm households that meet daily calorie intake of 2260 Kcal line will be classified as food secure and food insecure otherwise. The response variable will be binary taking values of one if the farmer is food secure and zero otherwise.

$$Zi = \ln \frac{P_i}{(1P - iP)} = \beta + \beta 1X1 + \beta 2X2 + \cdots + \beta iXi$$

The logit regression model employed is expressed as follows:
$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots\ldots \beta_i X_i + \varepsilon$
Y = (1 if food secured and 0 otherwise)
X_1= Age of household head of household head (years)
X_2= Household size
X_3= Level of education of household head (number of years spent in school)
X_4=Farming experience of household head (years)
X_5= Household head's access to extension agents (number of visits per farming season)
X_6= Annual income (naira)
ε = error term

RESULTS AND DISCUSSION

The result reveals that majority (35.0%) of the of the male household heads were within the age bracket of 51-60 years old, while majority (26.7%) of the female headed households were within the age bracket of 41-50 years. On the overall, the average age of household heads in the study area was 45 years and that only 15.33% of the respondents were above 60 years. The result suggests the male headed households were older. This shows that majority of the respondents are still in their youthful age and it is expected that they are more likely to play vital role in household food and nutrition security (Adebo and Falowo, 2015). Household heads distribution by gender reveals that they were equal number of male-headed household heads and female-headed household heads.

Table 1

Socioeconomic characteristics of respondents

Socioeconomic Characteristics	Frequency of male household heads (%)	Frequency of female household heads (%)	Percentage (%)	Mean
Age (years)				
21-30	3.3	20.0	11.67	
31-40	13.3	25.0	19.67	
41-50	21.7	26.7	24.17	45 years
51-60	35.0	23.3	29.16	
>60	26.7	-	15.33	
Sex				
Male	100	-	50.00	
Female	-	100	50.00	
Marital Status				
Single	1.7	1.7	1.68	
Married	91.5	93.3	92.43	
Divorced	3.4	5.0	4.20	
Widowed	3.4	0.0	1.69	
Education level				
No formal Education	23.3	(46.7)	35.00	
Primary	18.3	(25.0)	21.67	6 years
Secondary	11.7	(15.0)	13.33	
ND/HND/BSC	25.0	(10.0)	17.50	
Postgraduate	21.7	(3.3)	12.50	
Household size				
1-5	56.7	20.0	38.33	
6-10	30.0	35.0	32.50	
11-15	8.3	38.3	23.33	
>15	5.0	6.7	5.84	
Farming Experience				
1-10	16.7	28.3	22.50	21 years
11-20	43.3	46.7	45.00	
>20	40.0	25.0	32.50	
Annual income (₦)				
₦100,001-300,000	26.7	43.3	35.00	
₦ 300,001-N400,000	23.3	23.3	23.33	₦283,560
₦ 400,001-N500,000	30.0	20.0	25.00	
>₦ 500,000	20.0	13.3	16.67	
Membership of Association.				
Yes	46.7	31.7	39.17	
No	54.2	68.3	60.83	
Credit Access				
Yes	30.0	48.3	39.17	
No	70.0	51.7	60.83	
Extension Contact				
Yes	54.2	53.3	53.33	
No	45.8	46.7	46.67	
Occupation				
Farming	70.0	70.0	70.00	
Civil Servant	28.3	23.3	25.83	
Others	1.7	6.7	4.17	

Source: Field Survey, 2018.

This is as a result of equal distribution of survey questionnaire among the male and female folks. Majority of the male are married (91.5%) and the females (93.3%) were married.

Household heads marital status shows that 92.43% of the respondents were married and only 1.68% single, 3.39% divorced and 3.39% widowed respectively. This shows that most of the respondents are responsible.

The result in table 1 also reveals that 23.33% of the male-headed household heads had no form of formal education and 46.67% of the female-headed household heads were without formal education. Also, 26.67% of the male respondents had tertiary education and only 13.33% of their female counterpart had same. The result suggests the male headed household heads had more formal education than their female counterpart in the study area. This may be as a result of gender inequality in the boy-girl education level in the study area. But the average schooling age was put at 6.16 years indicating a very low years of schooling in the study area.

Household sizes were grouped into the range of 1-5, 6-10, 11-15 and more than 15. This distribution shows that 56.67% of the male respondents had household size of between 1-5 person(s) and 20% of the female respondents had household sizes of 1-5 person(s). 45% of the female respondents had larger family sizes and only 13.33% of the male respondents had larger family sizes. This shows that the female-headed households have more persons to carter for and so may need more resources to be food secured than their male counterparts.

The avearage years of farming experience was 21.7 years and this implies that the respondents are well experienced in farming and this can help them in reducing the incidence of food insecurity. However, 40% of the male farmers have above 20 years' experience in farming and only 25% of their female counterparts had same. This shows that the male respondents are more experienced in farming than the female respondents. This may have great implication for their farm productivity and food security.

The mean annual income of the respondents in the study area is ₦283,560 and 20% of the male respondents have annual income of above ₦500,000 and only 13.34% of the female respondents have annual income that is above ₦500,000. This shows that the male-headed household heads have higher annual income than their female counterparts. The average annual income of the study area is low and may affect their level of food security.

Majority of the female respondents (68.33%) do not belong to any association while 46.67% of the male respondents belong to one association or the other. 60.83% of the respondents do not belong to any social group and only 39.17% of the respondents are members of association. This result shows that most of the respondents are not socially involved and this may be as a result of their low income. The result also shows that 30% of the male respondents and 48.33% of the female respondents had access to credit facilities and 70% of the male respondents 51.67% of the female respondents had no access to credit facilities. This shows that most of the respondents rely solely on their income to sustain them.

The result shows that 54.24% of the male respondents have access to extension agents and 53.33% of the female respondents have access to extension agents. Only 46.67% of the respondents had no contact with extension officers. This shows that extension officers still carry out their functions in the study area but also needs to intensify their effort to reach out to the 53.33 % of respondents that were not reached. Majority (70%) of the respondents in the study area were farmers, 25% were civil servants and only 4.17% engaged in other occupation. This may be linked to the low level of formal education in the study area.

Food Security Situation of Male and Female Headed Households.

Table 2

Food Security Situation of respondents

Status	Male (%)	Female (%)	Percentage difference
Food secure	60.0	25.0	35.0
Food insecure (Incidence) (α=0)	40.0	75.0	35.0
Food insecurity gap (α=1)	31.3	43.7	12.4
Food insecurity severity (α=2)	9.6	19.1	9.5

Source: Field Survey, 2018

The result showed food insecurity exists among both male-headed households and female-headed households. However, the result shows that 60% of the male-headed households were food secured and only 25% of female-headed households were food secured while 75% of the female-headed households and 40% of the male-headed households were food insecure.

This implies that the male-headed households are more food secured than their female counterparts. The percentage difference of food insecurity between the male-headed households and female-headed households was place at 35%.

The result from table 2 reveals food in insecurity gap of 31.3% among the male headed households and 43.7% among the female headed households. The difference in the food insecurity gap is put at 12.4%. The result shows wider food insecurity gap among the female headed households. The result was in consonance with the finding from a similar result conducted by Olabisi *et al.,* (2014), where the result showed that female-headed household's needs 55% while the male headed households needs 37% increase in their food expenditure to become food secured. The result showed that female headed households have wider food insecurity gap.

The severity of food insecurity for households in the study area is 9.6% for the male-headed households and 19.1% for the female-headed households. This shows a higher level of severity of food insecurity among the female-headed households than the male-headed households in the study area. This observation might be due to the fact that male headed households have better access to productive resources and asset base such as credit facilities, access to improved seed varieties, land, and access to extension services among others compared to their female counterpart. Food insecurity is more severe in female-headed households than in male-headed households. The outcome of the study was in agreement with the finding from the study carried out by Olabisi *et al.,* (2014), the result shows a higher level of severity of food insecurity among the female-headed households than the male-headed households in the study area.

The result for the male headed households shows, household size have negative coefficient and statistically significantly at 1%. This means that food security increases with decrease in household size among male headed households. The result is in line with the findings of Obamiro *et al.,* (2003) in which larger household sizes increased the probability of moving into food insecurity. Years spent in acquiring formal education were significant at 5% level and with positive coefficient. The result suggests food security increases with years of formal education among male headed household heads in the study area.

Table 3

Disaggregated Logistic Regression Analysis

	Male		Female	
Variables	**Coefficient**	**Std. Err.**	**Coefficient**	**Std. Err.**
Age	0.0439	0.134	-0.257	0.455
Household size	-1.840*	0.335	-0.425**	0.187
Years of schooling	3.348**	1.617	-0.733	0.718
Years of farming	-4.140	2.660	0.043	0.062
Extension contact	3.839	3.115	-1.121	1.134
Annual income	1.286	1.249	3.148*	1.004
Constant term	6.777	6.381	-4.067	2.802
LR chi² (6)	68.75		**LR chi² (6)**	41.99
Prob > chi²	0.0000		**Prob > chi²**	0.0000
Pseudo R²	0.8623		**Pseudo R²**	0.6223
Log likelihood	-5. 4894985		**Log likelihood**	-12. 743753
Number of obs.	60		**Number of obs.**	60

Source: Field Survey, 2018 * and ** represent 1% and 5% significance level respectively.

This might be due to the fact that years of formal education are a major factor in wage determination especially in Nigeria. In addition, formal education improves human capacity and technical know-how which aid in improving the productivity of such households and consequently their food security status. This is in consonance with the findings of Idrisa *et.al*. (2008) and Amaza *et.al*. (2006), who reported that the higher the educational level of a household head the more food secured the household and also the richer the household. The coefficient of household size of female-headed households was negative and significant at 5% level. This implies that food security increases with decease in household size among female-headed households. Increase in family size necessitates increase in household food expenditure, especially, in a situation where many of the other household members do not generate any income but only depended on the household heads.

Annual income was significant at 1% and with a positive coefficient. This implies that food security increases with increase in annual income of female-headed households increases, the more food secured the household would be. This may be so because as the income of households increases so will there expenditure on food increase thereby increasing their chances of becoming more food secured. This was in consonance with the result from a study carried out by Adebayo (2012), This implies that for every unit increase in income there is likelihood increase in household food security.

Coping strategies employed by households in mitigating the effects of food insecurity on households.

Table 4 indicates that the major coping strategies employed by male-headed households in cushioning the effects of food insecurity include: diversion of money meant for other purposes to buy food (M=2.52), reduction in quality and quantity of food consumed (M=2.43) and eating foods that are less preferred. This finding is in agreement with Ibrahim *et*. al., (2009) further reported that some coping strategies employed by households include reducing the quality and quantity of meals and the purchase of less preferred food. These were also major strategies employed by the households in the study area to cushion the effect of food insecurity. The high market price of basic foodstuffs was the driving force behind the use of these two strategies. Due to high food prices and lower income, households resort to the consumption of less preferred and less expensive food so as to feed and produce more

food. Other coping strategies employed by male-headed household heads were; eating food that are less preferred (M=2.42), eating cheaper meals out of home (M=2.37), borrowing food from friends and relatives (M=2.37), reducing the number of people eating in the household (M=2.37), mortgaging and selling of asset (M=2.33), and engaging in off-farm jobs to increase household income e.g. trading, driving, civil services etc. Male-headed household heads the study area do not take begging food on streets (M=1.88) as a coping strategy to mitigate the effect of food insecurity.

Table 4

Male-headed Households Food Insecurity Coping Strategies

Eating Coping Strategies	Very Effective	Effective	Non-Effective	Mean	Rank
Eating foods that are less preferred.	29	27	4	2.42**	3
Reduction in quality and quantity of food consumed.	31	24	5	2.43**	2
Borrowing food from friends and relative.	33	16	11	2.37**	5
Mothers limiting their own food intake in order to ensure that their children get enough to eat.	26	26	8	2.30**	8
Skipping one or two meals per day.	25	22	13	2.20**	10
Skipping eating for whole day.	22	25	13	2.15**	11
Reducing the number of people eating in the household.	29	21	10	2.37**	5
Begging for food on streets	17	19	24	1.88	13
Mortgaging and selling of asset	25	30	5	2.33**	7
Eating cheaper meals out of home	33	16	11	2.37**	5
Engaging in off-farm jobs to increase household income e.g. trading, driving, civil service etc.	25	27	8	2.28**	9
Buying food on credit	24	19	17	2.12**	12
Diversion of money meant for other purposes to buy food.	39	13	8	2.52**	1

significant coping strategies (mean score ≥2.0)

Result on Table 5 shows the coping strategies employed by female-headed households in mitigating the effect of food insecurity. These coping strategies include: eating foods that are less preferred (M=2.40), eating cheaper meals out of home (M=2.33),

reduction in quality and quantity of food consumed (M=2.28), borrowing food from friends and relative (M=2.25) and engaging in off-farm jobs to increase household income e.g. trading, driving, civil service etc.

Table 5

Female-headed Households Food Insecurity Coping Strategies.

Coping Strategies	Very Effective	Effective	Non-Effective	Mean	Rank
Eating foods that are less preferred.	29	26	5	2.40**	1
Reduction in quality and quantity of food consumed.	23	31	6	2.28**	3
Borrowing food from friends and relative.	26	23	11	2.25**	4
Mothers limiting their own food intake in order to ensure that their children get enough to eat.	20	26	14	2.10**	9
Skipping one or two meals per day.	20	22	18	2.03**	12
Skipping eating for whole day.	18	23	19	1.98	13
Reducing the number of people eating in the household.	16	33	11	2.08**	10.5
Begging for food on streets	23	25	12	2.18**	5.5
Mortgaging and selling of asset	20	27	13	2.11**	8
Eating cheaper meals out of home	27	26	7	2.33**	2
Engaging in off-farm jobs to increase household income e.g. trading, driving, civil service etc.	24	23	13	2.18**	5.5
Buying food on credit	19	31	10	2.15**	7
Diversion of money meant for other purposes to buy food.	25	18	17	2.08**	10.5

*****significant coping strategies (mean score ≥2.0)***

Other coping strategies employed by female-headed households include; buying food on credit (M=2.15), mortgaging and selling of asset (M=2.11), mothers limiting their own food intake in order to ensure that their children get enough to eat (M=2.10), diversion of money meant for other purposes to buy food (M=2.08) and reducing the number of people eating in the household (M=2.08). According to Amaza *et*. al., (2008) household assets is considered one of the measures that help to cushion the effects of adverse circumstances. Household assets include livestock, machineries and land which could be sold, if need be, so as to purchase food used in feeding the households in times of adversity.

CONCLUSIONS

The study concluded that even though food security is prominent among both male and female headed households, male-headed households were more food secure than female-headed households in the study area. Food insecurity is more severe among female-headed households than male-headed households. Household size, years of formal education, annual income were variables influencing the food security in the study area. The study therefore recommends that Household heads should be encouraged to keep small household size to help reduce the severity of food insecurity. Also, household heads should be encouraged to build their capacity e.g. through training to enhance their participation in income generating activities in order to enhance their food security status. Finally, government policy should be sensitive to gender line in the design and implementation of policies.

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