



Original Research Article

The role of women in household food security in Osun State, Nigeria

Accepted 11 August, 2014

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The relative importance of women's empowerment for household food security has generated a lot of interest so much that governments, multilateral and non-governmental organisations have all shown concern. This research therefore identified the various roles of women as the major pillars of achieving household food security. The study population includes all economically active women aged between 20-70 years presently residing in Ifedayo, Ife-Central and Ejigbo Local Government Area of Osun-state. Primary data was collected with the use of a well-structured questionnaire from 240 households in the study area. Both descriptive statistics and Logit regression model were used in the data analysis. The average age and household size of the respondents are 42 years and 6 members respectively. The mean years of education was 8 years. Women contribute to food security at the household level in descending order of ranking by participating in food processing, buying of varieties of food items for consumption, engaging in food purchasing and distribution process, buying food for storage keeping among others. The result further reveals that education, household size and household expenditure have significant effect on household food security in the study area. It was recommended that the women should be enlightened on birth control measures to enhance household food security.

Key words: Women Food Security, Osun State

INTRODUCTION

More than 800 million people throughout the world and particularly in developing countries do not have enough food to meet their basic nutritional needs. Even though food supplies have increased substantially, constraints on access to food and continuing inadequacy of household and national incomes to purchase food, instability of supply and demand, as well as natural and man-made disasters prevent basic food needs from being fulfilled. The problems of hunger and food insecurity have global dimensions and are likely to persist and even increase dramatically in some regions, unless urgent, determined and concerted action is taken, given the anticipated increase in the world's population and the stress on natural resources (FAO, 1996). The persistence of hunger in the developing world means that ensuring adequate and nutritious food for the population will remain the principal challenge facing policy makers in many developing countries in the years to come

(Stamoulis et al., 2004).

According to FAO (2000), the world food crisis of 1972-74 challenged the prevailing complacency, food suddenly appeared to be in short supply on world markets, cereal prices rose sharply and food aid fell; those on whom the heaviest burden fell were the poor people in poor countries. At the 1996 World Food Summit, food security was said to exist when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This definition integrates access to food, availability of food, and the biological utilization of food as well as its stability. Observing that food security is generally defined in terms of food consumption and is thus subject to biomedical definitions and considerations. Maxwell and Wiebe (1998) described Food security as the state of having secure and sustainable access to sufficient food for

an active and healthy life. Currently, a synthesis of these definitions with the main emphasis on availability, access and utilization, serves as the working definition in the projects of international organizations (Haile, 2005). Developing policies and interventions to increase food security therefore requires an understanding of each of these factors, their interrelationships and their relevance to particular group of people (FAO, 2004).

Although food insecurity is closely linked with poverty (Nord et al., 1999), traditional income and poverty measures however do not provide clear information about food security (Bickel, 2000). Therefore, it is incorrect to assume that a state, country, region or municipality poverty prevalence rate is the same as its food insecurity or hunger prevalence rate, since the relationship between poverty and food insecurity is not a consistent one (Hall, 2004). Accurate measurement and monitoring of food security situations can help public officials, policy makers, service providers and the public at large to access the changing needs for assistance and the effectiveness of existing programmes. While the determination of the food security situation of the households can provide an indispensable tool for assessment and planning, monitoring food security situation of a particular population may help in comparing the local food security situation to state and national patterns, assess the local need for food assistance or track the effect of changing policies or economic conditions (Bickel, 2000).

Focus on food security ensures that the basic needs of the poorest and most vulnerable groups are not neglected in policy formulation (Ajibola, 2000). This is because food security is one of the several necessary conditions for a population to be healthy and well nourished (Nord et al., 2001). One important aspect of the wealth of a nation is the ability to make food available for the populace. In this connection, food security therefore becomes an important factor in any consideration of sustaining the wealth of the nations (Osundare F., 1999). In Nigeria, the percentage of food insecure households was reported to be 18% in 1986 and over 40% in 2005 (Sanusi et al., 2006). Although, figures released by Food and Agriculture Organisation in 2005 on the state of food insecurity in the world, indicated that 9% of Nigerian population was chronically undernourished between 2000 and 2002 (FAO, 2005). This was less than the regional average of 33% for Sub-Saharan Africa. On the national level, *per capita* growth of production of major food items in Nigeria has not been sufficient to satisfy the demand of an increasing population.

Food security actually depends on whether households can afford to buy food given the prices and their income and or whether they can produce enough to cater for their food needs. Access to food is ensured when individuals within these households have sufficient resources to obtain appropriate food either through production, purchase or as gift for a nutritious diet. According to Olayemi (1996) the calorie intake of an average Nigerian fell from 2256kcal per

day in 1985 to 2147kcal per day in 1992 which is below FAO recommendation of minimum amount of 2260kcal per day. Under condition of rising food prices, high cost of living accompanied by low per capita income. Many household have developed increasingly diversified means of access to food.

Household food insecurity is identified to be prevalent among the vulnerable groups especially, children, women and elderly. The central role women play as producers of food, managers of natural resources, income earners and caretakers of household food security and nutrition has become increasingly recognized. Empirical evidence shows that women in developing countries play a crucial role in ensuring household food security (Quisumbing et al., 1995). The Nigerian government also concur that women are vital to food security and family well being. Similarly, the importance of women as agricultural workers and income earners have become increasingly recognized hence strategies have been directed towards eliminating the inequities and constraints affecting women's productive role. Giving women the same access to physical and natural resources as men could enhance agricultural productivity (Agnes et al., 1995).

This is evidenced in the increasing empirical evidences that improvement in women's socio-economic indicators such as income, educational attainment and living conditions are strongly related to household food security in most countries (Delpeuch et al., 1999; Kramer, 1987). Given the women's crucial roles in and contribution of food security, any effort to reduce food insecurity worldwide must take into consideration the factors and constraints affecting women's ability to carry out those role and make these contributions with a view to removing the constraints and enhancing women's capacities. The activities of women can help to alleviate some of these problems. However, the role of women is often frustrated by several problems such as social, cultural and economic circumstances under which they operate.

In this view, this study examine the role of women activities on household food security in Osun state, specifically, the study identify the income generating activities of the women in the area, examine the challenges faced by women in ensuring household food security, identify the contributions and roles of women in ensuring food security at the household level and determine the factor influencing household food security.

Empirical Literature

Regardless of the definition adopted, availability of food and access to food are two essential determinants of household food security. To buttress this, Safiliou-Rothschild (2001) argue that there is a shift from target consumption levels or access to required daily caloric intakes, to more subjective dimensions of food security, which emphasize the quality of food available and people's

anxiety about food availability. The measurement of household food security has been one of the controversial issues treated in the existent literature of food security. Consensus has still not been reached on acceptable indicators and methods of measuring household food security (Franz et al. 2004). Often times, the choice of a particular indicator are based on the specific objectives of the research, and the trade-off between resource constraints and information needs. Recent attempts to measure household food security include Sen (1982), Chambers (1989), and Safiliou-Rothschild (2001). These studies do not lend themselves to systematic comparisons due to the fact that different methods and indicators were used to determine whether there is food security or insecurity at the household level. Some focused attention on only rural areas; others on boarder surveys. Some develop micro level indicators relating both to the onset of food insecurity and to manifestations of food insecurity. Some indicators of food insecurity are gender specific and they are based on the presence of women in non-traditional areas of activities, the fall in the price of assets which are sold by the poor in times of economic crisis and falling returns to wage labour as more poor people compete in the market.

A survey conducted by the International Food Policy Research Institute and others emphasize the critical role of investment in women's human capital to achieve household food security (IFPRI 2001). Smith and Haddad (2000) examined factors that help reduce child malnutrition. Evidence shows that increase in women's education accounted for 43 percent of the total reduction in child malnutrition, by far the largest contribution. Improvement in women's status accounted for another 12 percent while improvement in food availability came in a distant second to women's education, contributing 26 percent to the rate of reduction.

Quisumbing (1996) reveals that when women obtain the same levels of education, experience, and farm inputs that currently benefit the average male farmer, they increase their yield for maize, beans and cowpeas by 22 percent. In Kenya, where the amount of education women receive is extremely low, a year of primary education provided to all women farmers would boost maize yields by 24 percent.

Olumakaiye and Ajayi (2006) conducted a study investigating the association between educational status of women and provision of food for household members for food security in Nigeria. The results showed that educational level attained by the respondents has a fairly high degree of association with the varieties of food provided. They concluded that women with higher education are likely to provide varieties of food thereby increasing the household food security. The bottom line therefore is that improving women's human capital and capabilities, especially education, will not only empower them to exercise their choice but also ensure food security for household members.

Delpuech et al. (1999) assesses the relative importance of socio-economic and maternal/prenatal determinants of the nutritional situation of children below 6 years old in the capital city of Congo after several years of economic crisis using cross-sectional cluster sample survey. The researchers observed that the physical and maternal and prenatal characteristics are strongly related to children's nutritional indices, especially stunting. Among the socioeconomic determinants of malnutrition, some such as economic level of the household or schooling of the mother seem to act mainly through prenatal factors whereas others mainly dwelling or district characteristics, seem to influence more directly the children's nutritional status. A double logarithmic functions form was used to explain responses in household food expenditure to socio economic factors. Household income, family size and food stamp participation were found to exert a strong positive impact on food expenditures. The general educational level of the homemaker registered no significant impact on household food expenditure. However, the nutritional knowledge of the homemaker increased the efficiency of food purchasing activities.

In a study by Doocy and Burnham (2006) measures of socioeconomic status were compared with a measure of physical well-being, Mid-Upper Arm Circumference (MUAC) in the food insecure regions of Ethiopia. Evidence shows that income, housing conditions and education had the greatest correlation to MUAC and significant differences in these measures were observed between malnourished and adequately nourished individuals. On the choice of MUAC as a measure of food insecurity measure, they argue that MUAC was chosen as the anthropometric measure because it is commonly used for nutrition screening in emergency situations and because it is recommended for assessing acute adult malnutrition and prevalence of under-nutrition at the population level (Cogill, 2003). This implies that women with higher education are likely to provide varieties of food security. Similarly, Smith and Haddad (2000) in a cross-country analysis to explain factors responsible for child malnutrition in the developing world between 1970 and 1995 provide evidence that increase in women's education accounted for 43% of the total reduction in child malnutrition by far the largest contribution.

Also, a school of thought believes that public policy on food and Agriculture is itself at the root of Nigerian food security problems. According to this school, food policy has been characterized by inappropriate role of government in food and Agriculture, which manifest in badly formulated and poor executed food policies and the perennial emergence of the unintended consequences and beneficiaries of the food and Agricultural policies (Olayemi, 1996). According to Sharma (1992), national food availability is determined mainly by domestic net of supply and food importation. The capacity to import food in turn depends on export earnings, foreign exchange reserves, and value of essential non-food import and debt service

X_9 = Distance to relative (km)

X_{10} = Women total income (₦)

X_{11} = Total household expenditure (₦)

RESULTS AND DISCUSSION

Socio economic characteristics

The socio economic variables of the respondents are presented in Table 1. The highest percentage (30%) of women is in between the age range of 31-40 years while the least recorded is 7.4 per cents representing respondents above 60years of age. The mean age is 42 years which implies that the women are In their productive years. About 65 per cent of the respondents are married while others are single, widowed or separated. While 23 per cent of the women have no formal education, 34 per cent has secondary education. The average years of education is 8 years which is still below the minimum 9years of basic education pronounced by the educational sector in Nigeria.

The average household size in the area is 6 members; however, 12.5 per cent of the respondents have above 7 household members. About 33 per cent of the respondents primarily engage in private business while the least is 1.6 per cent for other job opportunities such as shop / petrol attendants, hospital ward maids, etc. Majority of the respondents (70.8%) belong to various cooperative societies, this is to help their needs as it arise, about 43 per cent of the respondents live in less than 2km to their relatives while 18 per cent reside 20 km and above from their relatives. A closer proximity to relatives may help out when household is in crucial need compared to those whose relatives live far away from them.

Income generating activities of the women

The distribution of income generating activities of the women in study area is presented in Table 2. The result shows that 56.41% of the women in area are self employed. About 26.08% of the women are government employed, 6.46% received gifts from relative, 5.86% received remittance from aboard, 3.21% got their income from capital let out and 1.98% got their income from property inherited. This is an indication that majority of the women has access to income and in various form which can help to provide security for their households in terms of food.

Household budget share on monthly expenditure

The distribution of the monthly expenditure for the households in the study area is presented in Table 3. The highest proportion of the monthly expenditure is spent on feeding the household and this accounted for about 58.9 percent of the total expenditure. This might be attributed to

the increase in food prices, household size or changing consumption patterns of member of household. For instance, the costs of staples like sugar, maize, millet, rice and wheat have increased considerably in recent times. The price of a 50 kg bag of rice which was N6000 in December 2007 is presently selling at N8500.

This is followed by expenses on social activities of the respondents' which also accounted for about 5.60 percent. The proportion of expenses spent on house rent is minimal to other basic needs of life. As presented in the Table, 0.83 *per cent* of total monthly expenditure is spent on rent allowance. The least cost for an average household in the study area is water which is 0.10 percent. Many of the respondents claimed that they source their water from nearby streams, bore hole and hand dug well that are close to their homes. In all, an average total of ₦2312.87 was spent monthly by each household.

The roles of women in household food security

The Table 4 showed the rank order of the role of women in household food security. The result show that food processing and meal preparation ranked highest with weighted mean score of (2.0083). This is followed by guaranteed wellbeing of the household (1.9833), buying varieties of food items for consumption (1.8917), food purchasing and distribution (1.6667), improved processing techniques (1.6500) and reduction in child nutrition (1.6167) respectively. Others are in the following order: buying food for storage keeping (1.5250), food preservation (1.4917), food production (0.8917) and while cultivation of crop has the least mean score of (0.8000). From the result of Weight mean score – average weighted mean score shows that women that performed those roles in the ranked 1-6 was indicated to make more contributions in ensuring household food security than the women that performed the roles ranked 7-10 as indicated make lesser contribution in ensuring household food security.

Household food security status and the corresponding *per capita* expenditure

The categories of the respondents into food insecure, moderate secured, and food secured is presented in Table 5. The households who are food insecure have a mean PCE of 1774.80 representing 2.5 percent of the total mean PCE for the study area. This mean PCE gradually increase from food insecure to food secured with a mean PCE of 4834.67 which accounted for 76.7 percent of the total mean. The mean PCE for the households in the study area is 2754.71. however, both food insecured and moderately food secured spend below the two third of the mean per capita expenditure hence are categorized as food insecured.

Problem of household food security

Table 6 revealed the problem encountered in ensuring

Table 1. Frequency and percentage distribution of respondents by socio-characteristics

Variable	Frequency	Frequency	Mean
Age < 30	52	21.6	42.11 (13.03)
31-40	72	30.0	
41-50	58	24.1	
51-60	40	16.6	
61 and above	18	7.4	
Marital Status			
Married	162	67.5	
Single	18	7.5	
Widowed	34	14.5	
Divorced/ separated	26	10.8	
Educational level (yrs)			
0	56	23.3	8.5167 (5.80)
1-6	42	17.5	
7-12	82	34.1	
>13	60	24.9	
Household size			
< 4	102		
5-7	108		
8-10	26		
>10	4		
Pry Occupation			
Artisan	48	20.0	
Civil service	64	26.7	
Private business	80	33.3	
Farming	38	15.8	
Others	10	4.2	
Secondary Occupation			
None	126	52.5	
Artisan	16	6.7	
Private business	30	12.5	
Farming	58	24.2	
Others	10	4.2	
Work Experience (yrs)			
<10	180	75.0	7.14 (11.59)
11-20	40	16.6	
21-30	8	3.3	
31-40	8	3.3	
41-50	4	1.6	
Membership in Cooperative society			
Yes	170	70.8	
No	70	29.2	
Distance to relatives (km)			
<2	104	43.4	
2.1-5	44	18.4	
5.1-10	16	6.6	
10.1-20	32	13.3	
>20	44	18.1	
Total	240	100.0	

Source: Field survey, 2011 (figures in parenthesis are standard deviation)

household food security. It is worthy to note that all the respondents experience lack of equipment for processing of food due to inadequate finance and capital; low income because they are rural dwellers and insufficient food items due to demand poor storage facilities and lack of electricity

which reduces their access to information and new techniques of processing food respectively. About 87.5 percent each experienced high cost of food items caused by fluctuation in prices of food item, climatic condition and scarcity of some food items. Also 75.8 percent experienced

Table 2. Income Generating Activities of the women

Income source	Mean weight	Percentage	Std. deviation
Self employed	12830.00	56.41	9577.87
Government employed	5932.50	26.08	11480.19
Gifts from relative	1470.00	6.46	2693.17
Remittance from aboard	1333.33	5.86	3789.27
Income of capital let out	729.17	3.21	2862.91
Property inherited	450.00	1.98	1648.20
Total	22745,00	100	

Source: Field Survey, 2011

Table 3. Distribution of mean expenditure of household monthly expenditure

Monthly expenditure	Mean (N)	Standard deviation	Percentage budget share
Food	23196.058	7707.85	58.99
Tobacco/kolanut	56.577	176.69	0.14
Charcoal/firewood	777.0833	937.13	1.98
Matches/candle	261.4167	185.59	0.66
Fuel/gas	934.375	985.68	2.38
Transport	1781.7647	1383.62	4.53
Toiletries/detergent	767.2917	647.41	1.95
Clothing/footwear	1970.6250	1827.74	5.01
Rent	327.9167	965.32	0.83
Health/medicine	1489.5833	1633.05	3.39
Children education	1894.2083	1799.38	4.82
Remittance/gift	1158.3333	1771.90	2.95
Social activities	2200.1667	2035.60	5.60
Electricity bill	706.8375	584.76	1.80
Water bill	38.0000	157.55	0.10
Gsm-recharge	1383.3333	990.83	3.52
Perfume	375.1667	474.67	0.95
Total	39318.74		100.00
Mean per capita expenditure	2312.87		

Source: Field Survey, 2011

Table 4. Rank order of respondents by the role of women in household food security

Roles of women in household food security	Weight mean score	Rank
Food processing and meal preparation	2.0083	1
Guarantee wellbeing of the entire household	1.9833	2
Buying of varieties of food items for consumption	1.8917	3
Food purchasing and distribution	1.6667	4
Improved processing techniques	1.6500	5
Reduction of child nutrition	1.6167	6
Buying food for storage keeping	1.5250	7
Food preservation	1.4917	8
Food production	0.8917	9
Cultivation	0.8000	10
Average weighted mean score	1.55	

Source: Field Survey 2011

lack of transportation due to bad road network, which has reduce the growth and development in the area and 50 percent of the respondents experience inaccessibility to the market due to poor state of road. It could be observed that

majority of the respondents' encountered constraints in household food security. Which implied that the problems encountered affects the role of women in household food security.

Table 5. Per Capita Expenditure (PCE) distribution of food security categories

Food security categories	Frequency	Mean PCE	Expenditure distribution(%)
Food insecure	6	1774.80	2.5
Moderate secured	50	2254.66	20.8
Food secured	184	4834.67	76.7
Total		8234.13	100
Mean PCE		2754.71	

Source: Field Survey 2011

Table 6. Challenges Encountered in ensuring household food security

*Problems	frequency	frequency
High cost of food items	210	87.5
Inaccessibility to market	120	50
Lack of equipment	240	100
Low income	240	100
Insufficient of food item	240	100
Lack of transportation	182	75.8
Lack of electricity	240	100

Source: field survey, 2011

*percentage greater than 100 due to multiple response

Table 7. Logit Estimation of Determinant of Household food security

Variable	coefficient	Z value	marginal effect
Constant	0.773	0.48	
Age	0.017	0.56	0.002
Marital status	0.248	0.70	0.029
Ownership of property	-0.000	-0.84	-0.000
Education	-0.116*	-1.74	-0.013*
Total household size	-0.516***	-3.29	-0.061***
Primary occupation	0.221	0.80	-0.001
Farming experience	-0.008	-0.23	-0.001
Cooperative society	0.681	0.97	0.073
Distance to relative	0.000	0.04	0.000
Women total income	-0.000	-0.59	-0.000
Total household	0.000***	4.57	0.000***

Source : Field Survey 2011

Log likelihood function -42.339

Chi- squared -45.17

Prob > chi2 0.0000

* = Coefficient significant at 10%

*** = Coefficient significant at 1%

Result of logit estimation of determinant of household food security

Table 7 shows that out of twelve variables only three were significant i.e. years of education, total household size and total household expenditure are the major determinants of food security in the study area. Years of education have a negative and statistically significant at 10% level of significance on household food security. This shows an inverse relationship between household food security and household educational status; this implies that a unit increase in years of education of the women will reduce

household food security by 0.013. The reason for this may not be farfetched as it is believed that women education is a waste of time and people will rather train their female child on how to make money at an early stage in life to support family rather than educate them this is confirmed by the average years of education of the women which is 8 years.

The result also shows that household size is negative and significant at the level of 1% on household food security. Therefore an increase in household size will lead to 0.061 decrease in food security. Therefore, food security of the respondents is significantly affected when there is an increase in number of household size. This might be due to the

fact that as household members increases, access to food reduces such that the quality of food per person reduces and the amount of food available decreases contributing to food insecurity of the household members. Total household expenditure has a positive effect and is statistically significant at the level of 1% on food security. This reveals that as household expenditure a proxy for household income increases the probability of being food secured will increase by 0.00014, hence the higher the household expenditure the higher the likelihood of being food secured.

Summary of major findings

The study revealed that the average age of the respondents is 42 years, 67.5% of the respondents were married, 33.3% of the respondents have primary education, the average years of education is 8 years, while the average size of the household is 6 members. About 33% of the respondents engaged in private business as their major source of generating income and the average working experience of the respondents is 7 years. Majority of the respondents are members co-operative societies, while 43% of them reside in less than 2 km away from their relatives. The finding also revealed that majority of the women (56.41%) are self-employed the highest proportion of monthly expenditure is spent of feeding which is accounted for 58.9% while the least cost spent by the household is on water which is (0.10%).

The major problem faced by the women is lack of equipment for processing activities, insufficient food items and lack of electricity. Logit analysis shows that year of education, household size and total monthly expenditure a proxy for income are significant in ensuring food security of the respondents.

Conclusion and Recommendation

Going by the findings of this study, it is generally revealed that women play a significant role in ensuring household food security. Ensuring national food self-sufficiency does not necessarily translate into household food security. The need to ensure household food security is not only a function of food supplies but also of demand of purchasing power. It was revealed that women empowerment will serve as a critical ingredient in ensuring both national and household food security. Based on the findings of this study, it is therefore recommended that women should be enlightened about birth control measures to reduce household size hence, enhance food security. Also, they should be encouraged to participate in income generating activities to boost their household food security.

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