



EFFECT OF WOMEN PARTICIPATION IN AGRICULTURAL ACTIVITIES ON HOUSEHOLD FOOD SECURITY IN JOS NORTH LOCAL GOVERNMENT AREA, PLATEAU STATE, NIGERIA

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ABSTRACT

Inadequate food is an impetus to food insecurity among households in Nigeria. Improvement in agricultural productivity is a prerequisite to increased rural household incomes and access to available food. Therefore this paper investigates the effect of women participation in agricultural activities on household food security in Jos North Local Government Area, Plateau State, Nigeria. Random sampling technique was used to select 144 respondents. The data were analyzed using descriptive and inferential statistics. The results revealed that the mean age of the respondents was 35 years with 86.8% had one form of formal education. Food wastage reduction and food preparation were the major household food security activities engaged by women. The PPMC result revealed that, there is a significant relationship between household size ($r = 0.29$, $p < 0.01$), educational level ($r = 0.164$; $p < 0.05$), with food security status of the respondents. Chi-square test also revealed that there is a significant relationship between food storage ($\chi^2 = 0.018$, $P = 0.05$). The results of the Pearson Product Moment Correlation analysis revealed that there is a significant relationship between reduction of meal taken ($r = 0.18$; $P < 0.05$), withdrawal of funds from personal saving (0.28 , $P = 0.05$), borrowing of funds from friends and relatives ($r = 0.17$; $P < 0.05$). It is therefore, recommended that women marginalization be reduced and as well considers them in the provision of farm inputs especially with the growth enhancement scheme of e-wallet inputs distribution. The non-governmental organizations should as well be encouraged to engage in women empowerment programmes that will help in boosting their economic activities.

Keywords: Agricultural Activities, Food Security, Household, Participation, Women.

INTRODUCTION

The current challenges of food insecurity in developing countries such as Nigeria are on the increase. These are matters of grave concern largely because Nigeria was self-sufficient in food production and was indeed a net exporter of food to other regions of the continent in the 1960s. Things changed dramatically for the worse following the global economic crisis that hit developing countries beginning from the late 1970's onward. Inadequate food is an impetus to food insecurity among households. Improvement in agricultural productivity is a prerequisite to increased rural household incomes and access to available food.

Food security is a primary goal for sustainable agricultural development and cornerstone for economic and social development of the nation. Food security not only requires an adequate supply of food but also entail availability, accessibility and food utilization by all men and women of all ages, ethnicities, religions, and socio-economic levels. 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 basic dietary needs and food preferences for a healthy and active life (FAO, 2001). Evidence indicates that poverty reduction and food security do not necessarily move in tandem (FAO, 2006). Therefore, there is a need to intensify the means of maximizing food crop production for reduction of food insecurity among households in the study area. The main problem is lack of economic (social and physical) access to food at National, State and local household levels. It is widely demonstrated that women throughout the world are engaged in a range of productive activities essential to household welfare, agricultural productivity at 60-79 per cent, and economic growth. However, the substantial contribution continue to be systematically marginalized and undervalued in conventional agricultural and economic analyses and policies, while men's contribution remains the central, often the value focus of attention. Food and Agricultural Organization (FAO, 2012)

Female headed households were among the poorest with the lowest level of food security (Heyzer, 1992). This is because women perform dual roles as household managers and food producers. Women are engaged in waged labor as well as in other income generating activities and earn a substantial proportion and sometimes even all of the basic daily food for the family. The inequalities in the role of men and women in agricultural activities constitute a strong factor on food production chain "from farm to plate" for the attainment of food and nutritional security. It is therefore important to consider the essential role of women when considering food security in Nigeria (Akinwumi and Djato, 1992).

When women will have access to production inputs such as loans, agrochemicals, agricultural information with sporadic assistance from extension agents in their own right, would prove themselves more than capable of increasing farm production, efficiency and profit to ensure household food security. In some part of Nigeria today (Plateau State inclusive), women folks rural households are increasingly changing, women responsibilities need modification in favor of rapid change particularly with rural women who are becoming more responsible for household food security and children welfare (Synder, 1990).

There is a need therefore, to understand the situation of women participation in agricultural activities in order to attain the needed household food security in Jos North Local Government Area (LGA), Plateau State, Nigeria. The study was guided by the following objectives and hypotheses of the study:

- i. describe the socio-economic characteristics of the respondents in the study area;
- ii identify various activities carried out by women to ensure household food security;
- iii. determine coping strategies of household food securities in the study area.

Ho₁: There is no significant relationship between the selected socio-economic characteristics of the respondents and food security status.

Ho₂: There is no significant relationship between food security activities and household food security.

Ho₃: There was no significant relationship between food security coping strategies and food security status.

MATERIALS AND METHODS

The Study Area

The study was conducted in Jos North Local Government Area (LGA), Plateau State, Nigeria. The LGA is situated between latitude 8⁰ and 10⁰ north and longitude 7⁰ and 11⁰ east. The lowest and highest temperatures are 18⁰C and 27⁰C with an altitude 1,500 meters above sea level. The annual rainfall of the study area ranges between 1,317.5mm to 1500mm per



annum. The study area has a population of 429,300 National Population Commission [NPC] (2006). The climate of Jos-plateau has great potentials for agricultural production.

Sampling Techniques

The sample population for the study was women farmers in the selected wards of Jos North LGA. A well-structured questionnaire and interview schedule was used to collect information from respondents. A multi-stage sampling technique was used in the selection of respondents. First stage involved purposive selection of four wards out of 14 wards in Jos North LGA, from which a list of women farmers from each ward was obtained from the extension department of Ministry of Agriculture Plateau State. From the list, 144 respondents were selected proportionate to the number of women farmers per ward as depicted in Table 1:

Table 1: Selection of Respondents

Ward	Number of women	Number selected
A	300	84
B	100	28
C	20	6
D	150	42
Total	570	160

Source: Field Survey, 2016

Analytical Techniques

Descriptive and inferential statistical tools were used for data analysis. Descriptive statistics such as frequency counts, percentage, and means were used to analyze the socio-economic characteristics of the respondents. Pearson Product Moment Correlation (PPMC) was used in testing hypothesis Ho₁ and chi-square was used for testing hypothesis Ho₂ and Ho₃. Chi-square Formula is given by the expression:

$$\chi^2 = \sum_{j=1}^n \left(k \frac{O_j - E_j}{E_j} \right)^2 \quad \dots(1)$$

where;

O_j = Observed frequency.

E_j = Expected frequency.

K = Degree of freedom.

The Pearson Product Moment Correlation (PPMC) formula is given as:

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - \sum X^2 N \sum Y^2 - \sum Y^2}} \quad \dots(2)$$

where;

Y = dependent variable.

X = independent variables.

∑ = summation.



RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

Table 2 revealed 29 years as the mean age of the respondents. Majority (49.3%) were married. Most (37.5%) of the respondents had secondary education with a mean household of 4 persons. This indicates that the respondents were youth, who are capable of participating in household food security activities and can contribute toward household food security. Married individual were more concerned with fending for food than the singles or divorced individuals who may tend to consider their personal well-being alone. This will there for serve as motivation for increasing agricultural productivity, thereby addressing the problem of food insecurity in the area.

The mean household size of 4 implies that, most of the respondents in the study area have smaller household size. Therefore, if production in the area must be sustained for food security, supply of the inputs such as fertilizer, herbicides, improved seeds variety and farming technology should be prompt to augment the gap. This is because in most rural setting household size is assumed to represent the labour input of household food security activities; household size is mostly inclined to divert part of its labour force into food security activities. Gbetibouo (2009) found that, household size will make the members strive for food to feed the members of the household.

The results further showed that majority (86.8%) of the respondents had one form of formal education. The preponderance of such educated women is expected to influence their participation in household food security activities in the study area. This implies that on the average the women could read and write. Therefore, it can be an easier method of communication and information/dissemination of agricultural technology in the area, thereby serving as an impetus for increased production and guaranteeing food security. Mudzonga (2011) revealed that education is one of the potential factors affecting decision in all human endeavors. The result on the table also showed that about 86% of the respondents had no extension contact at all. This result indicated that there were inadequate extension visits among the respondents. Inadequacy of extension contact is often considered as an impediment to technology transfer among farmers which translates to low yield and thereby poor socio-economic well-being. Majority (49.3%) of the respondents have farming experiences of 0-5 years. Experience is a capital asset that farmers usually acquired, which enhances their productivity. The low experience possessed by the respondents might not necessary translate to poor performance rather than it corroborate with ages of the farmers; which can be considered as most productive.

Household Activities Carried by Women to Ensure Food Security

Table 3 shows the activities engaged by the respondents to ensure food security in the study area. It revealed that, food wastage reduction and food preparation were the activities mostly engaged by the respondents representing 29% and 28% respectively. This implies that women in the study area were engage in one activities or the other to ensure food security. Engagement in multiple livelihood portfolios serves as a buffer against shock and other uncertainties. This brings about household stability in terms of food security.



Table 2: Socio-economic Characteristic of the Respondents

Variables	Frequency	Percentage	Mean
Age (years)			28.8
Less than 30	55	38.19	
30-39	55	38.19	
40-49	16	11.11	
50-59	10	6.94	
60 and above	8	5.55	
Marital status			
Married	71	49.3	
Single	56	38.9	
Divorced	5	3.5	
Widowed	12	8.3	
Level of education			
No education	12	8.3	
Non formal education	7	4.9	
Primary education	26	18.1	
Secondary education	54	37.5	
NCE/Diploma	36	25.0	
Degree	9	6.3	
Years of experiences			29
0-5	71	49.3	
6-10	51	35.4	
11-15	10	7.0	
16-20	8	5.6	
21 years and above	4	2.7	
Household size (people)			
1-5	61	42.4	
6-10	47	32.6	
11-15	16	11.1	
16-20	15	10.4	
Above 20	5	3.5	

Source: Field survey, 2016



Table 3: Types of Household Activities Carried by Women to Ensure Food Security

Activities	Frequency	Percentage
Food wastage reduction	107	29
Food preparation	101	28
Food preservation	69	19
Food selection for household	24	7
Food storage	21	6
Dietary food selection	18	5
Food purchase	17	5
Food grading	6	2
Total	363*	100

* Multiple responses exist.
 Source: Field survey, 2016

Coping Strategies Used to Ensure Household Food Security

Table 4 shows the coping strategies employed by the respondents to ensure household food security. It revealed that, withdrawing funds from personal savings (mean 3.1) and resorting to prayer and fasting (mean 3.0) are the most used coping strategies among the respondents in the study area. Other coping strategies include borrowing funds from relatives/ friends (mean 2.9), withdraw funds from children school fees (mean 2.8), reduction of meal taken (mean 2.7), migrate to cities and send children to paid jobs (mean 2.3) each while, cut down expenditure has a mean of 2.2 and the least coping strategy being sales of assets (mean 1.6) in that order. In the view of Ellis (2000) coping strategies is the methods used by households to survive when confronted with unanticipated livelihood failure. This implies that, respondents have developed one form of coping strategy or another to ensure household food security in the study area.

Table 4: Coping Strategies Used by the Respondents

Coping strategy	Frequently	Occasionally	Rarely	Undecided	Not used	Mean
Reduce meal taken	33 (22.9)	15 (10.4)	5 (38.9)	32 (22.2)	8 (5.6)	2.7
Withdraw funds from personal savings	24 (16.7)	19 (13.2)	56(38.9)	40(27.8)	5(3.5)	3.1
Borrowing funds from relatives/friend	16(11.1)	26(18.1)	43(29.9)	48(33.3)	11(7.6)	2.9
Sale assets	8(5.6)	33(22.9)	14(9.7%)	48(33.3)	41(28.5)	1.6
Cut down expenditure	24(16.7)	20(13.9)	41(28.5)	44(30.6)	15(10.4)	2.2
Migrate to cities	12(8.3)	22(15.3)	14(9.7)	51(35.4)	45(31.3)	2.3
Withdraw funds from children school fees	18(12.5)	14(9.7)	40(27.8)	39(7.1)	33(22.9)	2.8
Send out children for paid jobs	11(7.6)	25(17.4)	17(11.8)	47(32.6)	44(30.6)	2.3
Resort to praying and fasting	33(22.9)	32(22.2)	18(12.5)	35(24.3)	26(18.1)	3.0

Note: Figures in parenthesis represents the percentages
 Source: Field survey, 2016



Test of Hypothesis

Table 5 presents the results of Ho₁ which states that there is no significant relationship between the selected socio-economic characteristics of the respondents and food security status. It revealed that, there is significant relationship between household size ($r = 0.29$; $p < 0.01$), educational level ($r = 0.164$; $p < 0.05$), farming experience ($r = 0.17$; $p < 0.05$) and food security status of the respondent, while, age was negatively correlated with food security status of the respondents in the study area.

Table 5: Relationship between Selected Socio-economic Characteristics and Food Security Status of the Respondents

Variables	r-value
Age	-0.50
Household size	0.29***
Educational level	0.164**
Farm experience	0.17**

Note: *** = 0.01 and ** = 0.05 levels of significant

Source: Computed from field survey, 2016

Table 6 presents the results of Ho₂: there is no significant relationship between food security activities and household food security. The results reveals that, there is relationship between food storage ($\chi^2 = 0.018$; $p < 0.05$), food grading ($\chi^2 = 0.035$; $p < 0.05$) and food waste reduction ($\chi^2 = 0.023$; $p < 0.05$) and household food security of the respondents, hence the null hypothesis is rejected. While, there is no significant relationship between food preparation ($\chi^2 = 5.433$; $p > 0.05$), dietary food selection ($\chi^2 = 0.516$; $p > 0.05$), food preservation ($\chi^2 = 21.468$; $p > 0.05$), food purchase ($\chi^2 = 2.158$; $p > 0.05$), food selection ($\chi^2 = 0.723$; $p > 0.05$) and household food security of the respondents and hence the null hypothesis is accepted.

Table 6: Relationship between Various Food Security Activities Carried out by Women and Household Food Security

Variables	Df	χ^2 tab	χ^2 value	Decision
Food preparation	1	3.84	5.433	Reject H ₀
Dietary food selection	1	3.84	0.516	Accept H ₀
Food storage	1	3.84	0.018*	Accept H ₀
Food grading	1	3.84	0.032*	Accept H ₀
Food preservation	1	3.84	21.468	Reject H ₀
Food waste reduction	1	3.84	0.023*	Accept H ₀
Food purchase	1	3.84	2.158	Reject H ₀
Food selection	1	3.84	0.723	Accept H ₀

Note: * = 0.05 level of significant

Source: Computed from field Survey, 2016

The results of Ho₃ stating that there is no relationship between coping strategies and household food security status is presented in Table 7. The results revealed that, there is significant relationship between reduction of meal taken ($r = 0.18$; $p < 0.05$), withdraw funds from personal savings (0.28; $p < 0.05$), borrowing funds from relatives/ friends ($r = 0.17$;



$p < 0.05$), cut down expenditure ($r = 0.31$; $p < 0.05$) send out children for paid jobs ($r = 0.26$; $p < 0.26$), resort to praying and fasting ($r = 0.56$; $p < 0.05$) and household food security status of the respondents. While, sale of assets, migrate to cities, withdraw funds from children school fees were negatively correlated with household food security status of the respondents in the study area.

Table 7: Relationship between Women participation in Food Security Coping Strategies and Household Food Security Status

Coping strategies	r-value
Reduce meal taken	0.18**
Withdraw funds from personal saving	0.28**
Borrowing funds from relatives/friends	0.17**
Sale assets	-0.34
Cut-down expenditure	0.31**
Migrate to cities	-0.21
Withdraw funds from children school fees	-0.51
Send out children for paid jobs	0.26**
Resort to praying and fasting	0.56**

Note: ** = 0.05 levels of significance

Source: Computed from field survey data, 2016

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, Household size, educational level and farming experience is significant to food secured household. It further shows that food preparation, food preservation, and food purchase were the activities carried out to ensure household food security by respondents. In case of economic failure, reduced meal taken, withdrawal of funds from personal savings, borrowing funds from friends and relatives cut down expenditure, send out children for paid jobs and resort to praying and fasting were factors used in coping strategies to food security. Therefore, the study recommends that:

- i. Farm inputs such as fertilizer and agro-chemicals should be further subsidized by the government and non-government organizations involvement so that, women farmers would have enough access and supply of farm inputs especially with the growth enhancement scheme (GES) introduced by the federal government.
- ii. Government should provide access road for movement of goods and services, from rural to urban areas.
- iii. Extension Agents should provide extension services to women so as to complement indigenous knowledge from friends/relatives on household food security.
- iv. Incentives should be given to women by government in form of soft loan so that they could increase their production potential and other food security activities.

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