Impact of Women Empowerment on Food Security among Rural Households in Kwara State, Nigeria

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Abstract

The study investigated the impact of women empowerment on food security in Kwara State, Nigeria. Specifically, the study assessed the levels of food security and women empowerment in the study area as well as examined the relationship between both. Also, constraints on women empowerment in the study area were identified. An interview schedule was used to elicit datafrom 150 rural households across ten communities in the State following a three-stage random sampling technique. Descriptive statistics, Likert scale, women empowerment index, food security index and the Pearson Product Moment Correlation were the analytical tools used. The study revealed that 52% of the households were food- secure. Only 5% of the women in the study area had empowerment index higher than 0.6, with most having least scores for psychological indicators of empowerment levels. A positive correlation (r=0.245) was observed at p<0.01 between the level of women empowerment and food security status. Poverty, cultural limitations and poor access to credit were the most severe constraints to women empowerment. It was concluded from the findings that women empowerment significantly increased the level of food security in the study area. The study, therefore, recommends a multidimensional approach to women empowerment as a medium of achieving the millennium development goal of food security.

1. Introduction

The place of food in human life is essential and cannot be overrated. It is a basic necessity of life,and a means to sustenance (Olayiwola et al., 2017). Oluyole and Lawal, (2008) similarly reported that the importance of food rates it as the most basic of human need. Healthy and productive life had been adjudged to be a function of adequate and quality food intake (Okwoche and Asogwa, 2012). Inspite this importance, report shows that Sub-Saharan Africa has the highest prevalence of hunger leaving one out of every four persons not adequately fed (World Food Program, 2015). The wide gap between national food demand and supply has worsened the incidence of food security over time in Nigeria (Olayiwola et al., 2017). The report also shows that with one in every six underweight and one in every four stunted, about half of deaths in children under five in this region have been linked directly to poor feeding (World Health Organization, 2012). A joint report on the state of food insecurity in the world as provided by FAO, IFAD and WFP (2015) reveals global hunger has continued to decline, albeit gradually, to an estimated 795 million undernourished people, or a reduction of 167 million hungry people over the last ten years. Although

globally, there has been a steady decrease in childhood stunting and incidence of hunger, Nigeria has remained stagnated, and projections are that this situation is likely to persist except major interventions are made (Onis et al., 2012). Akinyele (2009) reported that there is a large percentage of Nigerian population both in rural and urban communities who experience food insecurity though most of the food insecure are found in the rural areas. Weisfeld- Adams and Andrzejewski (2008) described the interwoven nature of poverty and hunger with insight into how each leads to the other. While the type and magnitude of poverty are a determinant of levels of agricultural growth (Ingutia et al., 2009), sustained increase in agricultural productivity has been identified as the strongest weapon in the global quest for poverty reduction and enhancing food security in developing countries (Food and Agriculture Organization, 2011).

According to the Inter-American Institute for Cooperation on Agriculture (2009), food security is defined as the existence of the necessary conditions for people to have physical and economic access, in ways that are socially acceptable, to safe food that is nutritious, and in keeping with the cultural preferences of the people, so as to meet their dietary needs and ensure they live productive and healthy lives. Despite the concerted effort to ensure food security particularly for developing countries like Nigeria, factors such as population explosion, climate change, rising food prices, armed conflicts e.t.c. have continued to plaque food sufficiency. The Central Bank of Nigeria (2001), reported that while the country's population growth rate stood at 2.8 percent per annum, total food supply grew at a rate of 2.5 percent per annum. About 66 percent of the country's population lives below the poverty line (Fakiyesi, 2001) and have adopted coping strategies such as eating once per day, allowing children to eat first, eating wild fruits and buying food on credit (Idrisa et al., 2008).Although the world's largest producer of cassava, yam, and cowpea, it is estimated that about three-quarters of Nigerians live on less than US$1.25 per day placing the country in the 40th position on the 2012 Global Hunger Index(IFPRI, 2012; IFPRI, 2014). Furtherance of the established relationship between agricultural growth and poverty reduction, it becomes necessary that the potentials of all stakeholder and all resources be prudently harnessed in other to achieve food sufficiency and poverty eradication.

The interplay between agriculture and food security is catalysed by gendered dimensions in that women participate actively in food production, processing and marketing. Not only that, they make decisions on dietary rotations and are responsible for nutrition in the household. They contribute as high as 60 to 80% of the total farm task performed in many developing countries (Amali, 1989; Auta et al., 2000).Despite this, empirical evidence abounds on the low level of access of women to resources and opportunities such as land, credit and even extension services and their productivity remain low compared to their potential. According to FAO (1990), for developing countries, less than 2 percent of the land is owned by women, only 15 percent of extension agents are women, about 5 percent of extension services have been directed at rural women, and only 10 percent of women have access to farm credit. This deplorable level of access of women to production resources is associated with a whole set of interwoven economic, psychological, and socio-cultural factors. This scenario resulted in the advocacy for woman empowerment as a key to sustainable development through maximising of output from the feminine gender. Women empowerment is defined as the process of transforming gender power relations, using a bottom-up approach, through individuals or groups creating awareness of women's subordination and building their capacity to challenge it (Baden& Oxaal, 1997; Baden & Reeves, 2000; Dejene, 2003; Ogato, 2013).Overcoming gender-based limitations to ensuring food security requires more attention to how both men and women in the same households interrelate in agricultural activities. Asset ownership and decision-making within households should involve elements of both individuals and joint control (Johnson et al., 2016). Closing the gender gap in asset will allow women to own and control productive assets; increase their productivity and self-esteem. Food and Agricultural Organization, FAO (2011) opined that an empowered woman who has freedom to make decisions on what to plant and what inputs to use farm would be more productive in agriculture. An empowered woman will also be better able to ensure her children's health and nutrition, in no small part because she can take care of her physical, and mental well-being (Smith et al. 2003).

The paucity of gender-disaggregated data has resulted in a lack of empirical data on the role of women in food production as well as their contribution to food security. Scientific information on the impact of women empowerment on food security will be of importance in policy-making decisions on both indices. Finally, knowledge of the constraints to women empowerment as perceived among rural households will be of immense use in designing programs/ projects aimed at enhancing the productivity of women. It is against this backdrop that the study aimed to achieve the following objectives;

Assess the level of food security of the households in the study area;

Investigate the level of empowerment among women in the households;

Evaluate the relationship between the levels of empowerment of the women and food security;

Identify the constraints to women empowerment in the study area.

2. Materials and methods
Study Area

The study area was Kwara State, Nigeria. Located within the North Central zone of the country, Kwara State lies between latitudes 7o45'N and 9o30'N and longitudes 2o30'E and 6o25'E. The state shares boundaries with Osun, Ondo and Oyo to the south, Kebbi and Niger to the north, Kogi to the east and the Republic of Benin on the west side. The average daily temperature ranges between 21oC to 33oC,and the state has two distinct seasons (the wet and dry seasons). Annual rainfall ranges between 1,000 and1, 500 mm. Agricultural production activities in the state is largely rain-fed with long idle periods for farmers in the offseason. Kwara state has a land area of 32,500 square kilometres, a population of about 2.59 million people and a population density of 42.5/ square kilometre. The state has an estimated figure of 203,833 farm families, the majority of which live in the rural areas (Kwara State Agricultural Development Project, 1996). The state is primarily agrarian with a vast expanse of arable land and rich fertile soils. The major crops cultivated include yam, cassava, rice, maize, sorghum, cowpeas, groundnut, melon, okra, pepper and some leafy vegetables.

A three-stage random sampling technique was used to select the respondents for the study. The first stage involved the random selection of two out of the four agro-ecological zones in the state. The first stage was followed by the random selection of 10 rural communities from the two zones. Finally, a total of 150 rural households were randomly selected from the ten communities. Proportionate distribution was ensured for the second and third stages of the selection process. Primary data used for the study was collected through the use of an interview schedule. In all, a total of 133 of the interview schedules were found useful for analysis.

Descriptive statistics (involving the use of frequency counts, percentages, and means), Likert Scale, Women Empowerment Index, Food Security Index and Correlation Analysis were the statistical tools used to analyse the data collected from the survey.

Food Security Index

The Food Security Index was computed as a measure of the food security status among households. The index was based on calorie consumption per equivalent male adult (Webb et al., 2006). The Food and Agriculture Organization (FAO) recommended daily calorie intake of 2,850 Kcal after the converting all household members' calorie intake into adult equivalent was adopted. The formula is stated thus:

$$ADEQ = (A + 0.5 C) 0.9$$

where:

ADEQ = adult equivalent units;

A = number of adults ($\geq$ 15 years)

C = number of children in a household (< 15 years).

The construction of the food security index involved two steps: identification and aggregation. Identification is the process of stating a minimum level of nutrition requiredfor healthy living.The level is known as the "Food Security Line."A household that fell below this was classified as 'food-insecure' and above it as 'food-secure.' According to FAO (2005), the safe minimum daily intake is one that does not fall below 80% of the 2,850 Kcal/day calorie requirement.

Aggregation involves deriving the food security statistics for households. The daily household calorie intake is obtained from the questionnaire and used to estimate the quantity of food consumed by the household over a 7-day period. The calorie content was estimated using a nutrient composition table of commonly eaten foods in Nigeria. Per capita calorie intake was computed by dividing the estimated total household calorie intake by the family size (adjusted for adult calorie intake equivalent). The daily per capita calorie intake of is then estimated by dividing total household per capita calorie intake by seven (7). Households with per capita calorie intake of 2,470 kcal/day and above were regarded as food-secure, while those with lesser amount were food- insecure.

As applied by Fakiyesi, (2001) the food security (Z) index is given as;

$$Z = \frac{Y_n}{R}$$

Where:

Yn is the nth household's daily per capita calorie intake; and

R is the recommended per capita daily calorie intake.

Thus, Zn=1 for Yn>1 (i.e. food secure households) and

Zn= 0 for Yn< 1(i.e. food insecure households).

$$H = \frac{M}{N}$$

Where:

H is the headcount ratio;

M is the number of food-insecure households; and

N is the total sample.

The addition of the nutrient content of produced and purchased food itemswas used to derive calorie availability. A daily recommended level of 2470kcal per capita and 65g protein per day as proposed by Omotesho et al., (2007) defined the food security line used in this study.

Women Empowerment Index

Women Empowerment Index was computed to investigate the level of empowerment among women in the study area. Based on the available literature on what constitutes empowerment to women in the study area, indicators which correctly depict the level of empowerment were carefully it emised. These indicators were categorised into socio-cultural, economic and psychological indices. The indicators were allotted values of 1 each. Suitable constructs which when aggregated accurately depict each indicator were identified and used to score each respondent. The indicators and constructs are as summarised below;

Economic Indicators- The extent to which women had control over the household income, Access to production resources, Level of involvement in decision-making on production resources, access to cash and other assets

Socio-cultural Indicators-Level of freedom of movement, extent of discrimination against the girl child, level of commitment to education of girl children, level of involvement in family decision-making on childbearing, involvement in decision-making on sexual related issues, level of control over marriage timing, level of control over choice of spouse, and freedom from domestic violence.

Psychological Indicators-The respondents' level of self-esteem, self-efficacy, psychological well-being, sense of inclusion and sense of entitlement.

The overall index was derived from the average of the value obtained for the three indicators.

The ratings of individual respondents on each of the constructs were aggregated, and mean scores were generated for each respondent and also for each indicator. Equal weights were attached to each indicator and the constructs within each domain following Alkire and Foster (2007).

The resultant index ranged between zero and one with higher values indicating greater levels of empowerment. For ease of reference, the indexes were categorised as follows;

0.00-0.30-Low level of empowerment

0.031-0.50-Medium level of empowerment

0,051-1.00-High level of empowerment

Correlation Analysis was used in determining the effect of women empowerment on food security.

$$r = \frac{n(\sum XY) - \sum X \sum Y}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y))^2]}}$$

Where;

r = Correlation Coefficient

X = Women Empowerment Index

Y = Food Security Status

N = Number of respondents

A five-point Likert-type scale was developed to investigate the level of severity of the constraints to women empowerment. Each respondent was required to rate, on a scale of 1 to 5, the level of severity of various constraints generated from literature and focus group discussion held in the study area. Mean scores were computed for each constraint based on the aggregate of the scores allocated by the respondent. The mean scores were adopted as measures of the levels of severity of the constraints, and these scores were used to rank the constraints in order of severity.

3. Results and discussion

3.1 Socio-economic Characteristics of Rural Households in Kwara State

This sub-section highlights selected socio-economic features of the respondents. The findings are summarised in Table 1.

As shown in Table 1, majority (86.5%) of the households in the study area were male headed and also, majority of the respondents were married (93.2%). This corroborates with the findings of Akinrinde et al., (2018). The most shared and primary occupation among the household heads was farming, and they had an average of 29 years of farming experience. The same was also reported by Omotesho et al., (2010). Most of the respondents had a primary level education. With a mean age of 52 years, the household heads mostly belonged to the 50-59-year-old category. The mean household size was six persons.

The level of access of women to credit as shown in Table 1 was considerably low (9%) compared to the household heads (67.7%) who have been revealed in the table to be mostly males (Sanusi, 2012). Also, the tableshows that while only 24.8 percent of the women-owned assets, 82.7 percent of household heads indicated their ownership of assets. Table 1 also reveals a larger percentage of household heads membership of groups compared to the women.

3.2 Food Security Status of Rural Households in Kwara State, Nigeria

Table 2 reveals that about 52% of the rural households under study were food- secure while 48% of the respondents were food- insecure. This disagrees with the report of Omotesho et al., (2010) that 48% of rural households in Kwara State were food-secure. Although rural households in Kwara State and indeed in Nigeria are primarily agrarian and are responsible for the bulk of agricultural production, they are also the poorest and worst regarding access to healthcare. The majority of these families are resource-poor and therefore cultivate small, often fragmented pieces of farmland using crude methods. The almost non-existent farmer - market linkages also compound farmers' problems as the farm gate prices are poor. The result, therefore, is the heavy dependence on own production for food supply which many times are inadequate and do not offer variety. Babatunde et al., (2007) reported that only 36% of rural farming households in Kwara State were food-secure, and Omotesho et al., (2014) submitted that 51.1 % of the rural households in the state were food-secure. A comparison of these findings reveals a positive trend and about 44% increase in the level of food security in the state over an eight-year period. The reported food security status falls within the range of 44% to 55% reported in most parts of Nigeria (Manza et al., 2006). The multidimensional approach of the Federal Government of Nigeria in reducing the duo of poverty and food insecurity and some international agricultural development interventions no doubt contributed significantly to the observed improvement in food security. Some of these interventions are the Fadama Development Project, the Agricultural Transformation Agenda (ATA), and the West African Agricultural Productivity Programme (WAAPP). The average daily energy and protein available to the food-secure households were 20,702.77 Kcal and 418.59g respectively while the daily per capita energy for food-secure and food-insecure households were 3, 683.77kcal and 2, 008.35kcal respectively. It is also seen that based on the recommended daily calorie intake of 2, 470kcal, the food-secured household had 1, 213.77kcal more than the recommended intake while for the food-insecure households, their average daily household per capita calorie consumption was 461.65kcal short of the recommended value. Also, while the food-secure households consumed 15% more than the daily protein requirement (65g), the food-insecure household had about 40% less than required. A similar submission was made by Ojeleye et al., (2014).

3.3 Level of Women Empowerment

Table 3 presents the distribution of women based on their levels of empowerment. The table shows that women in the study area did not fare well in any of the three indices applied as measures of their level of empowerment. The highest score was recorded for economic indices in which a little above half of the women had indexes greater than 0.4. Similarly,poor levels of economic empowerment levels were reported among women in other African countries (Elsheikh and Elamin, 2016). About 48 percent of the women had not more than 0.4 using constructs that measure socio-cultural indices. However, the poorest scores were recorded under the psychological factors with only about 10 percent of the respondents recording indexes of more than 0.06. This analysis reveals a higher deficiency in the area of psychological measures of empowerment among women. Reports on the systematic discrimination against women in areas such as education, healthcare, employment and control of asset which is a common feature in Africa (World Bank, 2012) is a possible explanation for the very low level of self-esteem, the self-efficacy and poor state of psychological well-being in the study area. When all the indices are aggregated, only about 5 percent of the women had indexes of above 0.60. Similar poor levels of empowerment were recorded in Bangladesh by Shahnaj & Ingrid-Ute, (2004)

3.4 Relationship between Women Empowerment and Household Food Security

This section presents the result of analyses on the relationship between women empowerment and household food security using correlation analysis. The finding is presented in Table4. Table 4 shows a positive correlation (r = 0.245) between women empowerment level and food security status of the rural households in the study area. The result reveals a relationship (p = 0.004) between women empowerment level and food security status of the ruralhouseholds at 1% level of significance. This implies that increase in the level of women empowerment will increase food security status. An improvement in the economic indicators of women empowerment such as increased access to factors of agricultural production, therefore, is expected to result in improved food security by increasing the size of their output. Also, Elsheikh and Elamin, (2016) linked high poverty levels to alack of control over personal income which is an element in the economic indicator of empowerment.

Similarly, socio-cultural factors such as pressure occasioned by the frequent and high number of child births have been reported to hurt the productivity of women. Therefore, if the socio-

cultural indices of empowerment are improved upon, the contribution of women to food security will also be positively affected. The result reveals that women empowerment level contributes positively to rural household food security in the state.

3.5 Constraints to Women Empowerment

This section presents findings on the perception of the respondents on the challenges to women empowerment in the study area. Table 5 shows the summary of the constraints.

Table 5 shows poverty as the most severe constraint to socio-cultural indices in the study area. The spillover effect of the level of severity of this constraint can be seen in education. Early marriage with a mean score of 4.58 was also perceived to be a very severe constraint to women empowerment. Cultural limitations (3.86), subordinate status of women(3.8) and illiteracy (3.78) were the constraints ranked most severe among the psychological indicators of women empowerment. The table also reveals that poor access to production resources mainly credit facilities was the most severe constraint to the attainment of high levels of the economic indicators of women empowerment in the Kwara State. This constraint is further worsened by the inadequacy of collaterals as supported by the poor levels of ownership of assets earlier discussed. The low ranking of misconceptions of poor knowledge or ideas about productive activities, however, reveal the high level of awareness of the knowledge level and potentials of women in the study area. These identified constraints agree with the findings of Ejumudo (2013) who also identified cultural, political, education and inferiority complex as constraints to achieving woman empowerment.

Table 1. Socio-economic Characteristics of Rural Households (n=133)

Socio-economic Characteristics	Minimum	Maximum	Modal Group (%)	Mean
Gender of Household Head	-	-	Male(86.5)	-
Age of Household Head (Years)	32	71	50-59 (32.3)	52
Marital Status of Household Head	-	-	Married (93.2)	-
Educational Level of Household Head	-	-	Primary (44.4)	-
Household Size	3	16	6-10 (55.6)	6
Primary Occupation of Household Head	-	-	Farming (48.9)	-
Farming Experience of Household Head (Years)	9	56	11-20 (31.6)	29
Household Head's Access to Credit	-	-	No Access (67.7)	-
Women's Access to Credit	-	-	No Access (91.0)	-
Asset Ownership by Household Head	-	-	Yes (82.7)	-
Asset Ownership by Women	-	-	No (75.2)	-
Household Head's Membership of Groups	-	-	Yes (77.4)	-
Women's Membership of Groups	-	-	Yes (53.4)	-

Table 2. Food Security Status of Rural Households in Kwara State

	Food Secure	Food Insecure
Household Percentage	51.90	48.10
Mean Adjusted Household Size	5.62	6.30
Household daily energy availability (Kcal)	20,702.77	12, 652.59
Household daily per capita energy	3, 683.77	2, 008.35
Household daily protein availability (g)	418.59	248.34
Household daily per capita protein availability (g)	74.48	39.42
Head Count Ratio	0.519	0.481

Table 3. Distribution According to Women Empowerment Measures and Level (n=133)

Measures	Frequency	Percentage (%)
a. Socio-cultural		
≤0.40	64	48.1
0.41-0.60	32	24.1
>0.60	37	27.8
b. Economic		40.6
≤0.40	54	23.3
0.41-0.60	31	36.1
>0.60	48	
c. Psychological	108	81.2
≤0.40	11	8.3
0.41-0.60	14	10.5
>0.60		
d. Overall empowerment index	78	58.6
≤0.40	48	36.1
0.41-0.60	07	5.3
>0.60		

Table 4. Correlation between Level of Women Empowerment and Food Security

		Women empowerment	Food security
Women empowerment level	Pearson correlation	1	0.245***
	Sig (2-tailed)		0.004
	N	133	133
Food security status	Pearson correlation	0.245***	1
	Sig (2-tailed)	0.004	
	N	133	133

Table 5. Constraints to Women Empowerment

Socio cultural Indicators			Psychological Indicators			Economic Indicators		
Constraint	MS	R	Constraint	MS	R	Constraint	MS	R
Poverty	4.85	1st	Traditional/cultural limitation	3.86	1st	Age	3.14	8th
Early marriage	4.58	3rd	Illiteracy	3.78	3rd	Illiteracy	3.64	6th
Distance to school	2.69	10th	Childcare responsibilities	2.68	6th	Lack of access to credit	4.50	2nd
Lack of knowledge of the benefits of education	3.38	4th	Subordinate status of women	3.80	2nd	Poor access to farm resources	2.80	9th
Personal security	2.75	8th	Household chores	3.61	4th	Traditional/cultural limitations	3.68	5th
Limited roles for girls and women	3.02	6th	Low technical know-how	2.99	5th	Misconceptions of not having farming ideas	2.30	11th
Poor opportunities for educated women	3.21	5th	Misconceptions of not being knowledgeable	1.83	7th	Unequal opportunities for both gender	4.32	3rd
Female seclusion	2.77	7th				Multiple domestic responsibilities to men	2.68	10th
Sexual abuse /harassment	2.74	9th				Lack of spouse support	4.07	4th
Domestic violence	2.65	11th				Lack of family support	3.56	7th
Expensive books/school cost/budget	4.63	2nd				Lack of collaterals to secure loans	4.69	1st

*Mean Score (MS), Ranking (r)

4. Conclusion and recommendations

This study examined the relationship between women empowerment and food security among rural households in Kwara State, Nigeria as well as to identify the constraints to the empowerment of women in the study area. The study concluded that about half (51.9%) of the rural households in the study area were food- secure. Also, only 5.3 percent of the women had empowerment indexes of above 0.6 on a scale of 0 to 1. The level of food security, therefore, is not only poor; the level of empowerment among women in the study area is also abysmally low. The lowest scores were recorded for the psychological indicators of empowerment. At 1% level of significance, the level of women empowerment was positively related to food security among rural households showing that food security will increase with an increase in women empowerment in Kwara State. Poverty, cultural limitations and poor access to credit were the most prominent constraints to women empowerment in the study area.

Based on the results of the study, there is a need for a concerted multidimensional approach to women empowerment in the state. The following recommendations are therefore put forward;

Existing policies as regards the allocation of agricultural production resources such as land and farm credit should be reviewed by the three tiers of Government in Nigeria with a particular focus on eliminating the existing gender gap

Agricultural extension officers should organize sensitization workshops/training to create awareness and educate women on the need to optimize their potentials and ways of overcoming their gender-related deficiencies.

Extension agents should develop and implement programs aimed at establishing and strengthening women economic interest groups in rural communities to enable the women leverage of social networks to enjoy economies of scale in purchasing input as well negotiating produce prices.

Finally, subtle campaigns should be launched for the review and revision of existing socio-cultural beliefs and practices which currently limit the potentials of women in rural communities across the state.

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