

Household Resources Women Used to Improve Food Security and Nutrition in Bauchi

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Abstract

Women play an important role in ensuring household food security and nutrition. The purpose of the study was to evaluate the resources women used to ensure food sufficiency and nutrition, to determine the constraints women encounter in providing adequate food for their household and to investigate how resources could be used efficiently to enhance household food security and nutrition in Bauchi state, Nigeria. Focus group was used and also a cross-sectional, purposive random sample where the participating communities were randomly selected from the sample area with 98 respondents who filled and returned questionnaire out of 120. Result of the study shows that household Food had a positive and significant effect on food security ($r=0.319$, $p=0.000$) it further revealed that preventing food wastage had a positive and significant effect on Food Security ($r=0.399$, $p=0.000$), while food sufficiency had a positive and significant effect on Food Security ($r=-0.105$, $p=0.499$). The study recommends that Women and other underprivileged groups should have access to income, credits and financial advisory services to government for policy and practice and also to the academia for further study.

Keywords: *Resources, Women, Household, Food security and Nutrition*

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Background to the Study

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 (UN, 2015; FAO, IFAD, & WFP, 2015). Inconsistent food security results in inadequate dietary intake, which leads to malnutrition. Malnutrition is the most serious consequence of food insecurity (Akinyele, 2009).

Food security is well-defined as right to use at all times to adequate food for a dynamic, healthy life. This comprises of consuming foods accessible that are nutritionally acceptable, safe, okay, and obtained without resorting to crisis food supplies, hunting, theft, or similar surviving plans. Food security occurs at the time that people at all periods have right of entry to harmless nutritious food to keep a healthy and active life (FAO, IFAD, & WFP, 2015). There are four key fundamentals in gaining access to food security, which are: availability, accessibility, utilization, and sustainability. While availability implies the physical manifestation of a large quantity of food, accessibility suggests that there is the ability to get the required quantity; utilization means adequacy in both quantity and quality of food; and sustainability entails entree at all times and not behind such entree (Oni & Fashogbon, 2014).

The prevalence of undernourishment in Sub-Saharan Africa declined from 33 percent to 23 percent between 1990-92 and 2014-16. However, the total number of undernourished people continues to increase with an estimated 220 million in 2014-16 compared to 175.7 million in 1990-92 (UN, 2015). In various regions, comprising western Africa, south-eastern Asia and South America, undernourishment declined faster than the rate for child underweight, suggesting room for improving the quality of diets, hygiene circumstances and access to clean water, mostly for poorer residents (FAO, IFAD, & WFP, 2015). Nutrition in Nigeria offers a multifaceted predicament; we have the trial of dietary insufficiencies not only as a result of deficient food; but also as a result of poor food choices among those who can have enough money to buy them (Nwosu, Isaac, & Stella, 2015).

Statement of the Problem

In Nigeria, womenfolk and female-headed homes are recurrently the most persistently poor within rural societies. Though women play significant roles in rural economic activities, women have lower social status than men and consequently less access to schooling and training, particularly in nutrition. While the number of men migrating from rural areas in search of employment has increased over the last decades, the number of female-headed households has risen substantially. Women struggle to cope as the burden of work at home and in the fields, fall on their shoulders. Malnutrition is a frequent problem in these households. In view of the above mentioned hence the need for this research paper.

Objective of the Study

The major objectives of this study are to:

- (i) Evaluate the household resources women used to ensure food security and nutrition.
- (ii) Determine the relationship between what women do to prevent food wastage and food security and nutrition

- (iii) Investigate how household resources could be used efficiently to enhance household food security and nutrition

Research Hypothesis

- Ho₁. There is no significant relationship between the household resources women used and food security and nutrition
- Ho₂. There is no significant relationship between what women do to prevent food wastage and food security and nutrition
- Ho₃. There is no significant difference between how household resources are used and household food security and nutrition.

Women's Role in Food and Nutritional Security

Interventions are most likely to affect nutrition outcomes when they involve diverse and complementary processes and strategies that redirect the focus beyond agriculture for food production and toward broader consideration of livelihoods, women's empowerment, and optimal intra household uses of resources. Successful projects are those that invest broadly in improving human capital, sustain and increase the livelihood assets of the poor, and focus on gender equality (Waiswa, 2008).

Robinson, (2013) declare that women are crucial in the translation of the products of a vibrant agriculture sector into food and nutritional security for their households. They are often the farmers who cultivate food crops and produce commercial crops alongside the men in their households as a source of income. When women have an income, substantial evidence indicates that the income is more likely to be spent on food and children's needs. Women are generally responsible for food selection and preparation and for the care and feeding of children. Women are the key to food security for their household.

In rural areas the availability and use of time by women is also a key factor in the availability of water for good hygiene, firewood collection, and frequent feeding of small children. In sub-Saharan Africa transportation of supplies for domestic use—fetching fire wood and water—is largely done by women and girls on foot. In Nigeria women expend most of their energy on load-carrying activities involving transport of fire wood, water, and grain for grinding. Fields dedicated to food crops are often farther from home than those related to cash crops. Because women must also perform domestic tasks, they must spend a considerable amount of time traveling between their home and the fields. This burden, together with other domestic and reproductive activities, severely constrains the amount of time available to women. Recognizing women's needs for environmental resources, not only for crop production but also for fuel and water, and building these into good environmental management can release more time for house wives to use on income generation, child care, and vacation (Robinson, 2013).

Food Access

Access to food can be constrained physically—washed-out roads in a rainy season may cut off access to the nearby market town—or, more usually, economically. Ironically, food insecurity

has a largely rural face. Despite the fact that the majority of food is grown in rural areas, most of the rural poor are net food buyers, not sellers, in many countries. Hence, economic access to markets or lack thereof, is a fundamental determinant of food insecurity. The role of agriculture in income generation for the poor, particularly women, is more important for food security than its role in food production (Sanchez, Swaminathan, Dobie, & Yuksel, 2005).

During times of crisis, women and girls are often forced to reduce their intake in favor of other household members, particularly men and boys, which results in increased incidence of malnutrition among women. However, men are at greater risk during famines, and in many recorded famines, mortality rates are higher among men than women. Insecure conditions can also limit women's mobility and access to humanitarian aid or markets

Food Utilization

Having access to food of sufficient quality does not automatically translate into good nutritional status for individuals. Women's role in food utilization for food security is perhaps the most critical and outweighs the importance of their role in food production and how they spend the income they earn. Sixty percent of the calories and proteins consumed by humans today come from just three plant species: maize, rice, and wheat. Seventy-five percent of our food supply comes from just 12 plants and five animal species (Lambrou & Laub, 2004), but yet dietary diversity is extremely important. Diets dominated by cereals lack an adequate array of micronutrients such as iron, vitamin A, B vitamins (niacin, thiamine), vitamin C, zinc, iodine, and foliate. Deficiencies in micronutrients are costly in economic terms and in terms of people's well-being. Deficiencies in vitamin A, iron, and zinc all rank within the top 10 leading causes of death through disease in developing countries (WHO, 2002)

Food Stability

Stability of food supplies means that households should not risk losing access to food as a consequence of sudden shocks (climatic crisis) or cyclical events (e.g., seasonal food insecurity). Food stability at the household level is thus critical to food security. When the food supply is irregular because of drought, flooding, fluctuation of prices, or seasonal unemployment, poor people are the most vulnerable. According to Akinyele, (2009), the stability of provision is dependent on the capacity of storage and savings at the household level. The stability of the market depends on the balance between supply and demand, the role of the state as the regulating instrument of intervention, and the government's capacity to react in an emergency (Sanchez, et al, 2005).

The Human and Materials Resources Women Used to Ensure Food Sufficiency

Rural women combine a range of assets to achieve their livelihood outcomes. Resources critical to rural women not only for securing food and a livelihood for their household but also for the conservation and sustainable use and management of natural resources include the following:

- i. Natural resource: land, water, forests, biodiversity
- ii. Financial resource: credit, capital, and income
- iii. Physical resource: technology, in particular labor-saving technologies
- iv. Information resource: local knowledge, formal education, access to information.

A rural household with a large range of resource at its disposal will better cope with shocks and stresses, such as droughts (Robinson, 2013). Poor rural women have very limited access to resource. Socially constructed gender roles and relations also influence women's access to resource and the benefits obtained from these resource. Women face a variety of gender-based constraints as house wives and managers of natural resources. In many societies discriminatory customary and social practices curtail women's rights to land; women generally receive the most marginal lands (Adepoju & Olawuyi, 2012).

Insecure land tenure reduces rural women's incentives to improve natural resources management practices and conservation. Without secure land rights, women have little or no access to credit, which is essential for making investments in improved natural resources management and conservation practices. Consequently the technological advances yielding substantial gains in household productivity over the last few decades have often bypassed women and reduced their productivity (Hanson, 2013).

Natural resources provide a range of goods and services food, fuel, medicines, fresh water, fisheries, and air and water regulation that support life on Earth. The rural poor in developing countries remain the most directly dependent on natural resources for their food and livelihood security. Subsistence farmers, fishers, hunters and gatherers, and agricultural wage workers (more than 1.3 billion people) depend on the availability of usable land, water, and plant and animal species for their livelihoods (UN, 2015). Thus, the agricultural livelihoods of poor rural women and men depend on the condition of natural resources, particularly livelihoods of people living on fragile lands (WorldBank, 2007).

Constraints Women Encounter in Providing Adequate Food for their Household

To overcome the obstacles, it is important to realize, as FAO concludes, what characterizes the situation for women in providing adequate food for their household when compared to their male counterparts (WorldBank, 2007). Thus, women:

1. Operate smaller farms, keep fewer livestock, typically of smaller breeds, and earn less from the livestock they own
2. Have a greater overall workload that includes low productivity activities like fetching water and firewood
3. Have less access to innovation and productive assets and services
4. Are much less likely to purchase inputs such as fertilizers, seeds and mechanical equipment
5. Have weaker property rights and tenure security and reduced incentives to invest in their land
6. Are poorly represented in the leadership of rural organizations, particularly at the regional and national levels
7. If employed, are more likely to be in part-time, seasonal and low-paying jobs
8. Receive lower wages for the same work, even when they have the same experience and qualifications (WEF, 2013)
9. Insufficient and insecure access to productive resources for livelihood in particular land, along with landlessness and evictions;

10. Discriminatory access to traditional resources such as forests, river and farmland areas (Nepal, 2011).
11. Women produce less not because of incompetence or incapability but they lack equal access to resources

How Resources could be used Efficiently to Enhance Household Food Security

Some types of actions may be preferable above others in terms of their environmental impact. FAO developed a four-step approach towards addressing food waste, whereby each step is preferable above the following:

Reducing food waste: If food wastage is reduced, less land, water, inputs and energy are needed, and less greenhouse gas emitted. These natural resources could be used to increase food production, or affect the food system in other ways (Tielens & Candel, 2014).

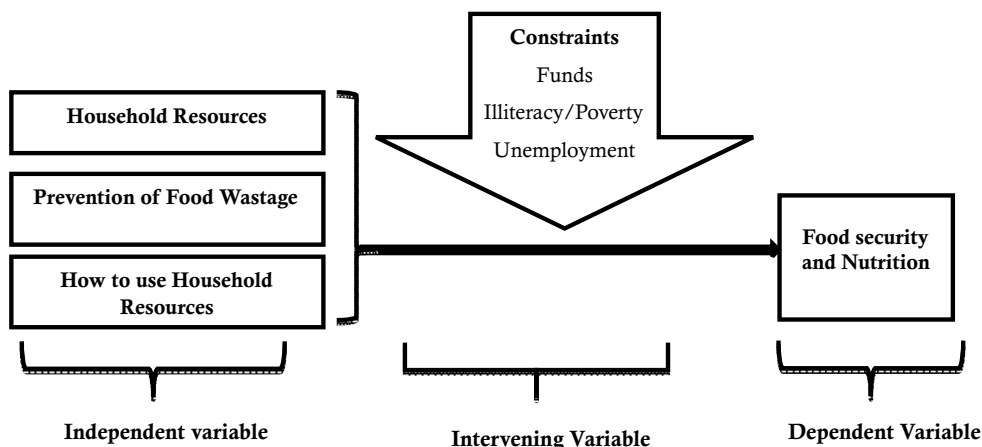
Reuse waste, preferably by redistributing food to people in need, but alternatively by using it as feed for animals. A reservation here is that the sustainability of the manufacturing of feed from food depends on whether any by products are properly used (Fan, 2015).

Recycling/ Recovering Food Waste

Anaerobic digestion and the use of waste streams for ethanol production are the most preferred options throughout the literature in this respect, followed by anaerobic composting. Regarding the latter, home composting may be a preferable option over centralized composting due to the environmental costs of the logistics needed for the latter (Tielens & Candel, 2014). A consideration for all forms of recycling or recovering food waste is that new challenges are also created, such as the set-up of a waste separation system.

Conceptual Frame work

Figure 1: Conceptual Frame work of Resource used by Women



Source: Researcher, (2016)

Materials and Methods

Data were collected from a cross-sectional, purposive random sample. Participating communities were randomly selected from Bauchi local Governments area of the state. Within each community, women were randomly selected from the local government. The sampling frame consisted of all the households in the area, arranged by wards. First, purposive random sampling was used to select households from the community. After establishing the starting point in each ward, the desired sample size was selected by choosing households at a predetermined interval. Furthermore, a household member above 18 years (except in child headed households where the eldest child was purposively selected as the respondent) was randomly selected as the respondent.

The household food security questionnaire consisted of 98 respondents concerning the experiences of food insecurity. Each item was followed by a frequency of occurrence question, which assessed how often a given condition occurred. The response to the variables was scored as “5”, for “Strongly Agree”, “4” for “Agree”, “3” for “Neutral”, while “2” for “Disagree” and “1” for “Strongly disagree. The data was analyzed using correlation and regression to test the hypothesis where the relationship between the dependent and independent variables were tested.

Results and Discussion

Table 1: Correlation Analyses

		1.	2.	3.	4.
Food Security and Nutrition	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	98			
How you use the Household Food	Pearson Correlation	.334**	1		
	Sig. (2-tailed)	.001			
	N	98	98		
what you do to prevent food wastage	Pearson Correlation	.396**	.018	1	
	Sig. (2-tailed)	.000	.860		
	N	98	98	98	
The resources women used to ensure food sufficiency	Pearson Correlation	.102	.094	.327**	1
	Sig. (2-tailed)	.318	.357	.001	
	N	98	98	98	98

** . Correlation is significant at the 0.01 level (2-tailed)

Table 1 correlation analysis indicated that how to use household food and food security and nutrition were positively and significantly associated ($r=0.334$, $p=0.001$). Through women, households receive money and food from rural areas as well as from their own rural production (Tawodzera, 2013).

The results also indicated that how to prevent food wastage and food security were positively and significantly associated ($r=0.396$, $p=0.000$) This study concurred with Tielens & Candel, (2014) who asserted that when food wastage is reduced, less land, water, inputs and energy are needed, and natural resources could be used to increase food production.

Further, the results indicated that how to ensure food sufficiency and food security and nutrition were not positively and significantly associated ($r=0.102$, $p=0.318$). When the food resource is unbalanced because of famine, flooding, instability of prices, or recurrent idleness, poor people are then more in danger. According to Akinyele, (2009), the constancy of provision of food is dependent on the capacity of storage and savings at the household level. According to Sanchez, et al, (2005) the stability of the market depends on the balance between supply and demand, the role of the state as the regulating instrument of intervention, and the government's capacity to react in an emergency.

Table 2: Model of fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.517 ^a	.268	.244	.79698

a. Predictors: (Constant), The resources women used to ensure food sufficiency, what you do to prevent food wastage, and how you use the household food.

The results presented in table 2 above present the fitness of model used of the regression model in explaining the study phenomena. The resources women used to ensure food sufficiency, how you use the household food, what you do to prevent food wastage were found to be satisfactory variables in food security. This is supported by coefficient of determination also known as the R square of 26.8%. This means that the resources women used to ensure food sufficiency, how you use the household food, what you do to prevent food wastage explain 26.8% of the variations in the dependent variable which is Food security and nutrition. This results further means that the model applied to link the relationship of the variables was satisfactory.

Table 3: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.805	3	7.268	11.443	.000 ^b
	Residual	59.707	94	.635		
	Total	81.513	97			

a. Dependent Variable: Food Security

b. Predictors: (Constant), The resources women used to ensure food sufficiency, How you use the household food, What you do to prevent food wastage

Table 3 offers the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant. Further, the results imply that the independent variables are good predictors of Food Security. This was supported by an F statistic of 11.443 and the reported p value (0.000) which was less than the conventional probability of 0.05 is significance level.

Table 4: Regression Coefficient ^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.05	.467		2.25	.027
	How you use the Household Food	.319	.085	.332	3.75	.000
	what you do to prevent food wastage	.399	.091	.411	4.40	.000
	The resources women used to ensure food sufficiency	-.105	.155	-.064	-.679	.499

Thus, the optimal model for the study is;

$$\text{Food Security} = 1.048 + .319 X_1 + .399 X_2 + -.105 X_3.$$

Where;

X_1 = how you use the household food

X_2 = what you do to prevent food wastage

X_3 = the resources women used to ensure food sufficiency

Regression of coefficients results in table 4 shows that how you use the household Food had a positive and significant effect on Food Security ($r=0.319$, $p=0.000$). Results from the regression analysis further indicated that Preventing food wastage had a positive and significant effect on Food Security ($r=0.399$, $p=0.000$), Food sufficiency had a positive and significant effect on Food Security ($r=-0.105$, $p=0.499$).

Hypotheses Testing

The hypotheses were tested by using the ordinary least square regression model indicated above. The acceptance/rejection criteria was that, if the p value is greater than 0.05, the H_0 is not rejected but if it's less than 0.05, the H_0 fails to be accepted.

The null hypothesis was:

Ho1: There is no significant relationship between the household resources women used and food security and nutrition. The alternative hypothesis was; there is significant relationship between the resources women used and food sufficiency. The p-value of 0.000 indicated that the null hypothesis was rejected hence there is significant relationship between the household resources women used and food security and nutrition.

Ho2: There is no significant relationship between what women do to prevent food wastage and food security and nutrition. The alternative hypothesis was; there is significant relationship between what women do to prevent food wastage and food security and nutrition. The p-value of 0.000 indicated that the null hypothesis was rejected hence there is significant relationship between what women do to prevent food wastage and food security and nutrition.

Ho3: There is no significant difference between how household resources are used and household food security and nutrition. The alternative hypothesis was; there is significant difference between how household resources are used and household food security and nutrition. The p-value of 0.499 indicated that the null hypothesis was accepted hence there is no significant difference between how household resources are used and household food security and nutrition

Focus Group Discussion

When confronted with inadequate money to buy food, most women testified that they stretch their food monies. Some look for food stuff markets where the prices of food stuffs are lower, while others adjust their purchasing behaviors.

I always buy the most inexpensive foods [when we are running out of money]. Some women reported that they used local church food pantries.

This assertion also agrees with Nwosu, Isaac, & Bosa, (2015) that community-based organizations also have a role to play in contributing to household food security and nutrition. They can support communal farming and help set up “Food Banks” where good spirited individuals communities can donate food items to support the less privileged.

Women who had not experienced food insecurity did not know names of markets and food stores from which they could buy cheap food stuff, maybe because such information is not noticeable to them since their husbands do the buying.

Our food ran out, and we didn't have anything to buy food for the period. Since my husband was not working, we managed on help from others. And when we needed more, we went to relations for begging to feed the family with the children, some gave us food while some money.

Conclusion

The study noticed that most of the households had enough food to last them the next harvest. The major sources of foods were farm produce, salaries, barter trade and borrowing from friends and relatives. Though this was unwavering and posed no risk on food availability.

If sustainable hospitality development is to be translated into food and nutrition security, then the active engagement of women is absolutely necessary. Their involvement will require that development agents go beyond traditional approaches to sustainable agricultural development.

The participation of women in decision-making bodies contributes to sustainable development. Local committees are ideally composed of men and women of different status and position within households, when culturally feasible. House-hold and family tasks of women should be considered when scheduling meetings

Hypothesis

- i. There is significant relationship between the household resources women used and food security and nutrition
- ii. There is significant relationship between what women do to prevent food wastage and food security and nutrition
- iii. There is no significant difference between how household resources are used and household food security and nutrition

Recommendations for Policy and Practice:

- i. Women should be taught finance management, which can lead to improvement of household in food security and nutritional status.
- ii. Harvesting of foods before they are ready and consuming or wasteful practice of food should be discouraged as this leads to a vicious circle of food insecurity.
- iii. Women and other underprivileged groups should have access to income, credits and financial advisory services.
- iv. Male gender awareness is required to slowly change gender roles and decrease women's workloads by sharing of domestic duties.
- v. Providing women with better cultivation techniques and agricultural inputs is not enough. Additional focus on marketing support, training in nutrition, and mobilization of women in producer groups for better input supply, marketing, saving and investment have all proven to sustainably increase food and nutrition security of house-holds, even in times of household conflict.

Recommendations for Further Study;

- (i) Similar study can be replicated in other states of the federation to assess the use of household resources in food security and nutrition.
- (ii) A study can be conducted on the quantitative analysis of the household resources used by house wives in fighting food insecurity.

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