



ACTIVITIES OF RURAL WOMEN IN COLLECTION OF NON-TIMBER FOREST PRODUCTS (NTFPs) IN ALLEVIATING HOUSEHOLD FOOD INSECURITY IN KADUNA STATE

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Abstract

Rural women's economic empowerment is fundamental to enhancing and strengthening their food security status. Non-timber forest products (NTFPs) make significant contributions to food security of the rural women. This study examined the activities of rural women in collection of NTFPs in alleviating household food insecurity in Kaduna state. Multistage sampling procedure was used to select 120 respondents for the study and structured questionnaire was used for data collection. Data were analysed using descriptive statistics; Chi-square and Pearson Product Moment Correlation (PPMC) were used to test the hypotheses. The results showed the mean age of 40.12 years. Majority (70%) of the respondents considered forest leaves, extraction of medicinal plants, honey and beewax as the most important product in NTFPs. PPMC result revealed that age ($r = 0.207$, $p = 0.023$) and monthly income ($r = 0.175$, $P = 0.056$) were significantly related to food security status. Chi-square revealed that the major constraints were insecurity issues ($\chi^2 = 4.693$, $p = 0.030$), pest and diseases ($\chi^2 = 29.091$, $p = 0.00$) and lack of harvesting technology ($\chi^2 = 2.325$, $p = 0.00$). In conclusion, NTFPs was identified to play major role in enhancing household food security, providing primary health care and empowerment for rural women to ensure household food security. The study recommends that rural women should be supported by providing adequate security measures which will help to increase their confidence for increased level of participation and contribution to households' food security without the fear of being kidnapped.

Keywords: Rural women, Non-timber forest products, Household food insecurity

Introduction

Forests and Non-timber Forest Products (NTFPs) plays a key role in promoting the economic advancement, welfare of rural women and it is also accepted as a veritable means of alleviating poverty among rural communities as it helps in sustaining livelihood and rural well-being (FAO, 2012). NTFPs are described as tradable products derived from the forest excluding timber (Olawoye, 2016). FAO (2013) also defined NTFPs as goods of natural origin, and services derived from forest or any land under similar use excluding wood in all its forms. NTFPs includes useful materials and items used as food, fuel, fodder, medicine, cottage and wrapping materials, biochemical, birds, reptiles and fishes, for food and fodder, fruits and nuts, food and beverages, fish and game, vegetables, fuelwood, honey, medicinal plants, essence and different kind of barks and fibre such as bamboo, rattan and a lots of other palm and grasses are parts of diets many rural dwellers consumed as food supplements in Nigeria especially during off season to enhance adequate food security (Shackleton and Shackleton, 2014; Jimoh, 2016).

Household food security was described by FAO, (2006) as a condition that occurs when all the people within a household 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. When all the occupants of a household do not live in hunger or fear of starvation, such household is considered food secured. However, food insecurity simply means scarcity of food. It is linked with fluctuation in a household's own food production and availability (Babatunde *et al.*, 2017). It is also associated with food productions, general economic and social development variables. Many of these variables such as rise in world food prices, increased food commodity speculation, changing climatic conditions caused by global warming, increasing demand for arable land for cultivation of biofuel and poor governance to cope has aggravate the food security situation in most parts of the world including Nigeria (Dirorimwe, 2013).

In Nigeria, rural women are more vulnerable because they spend most of their time providing support to their husbands, children, elders and other members of their family; consequently, they become economically dependent, educationally backward, and disadvantaged both politically and socially (FAO, 2015). They are more exposed and vulnerable to insecurity attacks of kidnappers and bandits, which in turn generate social, economic, and environmental costs on rural well-being (Hill, 2011). It is therefore necessary that adequate attention should be granted to rural women's access to economic empowerment through the provision of adequate security and enablement through adequate access to NTFPs which in turn would help to promote development efforts by increasing rural women's access to economic resources such as job opportunities, financial services, skills development and market information (OECD, 2013). The main objective of the study is to assess the activities of rural women in the collection of NTFPs in alleviating household food insecurity in Jema'a Local Government Area of Kaduna State. The sub objectives are: (i) describe the socio-economic characteristics of the rural women (ii) identify the activities of rural women in gathering NTFPs (iii) determine the household food insecurity status and (iv) find out the constraints faced by rural women in NTFPs activities in the study area.

The hypotheses of the study is stated in null for as follows

Ho: There is no significant relationship between

- i. socio-economic characteristics of the rural women and household food insecurity status.
- ii. activities of rural women in gathering NTFPs and food insecurity status
- iii. constraints faced by rural women in NTFPs gathering and food insecurity status.

Methodology

Study area

The study was carried out in Jema’a Local Government Area (LGA) of Kaduna State. Jema’a LGA is situated between latitudes 8° 30' to 8° 34' N and longitudes 9° 23' to 9° 31' E. It covers an area of about 15643 km² with population density of 110,008; with the mean monthly temperature of 35 °C and annual rainfall of 715 mm. Some of the activities taking place in the study area includes crop farming such as ginger, rosette, maize and sorghum, while the animals reared there include goat, poultry, pigs and cattle (NPC, 2006).

Sampling Procedure and Data Collection

A multi-stage sampling technique was adopted. The first stage involved purposive sampling of six wards out of fourteen wards in the LGA because of accessibility of forest and high concentration of rural women in NTFPs. In the second stage, one village was randomly selected from the six wards. In the third stage, twenty (20) rural women were randomly selected from each village to make of 120 respondents. Interview was conducted using structured questionnaires to elicit information from the rural women.

The Household Food Insecurity Access Scale (HFIAS) (FANTA Scale) of the United States Agency for International Development (USAID) (2007) was used to categorize households. The HFIAS Score for each household was calculated by summing the scores for each household. The maximum score for a household is 27 while the minimum is 0. The higher the score, the more the food insecurity (access) the household experienced. The lower the score, the less food insecurity (access) a household experienced. Furthermore, 6 dichotomize items were developed to ascertain the level of participation in the activities that they do in collecting NTFPs. A Yes/No response were asked with a score of 2 and 1. Maximum score was 12 while the minimum was 6.

Data Analysis

Descriptive statistics was used to analysed data collected, Fanta scale (3 point Likert scale statement in order of rarely, sometimes and often) and Inferential statistics - Chi-square and Pearson Product Moment Correlation (PPMC) were used to test the hypotheses.

Results and discussion

Socio- economic characteristics of the respondents

Table 1 showed that 27.10% of the respondents are within 41-50 years of age. This indicates that majority of the respondents were in their active age to carry out NTFPs activities that can improve their household food security status. This agreed with the findings of John (2013) who stated that, most rural women in their active ages support their households through their livelihood activities in NTFPs. Also from Table 1, some (31.40%) of the respondents have tertiary education, while others (20.30%) and (8.5%) had both secondary and primary education respectively. This implies that the level of education brings about exposure and empowerment that influence the rural women as they carry out NTFPs activities which enhance household food security and empowerment for better living (Shively and Newton, 2016). Table 1 further revealed that some (21.20%) of the respondents have monthly income of less than ₦10,000 while few (11.0% and 8.50%) had an estimated monthly income of ₦41,000 and above ₦51,000 respectively.

Table 1: Distribution of respondents based on their socio-economic characteristics

Variable	Frequency (n=120)	Percentage
Age (years)		
Below 20	12	10.20
21-30	23	19.50
31-40	26	22.00
41-50	32	27.10
51 years and above	25	21.00
Educational Status		
Non-Formal education	29	24.60
Arabic Education	18	15.30
Primary education	10	8.50
Secondary education	24	20.30
Tertiary education	37	31.40
Monthly Income		
10, 000 and below	25	21.20
11, 000 – 20, 000	34	28.80

21, 000 – 30, 000	25	21.20	
31, 000 – 40, 000	11	9.30	
41, 000 – 50, 000	13	11.00	
50, 000 and Above	10		8.50

Source: Field Survey, 2021

Activities of rural women in NTFPs gathering

Table 2 showed the activities of rural women in NTFPs gathering. Majority (90.0% and 86.7%) of the respondents were into collection of leaves and planting of vegetables and extraction of medicinal plants respectively. This implied that cutting of leaves is a major activity of the rural women in NTFPs, they does this to assist their household by providing food and shelter. This was supported by Uwalaka *et al.*, (2010) that people always depends on plants and animals for their medical care ever before the introduction of western drugs in Nigeria. Schreckenber (2013) emphasized that the demand related to natural health and beauty products are enormous, opportunities abound for the collection of NTFPs especially the medicinal leaves for processing into beauty products. Most (65.0%) of the respondents were into harvesting of products, while fifty percent (50.0%) of the rural women are into hunting of game. NTFPs can be collected in forest plantation or from trees outside the forest. The uses of these NTFPs range from being food or food additive (nuts, wild fruits, herbs) as plant materials and animal products (honey, silk, bush meat). NTFPs are perceived by many as a sponge and their use in traditional activities are giving ways to other businesses and products as the economy improves (IFAD, 2015).

Table 2: Distribution of rural women based on their activities in NTFPs

Activities of rural women in NTFPs	*Frequency	Percentage
Planting of vegetables	104	86.7
Collection of leaves	108	90.0
Extraction of medicinal plants	104	86.7
Harvesting of products (Shea, fruits, nut honey and beewax)	78	65.0
Hunting	60	50.0

Source: Field survey, 2021 *Multiple responses

Food insecurity status of the respondents

Table 3a showed that some (26.7%) of the respondents worry about food and some (16.7%) of the respondents were unable to eat the kind of their favourite foods because of lack of resources. Few (6.7%) eat limited variety of foods due to lack of resources. This implication of this is that the food secured household experiences none of the food insecurity variables or conditions, or just experience worry but rarely. While slightly food insecure households is unable to eat desired food or monotonous diet than they preferred. There were no cases of severely food insecure households. Having access to sufficient food for healthy and productive life in right quantity and at the right time is food security. NTFPs added to the quantity of rural household diet directly by providing medicine, fruits, nuts, bush meat, mushrooms, honey and fuel wood for food processing, and shortage may directly affect food security (FAO, 2017).

Table 3a: Distribution of the respondents based on their food insecurity status

Household Food Security Questions	Yes	No	Rarely	Sometimes	Often
Did you worry that your household would not have enough food to eat in the past four weeks?	33(26.7)	88(73.3)			
How often did this happen?			100(83.3)	20(16.7)	
In the past four weeks, were you or any of your household members not able to eat the kind of foods you wanted because of a lack of resources?	20(16.7)	100(83.3)			
How often did this happen?			98(81.7)	22(18.3)	
Do you or any of your household members have to eat a limited variety of foods due to lack of resources in the past four weeks?	8(6.7)	112(93.3)			
How often did this happen?			112(93.3)	8(6.7)	

In the past four weeks, did you or any household member have to eat unwanted foods because of lack of resources to obtain other types of food?	20(16.7)	100(83.3)			
How often did this happen?			98(81.7)	22(18.3)	
In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	50(41.7)	70(58.3)			
How often did this happen?				88(73.3)	16(13.3)
In the past four weeks, do you or any other member of your household have to eat lesser meals in a day because there was not enough food?	32(26.7)	88(73.3)			
How often did this happen?			100(83.3)	20(16.7)	
Was there ever no food to eat of any kind in your household because of lack of resources to get food in the past four weeks?	20(16.7)	100(83.3)			
How often do this happen			98(81.7)	22(18.3)	
In the past four weeks, did you or any of your household members go to sleep hungry at night because there was no food	8(6.7)	112(93.3)			
How often do this happen			112(93.3)	8(6.7)	
Did you or any of your household member go a whole day and night without eating anything because there was not enough food in the past four weeks?	12(10.0)	108(90.0)			
How often do this happen			110(91.7)	10(8.3)	

Household food insecurity access scale (HFIAS)

Food security status of the respondents

Table 3b further bring out the household food security status of the respondents. Most (55%) of the respondents were food secured while some (45%) were mildly food insecure and there were no cases of severely food insecure. NTFPs contribute substantially to nutrition of the household, either as part of family diet or as a means to achieve health attention through the prevention and treatment of diseases i.e. the use of medicinal plant for curing certain diseases. Nigeria government and other development agencies need to provide more grant or fund to household so as to reduce food shock and aid household food security (Tollens, 2018).

3b: Distribution of the respondents based on food security status

Status of food security	Frequency	Percentage
Food secure	66	55.0
Mildly food insecure	54	45.0
Tota	120	100

Source: Field survey 2020

Constraints faced by the respondents in NTFPs activities

Table 4 showed the ranking of some constraints facing the respondents with regards to NTFPs activities. Paramount among the constraints is insecurity issue (76.7%). Insecurity keeps rural women in perpetual fear and does not allow free moment of rural women to the forest and farm lands. Other constraints include lack of machine (68.3%) for adequate processing of NTFPs, Unstable demand for products (66.7%) and Price fluctuations (55%) respectively

Table 4: Distribution of Respondent based on Constraints faced in NTFPs

Constraints	Frequency	Percentage
Inadequate rainfall	88	73.3
Lack of machine	82	68.3
Unstable demand for products	80	66.7
Pest and disease	72	60.0
Price fluctuation	66	55.0
Activities of rodents	66	55.0
Insecurity	92	76.7

Source: Field survey, 2021

Test of hypotheses

Correlation analysis between some selected socio economic characteristics and food insecurity status

Correlation analysis showed that there is a significant relationship between age ($r = 0.207$, $p = 0.023$), monthly income ($r = 0.175$, $P = 0.056$) and food security status. This revealed that most of the respondents are in their youthful age hence they are able to work better and faster to contribute in NTFPs, they can also cope with intensive labour demand in collecting the NTFPs. Age play a key role in the activities of rural women in NTFPs because young rural women are more active and get things done easily (Mulenga *et al.*, 2011).

Correlation analysis between socio-economic characteristics of the respondents and household food security

Variables	r	p-value	Remark
Age	0.207	0.023	S
Monthly income	0.175	0.056	S

Correlation analysis between activities of respondents in NTFPs and food insecurity status

Correlation analysis between activities of respondents in NTFPs showed the significant relationship between cutting of leaves ($r = 0.302$, $p = 0.001$) and household food security. Adekunle (2015) said that ethno medicine has gained much more acceptance as the only alternative to drugs which were gotten from the leaves of the plant which can be said that wood and leaves of trees gotten are very much important

Chi-square analysis between respondents' constraint and household food insecurity

Chi-square analysis revealed that insecurity issues ($\chi^2 = 4.693$, $p = 0.030$), unstable demand for products ($\chi^2 = 5.455$, $p = 0.020$), pest and diseases ($\chi^2 = 9.091$, $p = 0.00$), activities of rodents ($\chi^2 = 18.623$, $p = 0.00$) and lack of machine ($\chi^2 = 12.325$, $p = 0.00$) were significant to household food insecurity. The activities of rodents cause a lot of damages to the products and it will lead to lots of loss to the rural women. This finding is in line with Braun, (1985) who confirmed that Nigeria forest resource is mostly under managed and is faced with the problem of poor implementation and protection rules. The upsurge of kidnapping and banditry especially in northern Nigeria is a major threat to the agricultural activities and also gathering of NTFPs in the rural area. Kidnapping and insurgency affected the movement of products and increase in price of NTFPs. It made it difficult for extension workers to go to those areas and also farmer to access their farms. Infestation of pest and disease reduces the quantity and quality of NTFPs products. While activities of rodents also threatening the survival of NTFPs in Nigeria, rodents attacked NTFPs either in the farm or at home resulted in loss of NTFPs quantity, this also affected rural women participation in NTFPs activities respectively. The null hypothesis which stated that there is no significant relationship between the constraints faced by rural women and food security status is hereby rejected.

Table 5: Chi square between respondents' constraint and food insecurity

Variables	χ^2	Df	p-value	Remark
Land acquisition	0.808	1	0.369	NS
Security issues	4.693	1	0.030	S
Inadequate rainfall	0.028	1	0.868	NS
Unstable demand of products	5.455	1	0.020	S
Fluctuating of price	0.393	1	0.531	NS
Pest and disease	29.091	1	0.00	S
Activities of rodents	18.623	1	0.00	S
Lack of machine	12.325	1	0.00	S

Conclusion

The study concluded that rural women are actively engaged in NTFPs activities. Such activities include cutting of leaves, extraction of medicinal plants, harvesting and hunting. NTFPs have been identified to play major role in providing primary health and nutritional needs for the rural women. It ensured food security is beyond basic consumption but also an avenue to financial support and empowerment of rural women.

Recommendations

The following recommendations were made from the findings of the study;

- i. Rural women should be empowered and supported to improve in their ability in providing medicinal plant to improve health sector through prevention and treatment of diseases.
- ii. Rural women should also be financially supported to gain more trade material thereby having the ability to buy more quality, nutritious and safe food at all time in order to be food secure.
- iii. Government with the help of non-governmental organization should provide security measures; this will help in securing lives and properties of rural women and also increase the level of participation and contribution to the food security of household.

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