



# MEASURES OF ENHANCING FOOD SECURITY AMONG HOUSEHOLDS IN EDO CENTRAL SENATORIAL DISTRICT

ABHULIMEN, J., IDIALU, E. E. AND UWAMEIYE, B. E.

(Received 28, April 2021 Revision Accepted 13, August 2021)

## ABSTRACT

This paper is aimed at examining the enhancement of food security among households in Edo Central Senatorial District. The study examines the measure used by households in enhancing food security. A descriptive survey design was adopted in this study, using a population of about 664,059 households, with a sample size of 300 households using multi-stage sampling technique. The instrument for data collection was a questionnaire. A mean score of 2.5 was used as the benchmark rating score for decision rule. The t-test for two independent sample means was used to test the hypothesis at 0.05 level of significance. The result showed that poverty, lack of food preservation knowledge, lack of food and nutrition knowledge, low morale towards the practice of agriculture and lack of facilities for food preservation such as refrigerators and deep freezers are the factors responsible for food insecurity amongst households in Edo Central Senatorial District. To reduce food shortage and promote food security, the measures commonly used among households in enhancing their food security in Edo Central Senatorial District include: food preservation and bulk purchasing. The use of these food security measures varies with the size of household. It was recommended that large households should endeavour to practice crop farming and animal rearing such as poultry farming for family subsistence.

**KEYWORDS:** Food, Food Security, Measures, Household size, Enhancing.

## INTRODUCTION

Food is a basic need for humans. It is eaten by living things to provide energy and nutrition. It contains the nutrition that is needed to be healthy. Food is any nutritious substance that people or animals eat or drink and plants absorb in order to maintain life and growth. Anyakoha (2010) defines food as any liquid or solid material which when eaten and digested can provide the body with nourishment.

Food contains proteins, fat, carbohydrates, vitamins, minerals and water, these food substances are known as food nutrients. Nutrients are substances that provide energy for activity, growth and all functions of the body such as breathing, digesting food, keeping warm, materials for the growth and repair of the body, and for keeping the immune system healthy. Food usually comes from animals or plants. It contains the nutrients that people and animals needs to be healthy. The consumption of food is

**Abhulimen, J.**, Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma, Edo State.

**Idialu, E. E.**, Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma, Edo State.

**Uwameiye, B. E.**, Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma, Edo State.

enjoyable to humans. Food therapy is emerging as the latest prevention against multiple lifestyle diseases. Experts now believe "it is better to pop an apple, rather than popping a pill". Eating good food especially with the family and friends, is one of the pleasures of life. The importance of food makes families, states and nations to devise measures of enhancing its security. Measures as used in this study is defined by advanced English Dictionary as any maneuver made as part of progress towards a goal. It also means a plan or course of action taken to achieve a particular purpose.

Enhancing by Oxford dictionary means to increase, intensify or further improve the quality, value or extent of. Food security is the access by all people at all times to the food needed for a healthy life.

In enhancing food security, measures adopted according to literature are: Practice of family agriculture like gardening, subsistence agriculture; Food storage; Food preservation e.g. roasting; refrigeration, and drying; Bulk purchasing of foods and fruits when in season; Rearing of animals like birds, pigs, goats and others; Reducing food waste; and work towards defeating climate change.

Despite all these measures, some individuals or families are hungry and not feeding adequately and therefore are likely to have impaired physical and cognitive abilities of children, poor health status, children falling sick more often, with higher rates of iron deficiency anemia, and also results in children being frequently hospitalized. This brings about food insecurity. Food insecurity is the lack of consistent access to enough food for an active, healthy life [United State Department of Agriculture (USDA, 2011 and Bremner, 2012).

According to World Food Summit, 1996, Food security "exist when people at all-time have physical and economic access to sufficient safe and nutritious food that meets their dietary need and food preferences for an active and healthy life". From the definition, four components of food security are identifiable: Availability, Accessibility, Utilization, and stability of food. Based on the practical guide of food security information for Action, all four components must be satisfied simultaneously to meet the objectives of food security. Food and agricultural Organization (FAO) (2008) and Simon (2012), stated that the four components can be delineated as follows: availability, accessibility, utilization and sustainability.

These components of availability, accessibility, utilization and sustainability embrace the supply demand and adequacy of food at all times. Wikipedia on line encyclopedia defines food security as a measure of the availability of food and individuals ability to access it. The causes of food insecurity are population growth, changing tastes, climate changes and troubled farmers. A person who has adequate access to quality food today is still considered food insecure if he has periodic inadequate access to food which may cause his nutritional level to deteriorate. Variation in weather conditions, political and economic instability and price fluctuations are some factors that may impact on food security status. Food security sits on the top of the list of targets of Sustainable Development Goals (SDGS). Though over 60 countries made great success in their effort to meet the SDG (Sustainable Development Goals) hunger target of halving the population between 1990 and 2015, food security has remained one of the greatest challenges of most household in Sub-Saharan Africa (Bremner, 2012).

Food insecurity continues to threaten larger proportions of households in developing countries. The problem of food insecurity is not just limited to Africa alone, rather it is a worldwide phenomenon just as there have been food crises in such African countries as Cote d'Ivoire, Cameroon and Egypt, cases have also been recorded in such non-African countries as Indonesia, Peru and most recently Haiti. This shows that food insecurity and the resultant food crises is not peculiar to Africa alone but is most prevalent in most Less Developed Countries (LDCs) all around the world thereby making it a developmental problem (USAID, 2011).

A household as defined by Cambridge dictionary is a group of people often a family who live together. They include people living in your house, including servants. Household food security is the application of the four components of food security (availability, accessibility, utilization and stability) at the family level with individuals within these households as the focus of concern. Household food security exists when all the people living in the household have physical, social and economic access to sufficient, safe and nutritious food at all times that meets their dietary needs and food preferences for an active and healthy life (Bremner, 2012).

Food security at household level is a subset of the national level and it requires that all individuals and households have access to

sufficient food either by producing it themselves or by generating sufficient income to demand for it. Two main factors that determine food security are supply side factors and demand side factors. The supply side factors are those that determine food supply or food availability while the demand side factors on the other hand are factors that determine the degree of access of countries, households and individuals to available food. (Onunka, IHEMEZIE & OLUMBA, 2018).

In Edo Central Senatorial District, it is common to see people trooping to the market every market day which is usually between 5 days. The people are seen patronizing food vendors and one begins to wonder why people are always buying food stuffs every market day. Furthermore, it has been observed that the practice of small scale farming is a common practice among indigenes. This involves planting food crops like vegetables, cereal and tuber crops for family subsistence. In some other homes, animals such as birds, goats and rabbits are reared for consumption and sale as a means of livelihood. This is common to many inhabitants of Edo Central Senatorial District.

Hence, the need in investigating how families in Edo Central Senatorial District enhance their food security.

### 1.1 STATEMENT OF THE PROBLEM

Nigeria prides itself as the giant of Africa with its economy becoming the largest in 2014; yet, the poverty rate in the country is alarming. It is common to see households or families not being able to feed. In cases where some families try to feed its members, the meals are not adequate resulting in food insecurity. Household food insecurity can be referred to as the inability to provide enough food for a healthy and active lifestyle for all household members.

In Edo Central Senatorial District, the availability, accessibility, utilization and sustainability of food seems to be a problem among households. A major observation of the researcher that suggests that food availability, accessibility, utilization and sustainability constitute a challenge among households is as follows. The researcher has observed that many school children from public primary and secondary schools hardly have breakfast before coming to school while the few that are given breakfast to school are largely carbohydrate (starchy) based staple foods such as rice and eba. This explains that there is heavy calorie deficiency in the food intake of children from various households as nutritious and vitamin

rich meals such as fruits and vegetables, are largely ignored in most households.

Also, it is common knowledge from the researcher's observation that many homes buy more of starchy foods that are relatively cheaper and more in quantity to cater for members of their households. Aside, the financial inability to buy more nutritious food items and change diet for members of their households, many households compromise quality and costly diet for quantity and cheaper food items without considering the nutritional implication of what the members of their households on a day to day basis. This largely suggests some threats to food security as quality and nutritious food may be poorly available, accessible and utilized at the household level in the state. This study is an attempt to fill the gap on how to enhance food security among households in Edo Central Senatorial District.

### 1.2 RESEARCH QUESTIONS

The following research questions were raised to guide the study:

1. What are the factors responsible for food insecurity amongst households in Edo Central Senatorial District?
2. What are the measures adopted by households in enhancing food security in Edo Central Senatorial District?
3. Is there any difference in the measures used by small and large households in enhancing their food security in Edo Central Senatorial District?

### 1.3 NULL HYPOTHESIS

There is no significant difference in the measures used by small and large households in enhancing their food security in Edo Central Senatorial District

### 2.0 METHODOLOGY

The descriptive survey design was adopted in this study. This design was considered appropriate because the researcher sought to present a vivid description of the data collected from respondents without manipulating the variables under any controlled laboratory condition. The population of this study covers over 664,059 households in Edo Central Senatorial Area which represent 2% of the entire population (National Population Commission, 2019). A sample size of 300 households (respondents) was randomly drawn for the study using multi-stage sampling technique. The multi-stage sampling technique was adopted because

the sampling progressed through series of stage using various sampling techniques: purposive, stratified and simple random sampling techniques.

In the first stage, the purposive sampling technique was adopted to select Edo Central Senatorial District which comprises of five local government areas namely: Esan Central, Esan West, Esan South East, Esan North East, and Igueben. The choice of Edo Central Senatorial District was informed by the proximity of the area

and prior knowledge of the researcher about the terrain. In the second stage, the lottery method of the simple random sampling technique was used to select three towns per local government area.

In accomplishing this, a systematic sampling technique was used to draw 20 households from each of the target towns/villages selected in the local government. This technique was employed to draw a targeted number of households of various sizes and income status. The sampling procedure is properly explained in Table 1.

**Table 1:** Sample and Sampling Procedure

<b>Names of local government</b>	<b>Names of target Town/Villages</b>	<b>Number of households covered per Town/Villages</b>
<b>Esan Central</b>	Irrua	20
	Ewu	20
	Afuda	20
<b>Esan West</b>	Irukpen	20
	Ihumudumu	20
	Emaudo	20
<b>Esan South East</b>	Ewohimi	20
	Ewwatto	20
	Emu	20
<b>Esan North East</b>	Eror	20
	Arue	20
	Utako	20
<b>Igueben</b>	Ugun	20
	Ekpon	20
	Amahor	20
<b>Total</b>		<b>300</b>

**Source:** Researchers' Field work

The instrument for data collection was a questionnaire designed by the researcher and titled: "Measures Enhancing Food Security Questionnaire MEFSQ". The instrument was divided into two Sections of Sections A and B: Section A deals with demographic data of respondents like sex of household head, size of household, income of household head. Section B contains 12-items and four component parts. The four component parts are namely: household animal farm for subsistence; food preservation; bulk purchasing; and backyard farming for crop production. Three items were raised on each of the component indicators as follows: household animal farm for subsistence (items 1-3); food preservation (items 4-6); bulk purchasing (items 7-9); and backyard farming for crop production (items 10-12).

The instrument was rated on a four point likert scale of Strongly Agreed -4, Agree -3, Disagreed

-2 and Strongly Disagreed -1. The content validity of the instrument was carried out by experts. The split-half reliability alpha ( $\alpha$ ) of 0.78 was obtained on the instrument; depicting that the instrument was reliability for administration. The administration of the instrument was done by the researcher with the help of five research assistants. Data for this study were collected by the researcher personally to enhance the return rate.

During data collation from the field, a total of 293 copies of the questionnaire was correctly filled and used for the analysis. This gave a total of 97.6 percent return and use rate. The research questions were analyzed using the mean and standard deviation (S.D). A mean score of 2.5 (average of the 4 likert scale, i.e  $(4+3+3+1) \div 4 = 2.5$ ) was used as the benchmark rating score for decision rule on the items. The t-test for two

independent sample means was used to test the hypotheses at 0.05 level of significance.

**Research Question 1:** What are the factors responsible for food insecurity amongst households in Edo Central Senatorial District?

### 3.0 RESULTS AND DATA ANALYSIS

The result of the research question one and test of hypothesis are presented as follows

**Table 2:** Summary of the Analysis of Factors Responsible for Food Insecurity amongst households in Edo Central Senatorial District

S/No.	Factors	N = 293		
		$\bar{X}$	S.D	Remark
1.	Lack of finance/poverty	2.62*	1.06	Agreed
2.	Lack of food preservation knowledge	2.56*	.956	Agreed
3.	Lack of food and nutrition knowledge	2.52*	.960	Agreed
4.	Poor food processing knowledge	2.32	1.02	Disagreed
5.	Lack of food storage knowledge	2.40	1.04	Disagreed
6.	Low morale towards the practice of agriculture	2.58*	0.98	Agreed
7.	Lack of facilities for food preservation such as refrigerators and deep freezers	2.68*	0.83	Agreed

\* Significant mean ( $\bar{X} \geq 2.50$ )

The results in Table 1 showed that the respondents practiced on item 1, 2, 3, 6 and 7 at a mean score range of 2.52 and 2.68 and disagreed on items 4 and 5 at mean score of 2.32 and 2.40 respectively. Hence, this implies that lack of finance/poverty, lack of food preservation knowledge, lack of food and nutrition knowledge, low morale towards the

practice of agriculture and lack of facilities for food preservation such as refrigerators and deep freezers are the factors responsible for food insecurity amongst households in Edo Central Senatorial District.

**Research Question 2:** What measures are used by households in enhancing their food security in Edo Central Senatorial District?

**Table 3:** Summary of the Analysis of Measures used by heads of households in enhancing their Food Security in Edo Central Senatorial District

s/n	Food security measures	N = 293		
		$\bar{X}$	S.D	Remark
	<b>Household animal farm for subsistence = 2.40</b>			
1.	I rear some birds for family consumption	2.32	1.062	Not practiced
2.	I set traps to hunt animals for food	2.46	.956	Not practiced
3.	I buy and raise animals like goats, sheep, pigs	2.42	.960	Not practiced
	<b>Food preservation =2.58</b>			
4.	I buy fruits and store them in the refrigerator for later consumption	2.62*	1.025	Practiced
5.	I roast food items like fish or meat for later consumption	2.60*	1.044	Practiced
6.	I sun dry some perishable food items like tomato, and pepper for later consumption	2.53*	.956	Practiced
	<b>Bulk purchasing =2.59</b>			
7.	I buy staple foods like Beans and Rice in season at less prices to store them at home	2.64*	.971	Practiced
8.	I buy food directly from local farmers to reduce the cost	2.61*	1.029	Practiced
9.	I buy cassava in bulk and process them to reduce cost	2.53*	.956	Practiced
	<b>Backyard farming for crop production =2.49</b>			
10.	I plant vegetables for family consumption	2.65*	.962	Practiced
11.	I plant tuber crops like yam and potatoes to support my family food intake	2.40	.987	Not practice
12.	I sell some of my farm produce to buy other food items for the family	2.40	968	Not practice

\* Significant mean ( $\bar{X} \geq 2.50$ )

The results in Table 2 showed that the respondents practice on item 4, 5, 6, 7, 8, 9 and 10 at mean score range of 2.53 to 2.65 and do not practice on items 1, 2, 3, 4, 11 and 12 at mean score of 2.32 and 2.42 respectively. The results in the table further showed that the overall mean score on items 1 to 3 bordering on household animal farm for subsistence was 2.40; items 4 to 6 that constitute items on food preservation had an overall mean score of 2.58, items 7 to 9 on Bulk purchasing was 2.59, while items 10 to 12 bordering on backyard farming for crop production had a mean score of 2.49. Since

the mean perception score on food preservation (2.58) and bulk purchasing (2.59) were greater than the criterion mean (2.50). Hence, this implies that the measures used by heads of households in enhancing their food security in Edo Central Senatorial District include: food preservation and bulk purchasing

**Hypothesis 1:** There is no significant difference in the measures used by small and large households in enhancing their food security in Edo Central Senatorial District.

**Table 3:** Summary of t-test analysis on difference in the Measures used by household Size in enhancing their food security in Edo Central Senatorial District of Edo State

Challenges	Household size	N=293	$\bar{X}$	S.D	t-cal.	p-value	Remark
Household animal farm for subsistence	Small	137	2.44	0.786	0.757	0.450	Not significant
	Large	156	2.36	0.939			
Food preservation	Small	137	2.52	0.761	-1.359	0.175	Not significant
	Large	156	2.64	0.809			
Bulk purchasing	Small	137	2.49	0.732	-2.333*	0.020	Significant
	Large	156	2.69	0.742			
Backyard farming for crop production	Small	137	2.45	0.760	-.736	0.462	Not significant
	Large	156	2.52	0.824			

**Note:\*** t-cal is significant (p-value <0.05)

Result in Table 3 showed that the calculated t-values of 0.757 for household animal farm for subsistence, -1.359 for food preservation and -0.736 for Backyard farming for crop production and are not statistically significant ( $p > 0.05$ ). While -2.333 for bulk purchasing is statistically significant ( $p < 0.05$ ). This indicates that bulk purchasing is one of the measures used by small and large households in enhancing their food security in Edo Central Senatorial District. This further explains that household animal farm for subsistence, food preservation and back yard farming for crop production are not used by small and large households in enhancing their food security in Edo Central Senatorial District.

#### 4.0 DISCUSSION OF RESULTS

The results show that lack of finance/poverty, lack of food preservation knowledge, lack of food and nutrition knowledge, low morale towards the practice of agriculture and lack of facilities for

food preservation such as refrigerators and deep freezers are the factors responsible for food insecurity amongst households in Edo Central Senatorial District. These results agree with that of USAID (2011) who found that poor food storage and low morale of individuals to practice agriculture are some of the factors responsible for food insecurity and reducing food supply. The result also agrees with that of Uche and Uche (2017) who found that the factors affecting food security at the micro level include: poverty, low awareness on proper food preservation, ignorance/illiteracy, household size, personal cultural belief and waste/poor food management practices in Nigeria.

The result also corroborates that of Onunka, Ihemezie and Olumba (2018) who found that there epileptic state of power, low socioeconomic status of heads of household, unemployment, poor land tenure system for agriculture, increased housing demand that has reduced

demand for agricultural land and low income/poverty are some of the factors affecting food security in households in Udi local government area of Enugu state. The result is also in line with that of Anjeinu and Aondonenge (2019) who found that the constraints or factors such as lack of access to credits, inadequate land availability, and poverty, infertility of the soil, lack of non-farm income generating activities, storage and processing problems were identified as some of the factors militating against the achievement of food security in Benue State, Nigeria.

The result showed that the measures used by heads of households in enhancing their food security in Edo Central Senatorial District of Edo State include: food preservation and bulk purchasing. The result corroborates that of Otaha (2017) who noted that bulk purchasing of seasonal fruits and food items for storage is one of the strategies for promoting household food security in Nigeria. The result disagrees with that of Amaka, Kenekukwu and Maduka (2017) who found that practice of farming for domestic consumption and use of refrigerators to store food items are strategies for promoting household food security in Nigeria. The result disagrees with that of Fasoyiro and Taiwo (2018) who found that practice of roasting, frying and sun drying to preserve food is one of the strategies for promoting household food security in Nigeria.

The result showed that bulk purchasing is one of the measures used by small and large households in enhancing their food security in Edo Central Senatorial District. The result is in line with that of Onunka, Ihemezie and Olumba (2018) who found that marital status and size of household were found to negatively influence the number of strategy adopted by size of households while the dependency ratio was positively significant. The result agrees with that of Irohibe and Agwu (2018) that bulk purchasing of seasonal fruits and food items for storage are practiced by size household in promoting household food security in Kano state, Nigeria. The result corroborates that of Edeh and Gyimah-Brempong (2019) that size of household affected the use of refrigerators to store food items while small household practices roasting and sun-drying of food to promote food security.

## 5.0 CONCLUSION

Food is any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth. Based on the findings of this study, it is concluded that lack of finance/poverty, lack of food preservation knowledge, lack of food and nutrition knowledge, low morale towards the practice of agriculture and lack of facilities for food preservation such as refrigerators and deep freezers are the factors responsible for food insecurity amongst households in Edo Central Senatorial District. To minimise food shortage and promote food security, the measures commonly used by heads of households in enhancing their food security in the area include: food preservation and bulk purchasing. The use of these food security measures was affected by size of household.

## 6.0 RECOMMENDATIONS

The following recommendations were made based on the findings:

1. Household heads should buy non-perishable foods in bulk when they are in season as they are cheaper then.
2. Households should have workable refrigerator or deep freezer in order to store food as this will enhance food security at household levels.
3. Food can also be transformed (processed) to other forms e.g. boiled yam to pottage, white rice and stew to jollof rice; to enhance household food security.
4. Large households (families with large family members and occupants) should endeavor to practice animal husbandry and animal rearing such as poultry farming. This would help to widen their income and promote food security for the household.
5. Farming for crop production such as the planting of Okra, vegetables and fruit should not be ignored by residents of Edo Central Senatorial District. This is because it could help in promoting income and food availability and sustainability of crops in and out of season.

## REFERENCES

- Amaka, G. M., Kenekukwu, O. O. and Maduka, O. D., 2017. Achieving sustainable food security in Nigeria: challenges and way forward. 3rd International Conference on African Development Issues, 2(5), 12 - 23

- Anjeinu, G. A. and Aondonenge, S., 2019. Analysis of factors affecting food security in rural and urban farming households of Benue State, Nigeria. *International Journal of Food and Agricultural Economics*, 4(1), 55 – 68.
- Anyakoha, E. U., 2010: home Economics for Junior Secondary Schools, Published by Africana First Publishers PLC.
- Babatunde, R.O. and Qaim, M., 2018. The mechanisms by which sex of household head promotes household calorie and micronutrient supply, dietary quality, and child anthropometry. An unpublished poster presented at the joint 3<sup>rd</sup> Africa Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa
- Edeh, H. O. and Gyimah-Brempong, K., 2019. Determinants of change and household responses to food insecurity: Empirical evidence from Nigeria. *African Journal of Agricultural Research*, 10(5), 432-433.
- FAO 2009. Declaration of the World Summit on Food Security, 2009, Rome. [Retrieved from <http://ftp.fao.org/docrep/fao/meeting/018/k6050e.pdf>]
- FAO 2013. The State of Food Insecurity in the World: The Multiple Dimensions of Food Security, 2013, Rome, FAO.
- Fasoyiro, S. B. and Taiwo, K. A., 2018. Strategies for promoting food production, poverty alleviation, and food security in Nigeria. *Journal of Agricultural and Food Information*, 13:338–355,
- Idachaba, F. S., 2006. Strategic and Policies for Food Security and Economic Development in Nigeria. Lagos: CBN.
- Irohibe, I. J. and Agwu, E. A., 2018. Assessment of food security situation among farming households in rural areas of Kano State, Nigeria. *Journal of Central European Agriculture*, 15(1), 94-107.
- Nkomoki, W., Miroslava, B. and Banout, J., 2019. Factors associated with household food Security in Zambia. *Journal of Sustainability*, 1(2), 10 – 21.
- Onunka, C. N., Ihemezie, E. J., and Olumba, C. C., 2018. Household Level Analysis of Food Insecurity and Coping Strategies: Evidence from ENUGU State, Nigeria. *Advances in Social Sciences Research Journal*, 5(6) 330-340.
- Otaha, I. J., 2017. Food insecurity in Nigeria: Way Forward. *An International Multidisciplinary Journal*, Ethiopia. 7 (4), 1 – 12.
- Uche, O. A. and Uche, I. B., 2017. Challenges of food security in Nigeria: options before government. *Arabian Journal of Business and Management Review (OMAN Chapter)*, 2(1), 33 - 43
- USAID 2011. Promoting Food Security in Sub-Saharan Africa. *The Journal Outlook on Agriculture* vol. 27, 28-45.