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# Food Insecurity And Hunger Knowledge, Status And Behaviours In Woman-Headed Households In Abia State, Nigeria: A Mixed Methods Study

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***Abstract***
*Food insecurity and hunger share much in common as they simultaneously affect the same persons. A food secured household has available enough culturally acceptable, nutritious food to subdue hunger and meet every of her dietary need. A food insecure household lives in lack of the culturally acceptable, nutritious foods and lack easy access to such foods and lives with hunger and is unable to meet her dietary needs over time. Hunger is* a *subjective feeling of discomfort that follows a period without eating food and a sensational condition where individuals experience natural urge to replenish food store in their bodies over the course of a day or two. Food insecurity in Sub-Saharan Africa is presumed to be declining but the decline rate with vulnerable groups such as women-headed farm households is not appreciable. A questionnaire-based investigation combined focus group discussion (FGD) with women-headed households to generate data on their knowledge, status and behavior with food insecurity and hunger in Abia State, Nigeria. The food insecurity index revealed about two-third (71.87%) of women-headed households to be food insecure suffering mild, moderate and severe food insecurity. The households knew they had food problems, were worried of what to eat, with some having gone to bed without food or gone a whole day and night without eating. They felt the uneasy and painful sensation of lack of food and were familiar with recurrent and involuntary lack of access to food. Food insecurity and hunger amongst women farming households was due to their behaviours of selling bulk of their harvest of staple foods to buy other household needs, agrochemicals and hire labour. The study showed the households coping by skipping meals, reducing amount and frequency of meals, relying on less expensive foods, and rationing foods for adults to provide more foods for children.*

***Key Words:*** *hunger, food insecurity, women-headed household*

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## I. Introduction

Food insecurity and hunger share much in common as they afflict the same victims simultaneously. The Food and Agriculture Organization (FAO) variously defined food insecurity as condition that exists when people do not have physical and economic access to sufficient, safe, nutritious and culturally acceptable foods to meet their dietary needs and lead an active and healthy life (FAO,1996); and hunger as subjective feeling of discomfort that follows a period without eating food (FAO, 2003). Food insecurity and hunger interchangeably appears the same issues since both focus on availability of food (Sanchez *et al*., 2005). A food secured household must have available to itself enough culturally acceptable, nutritious food which it can have access to easily and readily, to subdue hunger and every dietary need. The food insecure household therefore lives in lack of the culturally acceptable, nutritious foods and lack easy access to such foods and lives with hunger and is unable to meet her dietary needs over time. Major cause of hunger and food insecurity is poverty (living below international poverty line of US$1.25 per day), war, insurgency, adverse ecological conditions (drought, famine) and living within fragile ecosystem, climate and weather, lack of investment in agriculture, poor governance and policies, rapid population growth, unstable markets and being befallen with emergencies that precipitate deprivation and extreme losses of livelihood materials (Imperial College London, 2006). Living with consistent high appetite for food (hunger) could be triggered by relying on diets that lack protein, fiber, and fats. Other issues that heighten hunger are stress and denying oneself of enough sleep. There are changes in households which might be unexpected (loss of income, increased household size, increased bills, disease and pest outbreak, terrorism) that create food insecurity (Food Security Information Network (FSIN), 2017; Seivwright, *et al.,* 2020). The poor explains poverty as not just lack of incomes but also as lack of the means to satisfy social needs and all that associates them with feeling of powerlessness to escape from the vicious cycle of deprivations and insecurity of foods and property.

A household consists of a head, relatives living with him/her and other persons who share the community life (feeding from the same pot) for reasons of work or other consideration (Moranda *et. al.,* 2001). The headship of a household is identified with a person who has greater authority and power in the household including decision-making on economic, social and/or political issues. Ordinarily, there is a patriarchal view that men provide for a household and therefore are regarded as the head of the household while women nurture the households. This status of women is not always the case when we consider the economic role of women and their socio-political contribution in the ever-changing population and sustenance issues. Presently, women by choice or by circumstances of death of spouse, separation from spouse, or incapacitation of spouse or out-migration of spouse provide leadership for sustenance of households both in urbans and in rural areas. Gender discuss literature has identified two different types of female headship in households, namely *de jure* and *de facto* headship (Moranda *et. al.,* 2001). The *de jure* women headship of households is common and includes situations where female headship involves single mothers, widows, and separated/divorced women. The *de facto* female household head arises with a wife of a male migrant who temporarily heads the home while the husband is away but reverts it to the husband soon as he returns. Therefore, a woman-headed household is that household headed by a female as a result of the male head being absent (dead or unavailable for about a year or more) including widows, single mothers, separated wives and divorcees, taking major decisions and providing for economic needs of the household (Milazzo & Van De Walle, 2015).

When human population grows rapidly, it limits increase in per capita food access and creates food insecurity and hunger. Hunger is a condition when an individual experiences natural urge to replenish its food store over the course of a day or two (Smathers, 2022). Trends in global food insecurity have shown that much of food insecurity exists in Sub-Saharan Africa as the problem grew at 3.0% between 2014 and 2016 (FAO, 2017). Hunger and severe food insecurity (malnutrition) remain great barriers to development in many continents especially Africa. In Africa more than elsewhere there is need to balance increasing household food deficits in quantity and quality with foods available within both in urban and rural communities. African culture denies women the right to own lands for farming (Alliance for a Green Revolution in Agriculture (AGRA), (2013)). This customary issue and its associated land tenure system in Abia State Nigeria prevails over the "land use decree" (statutory system) and is biased by excluding land ownership rights to women.

A poor hunger stricken, food unsecured household is most times characterized with housing many members that are catered for, has few assets for production, owns insufficient food, earns inadequate income to meet health needs, pays education costs, and acquires social supports as well as other necessities. These characteristics issues illustrate multi-dimensional nature of poverty, and showcase it as being more than income and expenditure data (UNDP, 2012; IFAD, 2010). Nigeria had been signatories to earlier women Benjie conference which advocated for 35.0% affirmation for women participation in governance, Millennium Development Goals (MDGs) and to the current Sustainable Development Goals (SDGs) that advocates improvement in food security through gender equality, empowerment and participation of women in production and management including as heads of households. These are for inclusion of women and avoidance of discrimination of female gender in production and management of the economies. There is therefore the need to assess knowledge of food insecurity, hunger and position of women-headed households on requisite scale of prevalence of food insecurity and hunger in Abia State, Nigeria.

Food insecurity has been noted a serious problem in Africa and developing countries of the world and a fundamental measure of poverty and hunger (Jama & Pizarro, 2008; Ngema *et al.,* 2018).

In analyzing food insecurity in Nigeria, Otaha, (2013) recognized inequality in gender status as a major cause of poverty and hunger with hunger and famine remaining seriously behind food insecurity. Households headed by women on basis of being widows, divorcees, and/or single motherhood are culturally denied access and ownership right to farmlands in Abia State Nigeria (Onwusiribe et. al.,2015). In many cases such women are denied access to major resources (land, fertilizers, farm credit, improved livestock and seeds, and unhindered contact to extension services) needed for growing own foods and this have compelled them to subsist on limited access to food and therefore live with hunger and endure its consequences. The nexus of relationship of economic issues of poverty, food insecurity and hunger remain a cyclic problem in homes affected especially women headed households.

The way researcher(s) perceive challenge of the nexus of these economic issues differ based on primary occupation of the women and their residence location, whether urban or rural areas (Okorji, 1999; Sanchez et. al., 2005). In Nigeria, there is problem of gender stereotyping of roles in provision of labour to farms (Okorji, 1999). Due & Cladwin (2000) strongly argued that female-headed farm households in Sub-Saharan Africa do not benefit readily from some government policies as much as do the men. The men on grounds of relative social and cultural advantages dominate with knowledge, adoption and access to means of production and control production surpluses and gains from use of available incentives. There is indeed the problem of inequity of gender access to resources which exists as a pernicious obstacle to effective women participation in every aspect of societal development in Abia State of Nigeria including averting hunger, food insecurity, starvation and ensuring healthy

life at level of the households in rural and urban areas. Farm operations such as weeding, post-harvest handling of products especially with increasing post-harvest losses are roles of women that are neglected and not factored in analyses mainstreaming challenge of food insecurity in the households (Okorji, 1999). Debela, (2017) noted great differences between male headed and female headed households in Ethiopia in ownership of assets for livestock rearing, blaming it on culture-based gender inequalities. Cultural traditions and social structures most times indicate that women are more affected by poverty and hunger and such influence shape women perception and how women eventually strive to cope with the conditions. Women are more vulnerable to shocks from effects of environmental hazards (floods, gully erosion, landslides, droughts, pest and diseases) such as weather and climatic changes (Meybeck, et, al., 2018). Women also find it very difficult to secure property rights and get access to finance to help themselves increase their household income and tackle the problem of food insecurity (Otaha, 2013). Fabiyi et al. (2007) noted that there are gender gaps and dimensions in household roles that constitute pertinent issues in emerging fight against household hunger and starvation and provide indispensable tool for food policy planning, implementation, monitoring and assessment.

The main objective of this study was to analyze knowledge of food insecurity and hunger, status, and behaviours in women-headed households of Abia State, Nigeria. The specific objectives addressed by this study are to:

Describe socio economic attributes of women-headed households in Abia State, Nigeria;
Determine food security status of women-headed households in the study area;
Classify women-headed households on basis of their food insecurity status in the study area;
Explore and compare food insecurity perceptions, beliefs and taboos in households headed by women in urban and rural areas of the study area;
Explore and compare hunger perceptions, beliefs and taboos in households headed by women in urban and rural areas, of the study area;
Determine levels of hunger and coping behaviours in women headed households in the study area;
Review consequences and perceived effects of household food insecurity and hunger on education, peace, health and enterprise choice of members;
Determine factors responsible for food insecurity and hunger in women-headed households in the study area;
Identify and rank food unsecured and hungry households by major occupation of women household heads.

There have been studies on women household leadership, exclusion, and household food insecurity in development literature (Negesse et al., 2020; Agarwal, 2001). Negesse et. al, (2020) on Public Health reviews on Impact of female gender for household head on the prevalence of food insecurity in Ethiopia, focusing on systematic review and meta-analysis. Agarwal analyzed exclusion of women from group participation in community management of natural resources (forests) in Asia and spelt out efficiency implications of such exclusions while providing typology of participation of women and gender equity in development. She argued along earlier literature accepted views that participation in development programmes is determined especially by rules, norms, perceptions and endowments of persons affected. The ability of women to alter them depended on their bargaining power, vis-à-vis the State, community and their households.

This study on gender approach to food insecurity assisted better understanding of shift on gender power relations and assured that women and their children benefited from empowerment programmes from household directed agricultural policies (Sida Brief, 2015). Familiarity with facts on food insecurity and hunger provided raw materials that are to equips policy makers to draft home-targeted interventions to alleviate physical and physiological hunger symptoms of headache, dizziness, stomach growing, grumpiness, shakiness, weakness, organ malfunctions, starvation and disease consequences among major or vulnerable homes. In addition to having proper knowledge of food insecurity and hunger, the status of the vulnerable and stereotypes captured on prevalence of food insecurity in women-headed households at the State level in Nigeria have been shown. These in no small measure have adequately informed and tackled all surrounding misunderstanding of the economic problems by providing ways out of the nexus of dimensions of poverty and its menace underlining food insecurity and hunger in women-headed households in rural and urban households. The explored perception of the women household heads on issues of food insecurity and hunger have opened another window to explaining the multi-dimensional phenomenon of poverty amongst the vulnerable in a developing society.

The food insecurity levels as determined by this study provided good knowledge of the food security status of the women headed households, and their managing strategies in coping with it. These are good information to policy makers and contributed richly to literature of household food insecurity among the vulnerable in the state.

## II. Materials And Methods

This study will be carried out in Abia State, Nigeria. Abia State was created on 27th August 1991 and was carved out of Old Imo State. The State Abia lies between Latitudes 040 451 and 060 071 North of the Equator and between Longitudes 070 451 and 080 101 East of the Greenwich Meridian. It occupies a total land area of

about 6,420km2 and is bounded in the North by Ebonyi State and Enugu State, in the East by Akwa-Ibom State and Cross River State, in the West by Imo State, and in the South by Rivers State. Abia state has its administrative headquarters at Umuahia with seventeen (17) Local Government Areas (LGAs) distributed into three agricultural zones namely Aba, Umuahia and Ohafia respectively. The Aba Agricultural zone consists of seven (7) LGAs namely Osisoma, Obingwa, Aba North, Aba South, Ugwunagbo, Ukwa West and Ukwa East LGAs. The Umuahia Agricultural zone is made up of five (5) LGAs namely Umuahia North, Umuahia South, Ikwuano, Isiala Ngwa North, and Isiala Ngwa South LGAs. The Ohafia Agricultural zone consists of five (5) LGAs namely Arochukwu, Bende, Isuikwuato, Ohafia, and Umunneochi. Abia State lies within the rainforest climatic zone with average rainfall of 2169.9mm. The State is characterized by wooden green vegetation with two seasons (rain and dry seasons). The rain season starts from April and persist to October and dry season starts from November and lasts to March. The peak of the rain season is around the months of June/July which is followed by a dry spell in August that precedes later rains of September and October.

The 2006 census recorded population of Abia State as 2,833,999 consisting of 1,434,193 males and 1,399,806 females (FRN, 2007). The Abia State Agricultural Development Programme (ADP) recently enumerated 401,345 farm households in the State (Abia ADP, 2020). Many of these farm households are small scale farmers producing food crops including yam, cassava, cocoyam, sweet potato, maize, melon, plantain, banana, citrus, and vegetables in a multiple crop mixture. Rice is grown as a monoculture crop in some areas of the state. Traditional cash crops grown in the area are oil palm, cocoa and rubber. Livestock are reared in intensive and semi-intensive cultures and include cattle, sheep, goats, pigs, and poultry. Many farm households have adopted aquaculture and are producing fishes in ponds. These fishes complement fishes from artisanal fishing in rivers draining Abia State namely Imo, Aba, and Azumini Blue Rivers.

Women in household headship were the subjects of this study. They included single mothers, widows, divorcees and women who were separated from their husbands and are in leadership of their homes. Another set of women in household headship involved in this study were de facto female household heads who are wives/wife of a male migrant who temporarily were heading the households as their husbands were away from their homes for up to one year and/or more. These respondents were selected randomly from two urban zones (Aba and Umuahia) and rural LGAs. The urban LGA randomly chosen from Aba zone was Aba North LGA and from Umuahia was Umuahia South LGA. The two rural LGAs selected randomly from the rural-based LGAs were Ukwa West and Bende LGAs of the state.

The list of woman-headed households was formed from list of widows, single mothers, divorced and separated heads of households was collected from the State Ministry of Women Affairs and served as the sampling frame for this study. Sixteen (16) women-headed households were randomly selected from each of the chosen LGAs that gave a sample of sixty-four (64) consisting of thirty-two (32) urban-based and thirty-two (32) rural-based households for this study. Focus Group Discussion (FGD) was conducted with ten of the women headed households in two separate groups of five (5) urban-based group and five (5) rural-based group. The randomly chosen households were assembled as the demographic survey was going on. This enabled collection of both qualitative and quantitative data on the same issues gathered in what constituted a convergent mixed method of inquiry.

This study used convergent mixed methods inquiry in generating qualitative and quantitative data as commonly used in health and social researches (Doyles et al., 2016). Mixed methods use in researches allow application of a variety of approaches in answering research questions that ordinarily cannot be addressed using a singular method (Doyles et. al., 2009). A convergent mixed methods design was appropriate because in this study qualitative and quantitative data were collected in parallel occasions, analyzed separately, and then merged in overall analysis and interpretation. Qualitative data included response of participants to focus group questions (FGD); and quantitative data from responses of participants to questions on demographic and food insecurity knowledge issues by the women-headed households during the survey. The FGD was conducted with group of five urban-based and five rural-based women-headed households respectively. This qualitative inquiry played greater role in unravelling answers to the questions of this study and were complemented with the quantitative data (Creswell & Plano-Clark, 2011).

The questionnaire administered by interview method provided primary data on age of household head, age of other members of the household, household size, marital status of head of household, number of her years of formal education, major occupation of household head, monthly income, and monthly expenditure on food. Further, the Likert type questions helped in assessing the beliefs and feelings and consequences of food insecurity and hunger on the households. Other qualitative data were gathered from FGD and included respondents' group perception and belief of food insecurity, hunger, coping strategies, consequences of food insecurity or security on health condition, peaceful and crisis condition, education, enterprise engagement and combinations of members of the households.

Specific objectives (i), (iii) and (ix) were determined with descriptive statistics of frequency distribution, means and percentages. Response to three points Likert type questions in the questionnaire and the Focus Group

Discussions (FGDs) were used to determine specific objectives (iv), (v) and (vii). Decisions on the perceptions of respondents depended on relative positions of the estimated mean of response to the Likert mean score. The values that are at least equal to the mean Likert score signified relevant perception and issues with values less than the mean Likert score were considered as being not much relevant perception. In determining factors responsible for food insecurity (objective viii a) in women headed households, the study subjected variables (household size, level of education of household head, income, size of household own farmland, major occupation, health condition (good=1, sick=0)) to Multiple Linear regression using the Ordinary Least Square (OLS) technique. The OLS model used was as follows:

Y= f(X1, X2, X3, X4, X5, X6, ei) …Eqn 1

Where:

Y=Value of monthly available safe, nutritious food or Expenditure on food (Naira, N);
X1= Household size (number of persons);
X2= Years of formal education (number of years);
X3= Household monthly income (Naira N);
X4= Size of household own farmland (Ha);
X5= Major occupation of household head;
X6= Health condition (good for long =1; sick for long =0);
X7= Unit retail price of rice (N/Kg);
ei= Error term.

In determining factors responsible for hunger (objective viii b) in women-headed households, the study subjected some variables extracted sequel to UNICEF, 1990 recommendations and as uploaded by Qain Martins and used by Godecke, et., al, (2018) was used. These were based on Disability Adjusted Life Years (DALYs) variables (age of household head, value of monthly available safe, nutritious food or Expenditure on food, level of education of woman household head, monthly per capita food expenditure on food, health status, and household per capita monthly income). These were subjected to a multiple regression analysis and since hunger is a sensation captured as a dichotomous feeling (hungry or not hungry) was subjected to a probit function as used by researchers earlier: (Amamiya, 1981; Nguyen, 2007; Emerole, et. al., 2013). This model was stated as follows:

$Yij = \alpha j + \beta j + \Sigma Hijs\ \varepsilon ij$ … …Eqn2.

Where the Hijs are vectors of explanatory variables of the jth women-headed household; Yij is a vector of binary variables such that Yij =1 if the jth household agrees to suffering physical hunger, and 0 otherwise. Since Yij can only assume two different values, hungry or not hungry represented by 1 or 0, the expected probability was defined as follows:

$E(Yij) = E[\ \alpha j + \beta j\ \Sigma\ Hijs + \varepsilon ij\ ] = \alpha j + \beta j\ \Sigma\ Hij\ E(Hij)$ …Eqn 3

Equation (3) defined the proportion of women-headed households with characteristics (Hij) likely to influence physical hunger. The empirical model was specified thus:

$EXP\ Yij = \beta 0 + \beta 1 \ln(AGij) + \beta 2 \ln(MEij) + \beta 3 \ln(EDij) + \beta 4 \ln(PCij) + \beta 5 \ln(EDij) + \beta 6 \ln(HSij) + \beta 7 \ln(ICij) + \varepsilon ij$ … Eqn. (4)

Where variables are as defined in Table 3.1.

**Table 3.1 Description of Probit Analyzed Variables**

| Variable | Type | Description |
|---|---|---|
| EXPij | Binary | 1 if the jth househol otherwise; |
| AGij | Continuous | Age of female househol |
| MEij | Continuous | Value of monthly availa on food (₦'000); |
| EDij | Continuous | Level of formal Educati |
| PCij | Continuous | Monthly per capita food |
| HSij | Binary | Healthy=1; Not Healthy |
| ICij | Continuous | household per capita mo |
| εij | | Error term |

Tests of significance on outcomes of specific objectives viii a & viii b were carried out at 5.0% and 1.0% alpha levels of probabilities.

The food security status was determined with expenditure-based estimates of food security index. Thus, food security was estimated as ratio of per capita food expenditure for each household to two-thirds of the mean per capita monthly food expenditure of the household. Households food security status (objective ii) were

determined and classified using food security index as used by Omonona and Agoi (2007) and Adepoju et al., (2015) with the following model:

Fi = = (per capita food expenditure for each household)/(2/3 mean per capita food expenditure of all the households.) … …Eqn. (6)

Where:
Fi = food security index
When Fi ≥ I = food secure household
Fi < I = food unsecure household.

Thus, a food secure household was one whose per capita monthly food expenditure fell above or was equal to two-third of the mean per capita food expenditure. On the other hand, a food unsecure household was one whose per capita monthly food expenditure fell below two-third of the mean monthly per capita food expenditure.

All the food unsecured households were classified (objective iii) using a household Food Insecurity Access Prevalence 9 standard questions (HFIAP) into mildly, moderately, and severely food unsecured households. Following Coates et al., (2007), a food secure household experiences no food insecurity issues or just experiences worry, but rarely. A mildly food insecure household worries about not having enough food sometimes or often, and/or was unable to eat preferred food and/or eats a more monotonous diet than desired. A moderately food insecure household sacrificed quality more frequently, by eating a monotonous diet, or undesirable food sometime or often, but does not experience any of the three most severe conditions. A severely food insecure household was one that had advanced to cutting back on meal size or number of meals, often and/or experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating) even as infrequently as rarely. Any household that experienced one of these three conditions even once in last four weeks (30 days) of the survey was considered severely food insecure. The mean score computation on data generated was done with a three-point Likert scale and used to assess and compare the perception of women household heads on food insecurity, beliefs and taboos in Abia State rural and urban. The Likert Scale responses were interpreted areas as follows:

Agree = 3;
Undecided = 2;
Disagree = 1

The Likert scaling was used in allocating quantitative values to qualitative issues and perceptions to make them amenable to analysis and interpretations. The values of the responses were added and divided by 3 to get a mean score.

The mean score in this case was estimated as follows: 3+2+1 = 6÷3= 2.0

Responses on assessed food insecurity akin issues with mean score of 2.0 and above were regarded as having influence on their beliefs, taboos issues and mean scores below 2.0 were regarded as not having influence on the parameter considered in relation to food security. Thus, mean of parameters was assessed as follows:

$X=\sum fn/N$ … Eqn 7.

where
X = mean score
∑= summation symbol
N = Total number or frequency of women household heads who respond positively
n = Likert nominal value added on the issue
f = Number of women household heads who responded on each Likert issues.

The FAO (2010) Household Hunger Scale (HHS) was used to estimate analyze levels of household hunger. This scale was developed for Africa and validated for cross-cultural uses (Deitchler et al, 2010).

Table 1.0 Household Hunger Scale (HHS) Module used for this investigation

| No. | Question | Response optior |
|---|---|---|
| Q1. | In the past [4 weeks/30 days] was there ever no food to eat of any kind in your hour house because of lack of resources to get food? | 0 = No (skip to 1 = yes |
| Q1a | How often did this happen in the past [4weeks/30days] | 1=Rarely (1= Rarely (1-2 2= Sometimes (3-10 times) 3 =Often (more than 10 times) |
| Q2 | In the past (4 weeks/30days) did you or any household member go to sleep at night hungry because there was not enough food | 0 = No (skip to Q3) 1 = yes |
| Q2a | How often did this happen in the past [4 weeks/30days] | 1=Rarely (1= Rarely (1-2 times; 2= Sometimes (3-10 times) 3 =Often (more than 10 times) |
| Q3 | In the past [4 weeks/30days] did or any house member go a whole day and night without eating anything at all because there was not enough food | 0 = No (skip to next section) 1 = yes |
| Q3a | How often did this happen in the past [4 weeks/30days] | 1=Rarely (1= Rarely (1-2 times) 2= Sometimes (3-10 times) 3 =Often (more than 10 times) |

Source: FAO, 2010 & Deitchler et al, 2010.

Decoding the response produced results interpretable to give scales or levels of household hunger as follows:

| Household Hunger Score | Household Hunger Categories |
|---|---|
| 0-1 | Little to no hunger in the household |
| 2-3 | Moderate hunger in the household (Very hungry and ready to eat) |
| 4-6 | Severe hunger in the household (Uncomfortably hungry, Starving) |

## III. Results And Discussions

The attributes of women headed households are explained by features considered as characteristics of their identities ascribed to them by variables of age, marital status, level of formal education, household size, occupation and income. These are shown as Table 4.1.

The Table showed age of women in headship of households at least 20 years and at most of greater than 60 years. This revealed that the heads were mostly adults within and above childbearing ages. The distribution of the households was consistent at both rural and urban settlements. The mothers as they were dominated with children (males and females) of within school age (6-17 years) and outside the school age (0-5 years and above 18 years) in both rural and urban areas. Precisely they are of pre-school or the under-five age constituting 54.89% rural and 63.07% urban homes; school age 42.86% rural and 35.38% urban; and post school ages of cumulative 2.25% rural and 1.54% rural. These confer more parenting responsibility (love and discipline of the members) on the women heads of the households. The number of children (male and female) were relatively more than aged members (young population structure) in the households both within rural and urban areas.

The flagship of headship of women in households is their marital status. The Table reveal that there were relatively more single mothers in urban areas (12.50%) than in the rural areas (6.25%). The de facto headship of households by women was more in rural areas (34.38%) than in the urban areas (21.87%) of Abia State. This distribution showed that patriarchal heads of households (men) migrated out more from rural areas to the urban areas (Onitsha, Aba, Port Harcourt, Lagos and Kaduna) for industrial and civil service jobs than men leaving these cities to the villages for farm works. The rural household remaining the source of labour for industries, transportation, commerce, civil and public service jobs justifies more of de facto women household heads in rural areas than in the urban areas of the state. There were more married and separated women in headship of households in urban (31.25%) area than in rural areas (21.87%). This might be effect of a relatively stronger cultural ties against spouses' separation from marriages in the rural areas than as it exists in the urban areas on account of neoliberal urban developments (Desai, 2021). This researcher was further of the view that feminist geographical perspectives are crucial in discussions of gender on axes of differences in demographic consideration of factors of age, class and poverty.

The Table further showed that households headed by widows in both the rural and urban areas were many. The widows constituted at least one third of women in headship of households both in rural and urban

areas. This is because life and death are natural occurrences with the death of a spouse leaving a survivor with responsibility of piloting affairs of a hitherto jointly managed household. Widows in the management of such homes were vulnerable to many forms of abuses and are not motivated to provide enough and culturally accepted foods since they live in poverty, debt, shame and deprivation (Mohindra, et. al., 2012).

In terms of education, women in headship of households both in rural and urban areas were reasonably educated in Abia State. cumulatively, 84.37% and 90.62% of households in rural and urban areas headed by women respectively had some level of formal education with the largest proportion of having secondary school education. While 37.50% of these women in rural area had secondary education as large as 43.75% of the women had secondary education in the urban areas. At primary and tertiary education levels, one fifth proportion of respondents at least respectively had formal education in the state. Poor nutrition education likely to abound with household heads with no formal education and those with only primary education is a barrier to providing and eating balanced diets (Ozioko, et. al., 2020). The preponderance of female household heads with at least secondary school education is an attribute of assuring easy escape from any level of dietary food insecurity in the households.

The size of households headed by women in the area across the distribution is small (1-4 members) or 53.38 in rural area and 60.77% in urban area; is moderate (5-8 members) or 35.34% in rural area and 34.61% in the urban area.

These households were sustained with incomes from livelihood occupations which included farming, trading, civil and public service, teaching, hairdressing and others. The women household heads took most to farming (31.25%) and least to hairdressing (12.57%) in rural areas while in the urban area they took most to trading (25.00%) and least to farming (15.62%). The civil service job in rural area (43.75%) and teaching job in the urban areas (56.25%) respectively absorbed the largest proportion of members of work age of the women-led households in Abia State. On the average, the income earning members of the households with the heads jointly earned poorly monthly values of N175,782.50 in rural areas and N213,125.07 in the urban areas of Abia State. Poor earned incomes is a vent to deficits in meeting household needs including provision of required foods for proper living.

Table 2.0 Socioeconomic attributes of women-headed households

Female-headed Households Food Insecurity Measures

Food insecurity here is measured as a household-level concept that refers to uncertain, insufficient, or unacceptable availability, access, or utilization of food that must affect at least one member of the household. In measuring food insecurity in a household, variables of time, frequency and duration are of essence. Following Coates et al., (2007) on Household Food Insecurity Access Prevalence 9 standard questions (HFIAP) was used on the households.

Female-headed Households and Expenditures on Food

Food items produced (own productions) and the foods purchased by farm and urban located households and consumed are shown in Table 4.2(a). The food items consumed in a year were rice, beans, garri, cassava, yam, palm oil, plantains, eggs, fish, meat, fruits, and vegetables. The farm households engaged in production of the food items as follows: rice (45.31%); garri (48.44%); yam (39.06%), plantain (34.38%), beans (28.13%); palm oil (21.88%); tomatoes/spices (26.56%). Fruits (50.00%), vegetables (50.00%), and meats/fish/eggs (21.88%). All the households bought their crayfish (oysters) from the local markets. Some of the rural households also bought items which they were not producing enough from the markets to meet their food needs within limits of their consumption budget line. The urban households bought all these foods from the market suggesting that urban agriculture was seldom a practice of the women households. The value of annual food bought from the markets by all households was N5,300,000.00 and was much compared with N3,437,000.00 imputed value of own production.

Table 4.2(a) Distribution of Women headed Households by Annual Expenditure and Annual Economic Values of Food Items Consumed in Abia State State, Nigeria (n (rural + urban) =64).
Source: Field Survey Data, 2022

Food Insecurity Status of women-headed households

A ratio of mean per capita expenditure on foods of the women-headed households to two-third mean household expenditure on foods of all the sampled women-headed households in Abia State that are less than or equal to unity, measured food insecurity. The mean per capita expenditure on foods of the women-headed households in Abia State was estimated as N417.48. The mean household expenditure on foods of all sampled households was N136,515.63 with a two-third value of N91,010.42. This value was used as denominator to per capita expenditure on food of each household to give the food security indexes (F) in each household. The

frequency and classification of statuses of the household food security are shown as Table 4.2 (b). The distribution showed that 71.87% of the women-headed households were food insecure and only 28.14% were food secured in the State. The women-headed households in the State had adequate foods (availability) and could easily reach the foods -accessibility/affordability from their own productions/from purchases or both (Barrett, 2007). Continuous supply of the foods guaranteed food stability in them (Devereux et. al., 2004), Food insecurity is a serious void in physical, social and mental wellbeing in households that may be occasioned by shocks, especially climatic and civil conflicts triggering transitory or chronic food insecurity (Ziervogel & Ericksen, 2010).

Table 4.2 (b) Distribution of Women Headed Households by Food Security Status in Abia State, Nigeria

| Food Security Status | Number of Household |
|---|---|
| Food Secured (Fi≥ 1) | 18 |
| Food Insecure (Fi ≤ 1) | 46 |
| Total | 64 |

Source: Field Survey, 2022

The behaviours of the households that were food insecure was assessed on household Food Insecurity Access Prevalence 9 standard questions (HFIAP) and the outcome shown as Table 4.2 (c). The Table showed that 10.94% of the households suffered mild food insecurity, and 28.13% suffered moderate food insecurity with 32.81% of the households suffered severe food insecurity. This showed that more households and members of the households had food problems, worried much on what to eat, and could go to bed without food or go a whole day and night without eating. Some of the victims however manifested attributes of hunger (uneasy or painful sensation due to lack of food, recurrent and involuntary lack of access to food) at their personal levels. This observation was sequel to embracing standards by Life Sciences Research Office (LSRO) of the Federation of American Societies for Experimental Biology for explaining hunger and food insecurity that have been widely used. Expressing hunger sequel to food insecurity in severity shown by the households portends danger of malnutrition, starvation, diseases and consequent deaths arising from uncertain, insufficient, or unacceptable availability, access, or utilization of food (USDA, 2006). However, that a household was food insecure, did not mean that everyone in such household was hungry since hunger is a potential and not necessarily a consequence of food insecurity (Anderson, 1990).

Table 4.2 (c) Distribution of Food Insecure Households by HFIAP Attributes and Coping Behaviours in Abia State, Nigeria

| Food Insecurity Status | Attributes and Coping Behaviours | Number (Percent %) |
|---|---|---|
| Mildly food Insecure | (i) Worries about not having enough food sometimes or often;<br>(ii) Unable to eat preferred food;<br>(iii) Eats a more monotonous diet than desired | 7 (10.94) |
| Moderately food Insecure | (i) Eats monotonous diet;<br>(ii) Eats undesirable food sometimes or often;<br>(iii) Does not experience most severe conditions:- running out of food; going to bed hungry; going a whole day and night without eating even for once in the last 39 days. | 18 (28.13) |
| Severely food Insecure | (i) Cuts back on meal size;<br>(ii) Cuts back on number of meals often;<br>(iii) Going a whole day without food;<br>(iv) Going a whole day and night without food. | 21 (32.81) |

Source Field Survey, 2022

Perceptions of Women in Headship of Food insecurity, Beliefs and Taboos in Urban and Rural households

Table 4.3 shows perceptions of women heads in households within rural and urban areas of Abia State, Nigeria on food insecurity problem. The Table revealed general difference on issues of food insecurity between the rural and urban women households. There was similar perception in the mean values recorded o rural and urban women household heads on fact that food secure and food insecure households buy a similar number of calories to meet their food needs. This condition was only necessary to avoid hunger but demanded relatively a high budget line on food insecure households than to the food secure household irrespective of their residential location. However, the women did not post similar perceptions on varieties of food eaten. The perception of women in urban areas more conciliates the quality of foods and their behaviours on foods eaten by the households than that eaten by the households of the rural women.

On grounds of beliefs, Table 4.3 further shows that rural women led households more than on the perceived beliefs: existing interaction between food insecurity and local knowledge; pregnant women avoiding oily foods especially during the first trimester to ameliorate early morning sickness; eggs eaten early in life (infants less than two years of age) deterring their brain development; and feeding infants long with breast milk, differed with the urban women led households. Further on basis of belief, the urban women led households more than perceived that unborn babies gained more gestational weight and bulk from some foods eaten by their mothers and not others. Heavier birth weights and labour complications are avoided by such beliefs on generational divide of nutrition status between mother unborn child or children (Ekwochi, et. al., 2016).

Table 4.3 further showed it was a taboo perceived more in rural households that infants below the age of two years are not to be fed on eggs. The perception was that feeding them on eggs early in life deny them good cognitive brain development and deny them good morals of not stealing when they grow up. Another taboo but which was recognized more by women led households in urban area was avoiding feeding Pregnant mothers much on carbohydrate foods. This was to reduce transferring weight and bulk to their unborn babies (Ekwochi, et. al., 2016). This was a symmetry taboos in urban and rural areas in food items not erased by education or exposure to modernity.

Table 4.3 Comparative Distribution of Women Perception of Food Insecurity, Beliefs and Taboos in Rural and Urban Women-Headed Households in Abia State, Nigeria.

Rank of food unsecured and hungry Households with Occupations of women in Headship of households

Table 4.4 is a distribution of women headed households by major occupation and their vulnerability to food insecurity and hunger in Abia state. The Table revealed that food insecurity and hunger was most amongst women household heads in teaching (17.19%) as their major occupation and least amongst women traders (10.94%) with trading as their major occupation. The teachers are poorly paid both in amount and regularity with no backyard farms to call their own. They spend much of their income frugally in updating their knowledge through in-service training and on food. The petty traders are better off in accessing food both from their backyard farms and from the markets. They enjoyed varied amounts of income characterized with better gains or profits from sales which enabled them pay for the foods they buy with relative ease.

In-between the above two occupations or means of livelihood were in descending order of rank of food insecurity and hunger were hair dressing (15.63%), civil service (14.06%), and farming (14.06%), This ranking goes to restate that the women farmers in leadership of the households were small-scale with no ownership right to the lands the cultivate. The system of land tenure in this area is communal and patriarchal such that households headed by women except the de facto household heads had no claims to the lands they cultivated (Arua & Okorji, 1997).

Table 4.4 Distribution and Ranking of Households by Major Occupation and Vulnerability to Food Insecurity and Hunger

| Major Occupation of Women household head for livelihood | Number of households | Number of Food unsecured and hungry households | Percent (%) Vulnerable | Rank |
|---|---|---|---|---|
| Farming | 15 | 9 | 14.06 | 3 |
| Trading | 15 | 7 | 10.94 | 5 |
| Civil Service | 11 | 9 | 14.06 | 3 |
| Teaching | 13 | 11 | 17.19 | 1 |
| Hair Dressing | 10 | 10 | 15.63 | 2 |
| Total | 64 | 46 | | |

Source: Field survey estimates 2022

Perceptions of Women in Headship of Hunger, Beliefs and Taboos in Urban and Rural households

Sensations of hunger by humans are associated with the individual's perceptions of a meal and not how much food (quantity) that is available at the time of need. Physical hunger is psychologically a feeling controlled

by a hormone called ghrelin. Hunger can be hidden when we consider need for trace minerals in foods eaten. Table 4.5 shows perceptions of women heads of households on hunger, beliefs, and taboos within rural and urban areas of Abia State, Nigeria. The Table revealed general perception and levels of perception on issues of hunger between women headed rural and urban households. It was below mean perception of rural and urban women household heads that hunger in their households before mealtime was the same. The women perceived above mean value that hungry households purchased less varieties of food, but the level of this perception differed and skewed in favour of women heading rural households. The Table also showed the perception of women in urban areas more than agreed that quality of food helped to conciliate hunger feelings and food hunger behaviours in the households.

Table 4.5 further showed belief of women in household leadership in urban and rural areas that food hunger more than interacts between feeling hungry and feeling thirsty. On belief of hunger, the rural women-led households more than perceived that high calorie foods (eggs) and fiber foods eaten early in life enhanced physique and body build of infants (Winicki & Jemison, 2003). The belief that babies starved of foods easily fall ill and recover sluggishly too was more a perception of women heads in rural households than it was the perception of women in headship of the urban households. This belief that hungry pregnant women developed mental illnesses (depression and anxiety) easily even after giving birth was perceived more by women in leadership of rural households than those in leadership of urban households.

Dietary prohibitions (taboos) in Africa apply particularly to meat, eggs, fish and milk. Table 4.4 further showed that it was a taboo highly perceived, that pregnant women should not eat bush meat. This perception was more in rural households headed by women than in the urban households headed by women. The skew in this perception was not strange since rural based households directly received more of the bush meat from hunters than households in urban areas. Another taboo shown in Table 4.4 and perceived highly in the area and also more in the rural areas was that infants below the age of two years are not to be fed on eggs and fruits. The perception was that feeding them on eggs early in life deny them good development of cognitive brain and deny them good morals of abstaining from theft when they grow up. The argument against feeding them on fruits was to prevent them from contracting gastrointestinal infections such as diarrhea and dysentery. The taboo preventing pregnant mothers from feeding more on carbohydrates was perceived more by women led households in urban area than by women-led households in the rural areas. This perception was hinged on reducing chances of transferring much weight and bulk from starchy foods to the unborn babies (Ekwochi, et. al., 2016). The taboo promotes shift in dietary dependence on carbohydrates and encouraged pregnant women to feed more on protein-based foods. This taboo was symmetrical prohibition of food eaten in urban and rural areas which education or exposure to modernity have done little to eradicate.

Table 4.5 Comparative Distribution of Women Perception of Hunger, Beliefs and Taboos in Rural and Urban Women-Headed Households in Abia State, Nigeria.
\Source: Field Survey, 2022.
* ND= No Difference in perception; DR= Difference in perception in favour rural households; DU= Difference in perception in favour urban households.

Levels of Hunger and Coping behaviours in women headed households

Table 4.6(a) shows zero physical hunger in 28.13% of the households and cumulatively 71.87% of the households lived at different levels of physical hunger. The score of 2-3 on the hunger scale placed 51.56% of the women-headed households on moderate physical hunger position suggesting that they are physically very hungry and ready to eat whenever food was made available. A proportion (15.63%) of the households scored 1.0 on the hunger scale and perceived they experienced little hunger and yet a smallest proportion (4.68%) scored high (4-6) on hunger scale and experienced severe hunger. This category of women-headed households was uncomfortably hungry or were seen to be starving. The households under this category had members that are weakened by hunger and are malnourished and prone to diseases.

Table 4.6 (a) Distribution of Women-Headed Households by Levels of Physical Hunger in Abia State, Nigeria Household

| Hunger Score | Number of Households | Household Hunger level | Percent (%) |
|---|---|---|---|
| 0 | 18 | Zero hunger in the household | 28.13 |
| 1 | 10 | Little hunger in the household | 15.63 |
| 2-3 | 33 | Moderate hunger in the household | 51.56 |
| 4-6 | 3 | Severe hunger in the household | 4.68 |
| Total | 64 | | 100.00 |

Source: Field Survey, 2022.

The behavioural strategies adopted by the women-led household in fight against hunger was distributed as Table 4.6(b). The Table showed that 86.96% of the women households skipped meals, 59.38% reduced amount and frequency of meals, 56.25% relied on less expensive foods, another 56.25% rationed foods for adults to provide more foods for children, 43.75% reduced portions of meal sizes at meal time, 42.19% skipped payment of bills and other household expenses to pay for foods and 37.50 bought foods on credit to cope with hunger.

Table 4.6 (b) Distribution of Women Headed Households by Hunger Coping Behaviours

| Hunger Coping Behaviour | Number of Households (n=64) | Percent (%) |
|---|---|---|
| Reliance on less expensive foods (buying fewer fruits and vegetables, meat, fish and crayfish) | 36 | 56.25 |
| (ii) Reducing portion size at mealtimes | 28 | 43.75 |
| (iii) Skipping meals | 40 | 86.96 |
| (iv)Rationing food for adults to secure more food for children | 36 | 56.25 |
| (v) Reducing amount and frequency of meals | 38 | 59.38 |
| (vi) Buying foods on credit | 24 | 37.50 |
| (vii) Skipping bill payments and other household expenses to pay for foods | 27 | 42.19 |
| (viii) Feed normally-no hunger coping behavior. | 18 | 28.13 |
| Total | 64 | |

source: Field Survey, 2022. Multiple responses were observed.

Effects of household Food Insecurity and Consequences on Education, Peace, Health and Primary Enterprise choice of members of the households

Vital arms of livelihood (education, peace, health, and enterprise) are receptors of menace of food insecurity and hunger in a household. The women perceived effects of food insecurity differently and their perceptions were captured and presented as Tables 4.7.

Table 4.7 revealed that women in headship of households perceived that food insecurity had negative effects on all the vital arms of livelihood. Each attribute of the vital arms of livelihood investigated except their primary enterprises was perceived to have above average effect and negatively influenced by food insecurity. The negative effects of food insecurity as perceived by women on education was measured and outcome ranged from mean value of 2.36 for performance of social skills to 2.53 for grades in Mathematics and other cognitive assignments. These conform to the findings of earlier researchers, Ames et. al., (2013) that established an inverse relationship of poverty and food insecurity on educational achievement in United States of America. In Ghana, Masa & Chowa (2021) found that food insecurity was negatively associated with wide ranging educational outcomes related to learning and socio-emotional abilities, academic self-efficacy, commitment to school and academic aspirations, poor attendance to school and expectations amongst adolescents. They noted that access to food was of importance to cognitive and non-cognitive education outcome. In a similar vein, Ajayi et. al, (2015) found that food insecurity negatively impacted children academic performance, weight gains and social skills in Oyo State, Nigeria. The United Nations have noted that food insecurity especially has potent and long-lasting effects on children, who may suffer irreversible harm to their cognitive and physical capacities when such nutrition is compromised before the children are aged two years (FAO, 2016). Negative influence on educational performance imply low productivity in educational sector and may justify implementation of the short-term policy of free school meals in primary and secondary schools.

The Table further showed that there was no peace in food unsecured homes in Abia State, Nigeria. The attributes of peace equally negatively scored above average. The no observation of leisure or relaxation had a mean score of 2.5, and high occurrence of disagreements and quarrels in homes had a mean score of 2.56. Both revealed that a food insecure home is jittery and unsettled for fear of not assured of where the next meal comes from. Food security and nutrition and related government interventions can be put in place to mitigate conflicts in homes and enhance social cohesion and livelihoods especially in agriculture. They help to address root causes of disagreements between couples, landowners and farmers who might be renting lands for food production. United Nations have noted that loss of lives, injuries, lifelong impacts of malnutrition, displacement, theft or destruction of farming and productive assets, and damage to infrastructure, have negative impacts beyond the duration of violence itself (FAO, 2016).

The women perceived that food insecurity negatively affected their household health. Their perception on low energy at work had a mean score of 2.41; that on high occurrence of fever, cold and dizziness ha a mean score of 2.44; and their perception on greater weight loss in children had a mean score of 2.52. These scores

suggest that a food insecure home had unstable health and are likely to spend money more on medication than on foods required for healthy living. Chronic food insecurity in homes is a serious void in physical, social and mental wellbeing arising from shocks (Ziervogel & Ericksen, 2010)

Table 4.7 Distribution of Women Perception of Effects of Food Insecurity on Education, Peace, Health and Primary Enterprise Choice of Head of households (n=64).
Source: Field Survey, 2022. –ve = Negative effect; +ve = Positive effect; AA= Above Average; BA= Below Average.

Effects of household Hunger and Consequences on Education, Peace, Health and Primary Enterprise choice of members of the households

Table 4.8 revealed that women in headship of households perceived that hunger had negative effects on all the vital arms of livelihood. Each attribute of the vital arms of livelihood investigated except their primary enterprises was perceived to have above average effect and negatively influenced by hunger. The negative effects of hunger as perceived by the women household heads on education was assessed and outcome ranged from a mean value of 2.48 for poor attendance to school and workshops to mean value of 2.52 for each of low grades in Mathematics and other cognitive assignments, low performance of social skills, and poor attendance to social gatherings. Hunger being a feeling affects education through psychological and behavioural manifestations. Walthouse (2014) confirmed the findings of American Psychological Associations that hunger cause depression, anxiety, and withdrawals in victims all of with obstruct to child trying to focus on education. The manifestations of hunger on the victim are discomforts that distracts attention and concentration in learning. Hunger was really not just a stomach thing. Cogan, (2021) express these discomforts as issues that curb a child's physical development inhibiting his/her ability to focus and perform limiting their education and future achievements. Stevens, (2016) observed that Children who are hungry and malnourished fall behind in schools because they cannot concentrate, and they often miss classes as they help their families put food on their tables. A healthy brain uses 20.00% of the body's energy and energy comes from food, meaning that hunger starves the brain.

On basis of measures of peace in the households, the Table showed a measure of 2.41 on high occurrence of disagreements and quarrels in homes; and 2.55 for no enjoyment of leisure and relaxation. These are negative influences on peace in the homes confirming a general saying that a hungry man is an angry person.

The effects of hunger on education and peace share closely and form a nexus with its effect on health. Table 4.8 further showed that greater weight loss in children measured 2.41 behind its measure on high occurrence of fever, cold and dizziness that measured 2.44 and yet behind low energy at work that measured 2.55 on mean score assessment. Therefore, the findings of Walthouse, 2014, Stevens, 2016 and Cogan, 2021 in the citations of health convey unambiguous explanation of effects of hunger on health.

The effect of hunger on primary enterprise choices showed that the women perceptions measured above mean values (trading on food items 2.27; engagement in farming 2.41 and engagement in public service 2.44) all with negative implications on livelihood welfare except for engagement in crafts (1.92) that was below mean value. The physical and emotional feels created by hunger created confusion even in choice of enterprises by the women heading households in the study area.

Table 4.8 Distribution of Women Perception of Effects of Hunger on Education, Peace, Health and Primary Enterprise Choice of Head of households (n=64)

| Perceived Effect of Hunger on: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Agree(3) | Undecided (2) | Disagree(1) | | | | | |
| Mean ∑fn/N | Effect (+ ve or -ve) | | | | | | |
| Education | | | | | | | |
| Low grades in mathematics and other academic assignments | 117 | 40 | 6 | 2.52 | -ve AA | | |
| Low performance of social skills | 114 | 40 | 7 | 2.52 | -ve AA | | |
| Poor attendance to school and workshops | 120 | 30 | 9 | 2.48 | -ve AA | | |
| Poor attendance to social gatherings | 114 | 42 | 5 | 2.52 | -ve AA | | |
| Peace | | | | | | | |
| High occurrence of disagreements and quarrels in homes | 120 | 20 | 14 | 2.41 | -ve AA | | |
| No enjoyment of leisure or relaxation | 117 | 42 | 4 | 2.55 | -ve AA | | |
| (c ) Health | | | | | | | |
| Greater weight loss in children | 120 | 20 | 14 | 2.41 | -ve AA | | |
| High occurrence of fever, cold and dizziness | 120 | 24 | 12 | 2.44 | -ve AA | | |
| Low energy at work | 117 | 42 | 4 | 2.55 | -ve AA | | |
| (d)Enterprise Choice | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Engagement in farming | 120 | 20 | 14 | 2.41 | -ve AA |
| Trading on food items | 81 | 54 | 10 | 2.27 | -ve AA |
| Engagement in crafts | 87 | 28 | 8 | 1.92 | -ve BA |
| Engagement in Public Service | 120 | 24 | 12 | 2.44 | -ve AA |

Source: Field Survey, 2022. –ve = Negative effect; +ve = Positive effect; AA= Above Average; BA= Below Average.

Factors responsible for (Determinants of) food insecurity in women headed households

The OLS estimates of variables hypothesized to be responsible for food insecurity in women headed households in Abia State, Nigeria are presented as Table 4.9. All the four tried functional forms gave significant F-values at 1.00% alpha level of significance, indicating that they all fitted the data well and can be used to estimate the determinants. However, the Exponential function gave the highest F-ratio (10.207) and Adjusted R-Square (0.913 or 91.3%) values and was therefore used as lead function in explaining the model.

The exponential function showed that five of the six tried variables had significant influences on food insecurity observed in the women headed households in the State. These factors were Household size, level of formal education, household monthly income, household own farm size, health condition, and unit retail price. The only factor that did not significantly influence household food insecurity was the major occupation of the household head.

The highly significant factors (P< 0.01) that showed positive influences were household size, household monthly income, and household own farm size. The positive influences meant that household food insecurity increased as either or all of household size, household monthly income, and household own farm size increased in the women-headed households. The other factor that showed moderate positive significant influence (P< 0.05) was unit retail price of foods. The level of formal education of women household head showed moderate negative significant (P< 0.05) influence on household food insecurity. These findings conform to the findings of Deressi et al, 2009, Oluwatayo, 2009, Bashir & Shilizzi, 20013 on issues of household size influencing food insecurity. In case of food prices, Bashir & Shilizzi were of the opinion that when food prices rise rural households with low income streams are hard hit as they are not in a better position to purchase enough food to fend for their households and therefore remain food unsecured and food expenditures will not be proportionate to food productions.

Table 4.9 Ordinary Least Square (OLS) Estimates of Variables Responsible for Food Insecurity in Women Head of Households in Abia State, Nigeria

| Variable | Functional Forms | | | | |
|---|---|---|---|---|---|
| | Linear | Semi-Log. | Double-Log. | Exponential+ | |
| Constant | 84.21(13.22) *** | 94.08 (2.442) ** | 77,12(9.181) *** | 4.77 (17.03) *** | |
| Household Size | 6.98 (2.432) ** | 25.98 (0.917) | 0.034 (2.332) ** | 0.211(3.168) *** | |
| Years of Formal Education | | -0.684 (-0.167) | -16,90 (-6.97) | -0.21 (-0.271) | -21.21 (2.361) ** |
| Monthly Income | -2.072 (-2.61) ** | -21.79 (-2.11) ** | -0.102 (-0.77) | -0.024 (3,01) *** | |
| Own Farm Size | 0.012 (2.23) ** | 1.48 (1.844) | 1.44 (1.74) | 0.862 (2.96) *** | |
| Household Head Major Occupation | | 6.73 (2.11) | 12.33 (0.76) | 0.083 (1.32) | 0.036 (2.16) |
| Health Condition | 0.31 (1.98) | 3.11 (1.01) | 2.44 (1.05) | 1.34 (1.67) | |
| Unit Retail Price | 41.02 (3.11)*** | 7.42 (0.98) | 11.32 (1.97) | 32.11(2.98)** | |
| R-Square | | | | | |
| Adj. R-Square | | | | | |
| F-Ratio | | | | | |
| 0.883 | | | | | |
| 0.775 | | | | | |
| 9.872*** | 0.452 | | | | |
| 0.411 | | | | | |
| 6.207*** | 0.648 | | | | |
| 0.569 | | | | | |
| 8.764*** | 0.984 | | | | |
| 0.913 | | | | | |
| 10.207*** | | | | | |

Dependent Variable = Monthly Expenditure on food (Naira, N'000). ** =Significant at 5.00%; ***= Significant 1.00%.

Source: Estimates from Field Survey, 2022.

Factors responsible for (Determinants of) hunger in women headed households

The Probit estimate of the factors that influenced hunger in women-headed households in Abia State, Nigeria was shown as Table 4.10. The Table revealed that the factor that most highly and negatively influenced hunger (P<0.01) in the households was monthly food expenditure. This negative relationship meant that as monthly food expenditures increased in the households, hunger lessened. Other negative factors that influenced hunger in the households (P< 0.05) were Per capita Expenditure on food, Per Capita monthly income, and lowly (P<0.10) poor health status of the household head negatively influenced hunger. These meant that as per monthly household income, per capita expenditure on food and poor health status of the woman household head increased, hunger declined in the households. The scenarios were plausible since households with better income afforded to spend more and reasonably on food to feed members on varieties of culturally acceptable nutritious foods and by doing so quenched hunger. The age of the household head however positively determined hunger in the women-headed households. This meant that as the women household heads advanced in age (especially the retirees), their households experienced more hunger.

Quenching hunger means removing feelings of light headedness, headaches due to hunger and allowing members to concentrate (focus) with calmness on every issue of life (Cogan, 2021). The Table captured significant and positive influence (P< 0.10) of good health of breadwinner on hunger. Good health of the woman household head allowed her to work optimally, earn requisite income and spent reasonable on food to avert household running out of food and prevent hunger and make members feel full physically (Stevens, 2016).

Table 4.10 STATA 12.0 Probit Estimates of Factors Determining Hunger in Women-Headed Households in Abia State, Nigeria.

| Explanatory Variable | Coefficient of Parameter | z-Value | P>IzI |
|---|---|---|---|
| Constant | 2.8731 | 0.831 | 0.3421 |
| Age | 1.043 | 2.601** | 0.0052 |
| Monthly Food Expenditure | -1.620 | -2.110*** | 0.0002 |
| Level of Formal Education | -0.032 | -0.016 | 0.2141 |
| Per Capita Expenditure on food | -0.065 | -0.453 ** | 0.0042 |
| Health Status | -0.054 | -.0.054 * | 0.0651 |
| Per Capita monthly income | -1.891 | -2.621** | 0.0077 |
| Log. Likelihood | | | |
| Pseudo R-Square | -64.063 | | |
| 0.5642 | | | |

*=Significant at 10.0%; ** =Significant at 5.00%; ***= Significant 1.00%.
Source: Field survey estimates 2022.

This study on food insecurity and hunger knowledge, status, and behaviours of women-headed households in Abia state used a mixed method and investigated many issues. The study specifically described socio economic attributes of women-headed households in Abia State, Nigeria; determined food security status of women-headed households in the study area; classified women-headed households on basis of their food insecurity status in the study area; explored and compared food insecurity perceptions, beliefs and taboos in households headed by women in urban and rural areas of the study area; explored and compared hunger perceptions, beliefs and taboos in households headed by women in urban and rural areas, of the study area; determined levels of hunger and coping behaviours in women headed households in the study area; reviewed consequences and perceived effects of household food insecurity and hunger on education, peace, health and enterprise choice of members; determined factors responsible for food insecurity and hunger in women-headed households in the study area; and identified and ranked food unsecured and hungry households by major occupation of women household heads.

The mixed methods involved use of a survey during which a semi-structured questionnaire was used to capture household continuous quantitative information and sessions of Focus Group Discussions (FGDs) were held to capture qualitative information. A convergent mixed methods design was appropriate because in this study qualitative and quantitative data were collected in parallel occasions, analyzed separately, and then merged in overall analysis and interpretation. The FGD sessions were conducted with group of five urban-based and five rural-based women-headed households respectively. The Likert type questions helped in assessing the beliefs and feelings and consequences of food insecurity and hunger on the households and group perceptions and belief on food insecurity, hunger, coping strategies, consequences of food insecurity or security on health condition, peaceful and crisis condition, education, enterprise engagement and combinations of members of the households.

A combination of analytical approaches was used including frequency distribution, expenditure approach determination of food security index, Ordinary Least Square (OLS) and Probit method determination

of food insecurity and hunger in the households. The frequency distribution approach embraced household Food Insecurity Access Prevalence 9 standard questions (HFIAP) where necessary.

Results showed that value of annual food bought from the markets by all women-headed households was N5,300,000.00 and was much compared with N3,437,000.00 imputed value of own production. It was shown that 71.87% of the women-headed households were food insecure and only 28.14% were food secured in the State. Amongst the food insecure households, it was shown that 10.94% of the households suffered mild food insecurity, and 28.13% suffered moderate food insecurity and 32.81% of the households suffered severe food insecurity. This showed that more households and members of the households had food problems, worried much on what to eat, and could go to bed without food or go a whole day and night without eating. Most of the victims of food insecurity manifested attributes of hunger (uneasy or painful sensation due to lack of food, recurrent and involuntary lack of access to food) at their personal levels. The FGDs captured varied perceptions of the women on knowledge of food insecurity and hunger on beliefs, taboos in the rural and urban areas. The perception of women in urban areas more conciliated quality of foods and their behaviours on foods eaten by the households than quality of foods and behaviours on foods eaten by households of the rural women. Women in headship of households perceived that food insecurity and hunger had negative effects on all the vital arms of livelihood of education, health, peace and enterprise choice.

The OLS regression showed that food insecurity amongst women-headed households in the area, was positively and significantly determined by household size, household monthly income, household own farm size and unit retail price of foods. This meant that food insecurity increased with increase in any of these variables. The model further revealed that level of formal education of women household head had moderate negative significant influence on food security of the women-headed households. The Probit regression estimates revealed that age of women household head, monthly food expenditure, Per capita Expenditure on food, and Per Capita monthly income negatively influenced hunger. This meant that hunger declined with increase of any of these variables.

Hunger was highly and negatively influenced by monthly food expenditure and negatively influenced by per capita expenditure on food, per capita monthly income, and health status of the household head. The age of the household head however positively determined hunger in the women-headed households. This meant that as the women household heads advanced in age (especially the retirees), their households experienced more hunger. However, good health condition of the woman household head had negative influence on hunger as it allowed her to work optimally, earn requisite income and spent reasonable on food to avert household running out of food and prevent hunger.

The ranking of food insecurity and hunger by livelihood occupations showed that food insecurity and hunger were most amongst women household who are in teaching (17.19%) as their major occupation and least amongst women household heads that engaged in trading (10.94%) as their major occupation. In-between the above two occupations or means of livelihood in descending order of rank of food insecurity and hunger were hair dressing (15.63%), civil service (14.06%), and farming (14.06%). The presence of food insecurity and hunger amongst women-headed farming households was not unconnected with their behaviours of selling bulk of staple foods produced to enable them buy other household needs, agrochemicals such as fertilizers, pesticides, and hire labour.

## IV. Conclusions

This study concluded as follows:

That women-headed households have good knowledge of food insecurity and hunger as a good number of them were experiencing these phenomena;

Many of the food insecure households were hungry and needed unhindered access to quality and culturally acceptable foods;

There are varied perceptions of women-headed households on issues of food and belief, hunger, taboos, coping strategies, consequences of food insecurity or security on health condition, peaceful and crisis condition, education, enterprise engagement of the households;

Food insecurity and hunger adversely affects health, peace, education, and enterprise engagement for livelihood in women-headed households;

Food insecurity amongst women-headed households was positively and significantly determined by socioeconomic factors (household size, household monthly income, household own farm size and unit retail price of foods);

Hunger amongst women-headed households was negatively determined by monthly food expenditure, Per capita Expenditure on food, and Per Capita monthly income;

Food insecurity and hunger by livelihood occupations ranked highest amongst women household headed by teachers as their major occupation and ranked the least amongst women household headed by traders as their major occupation.

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