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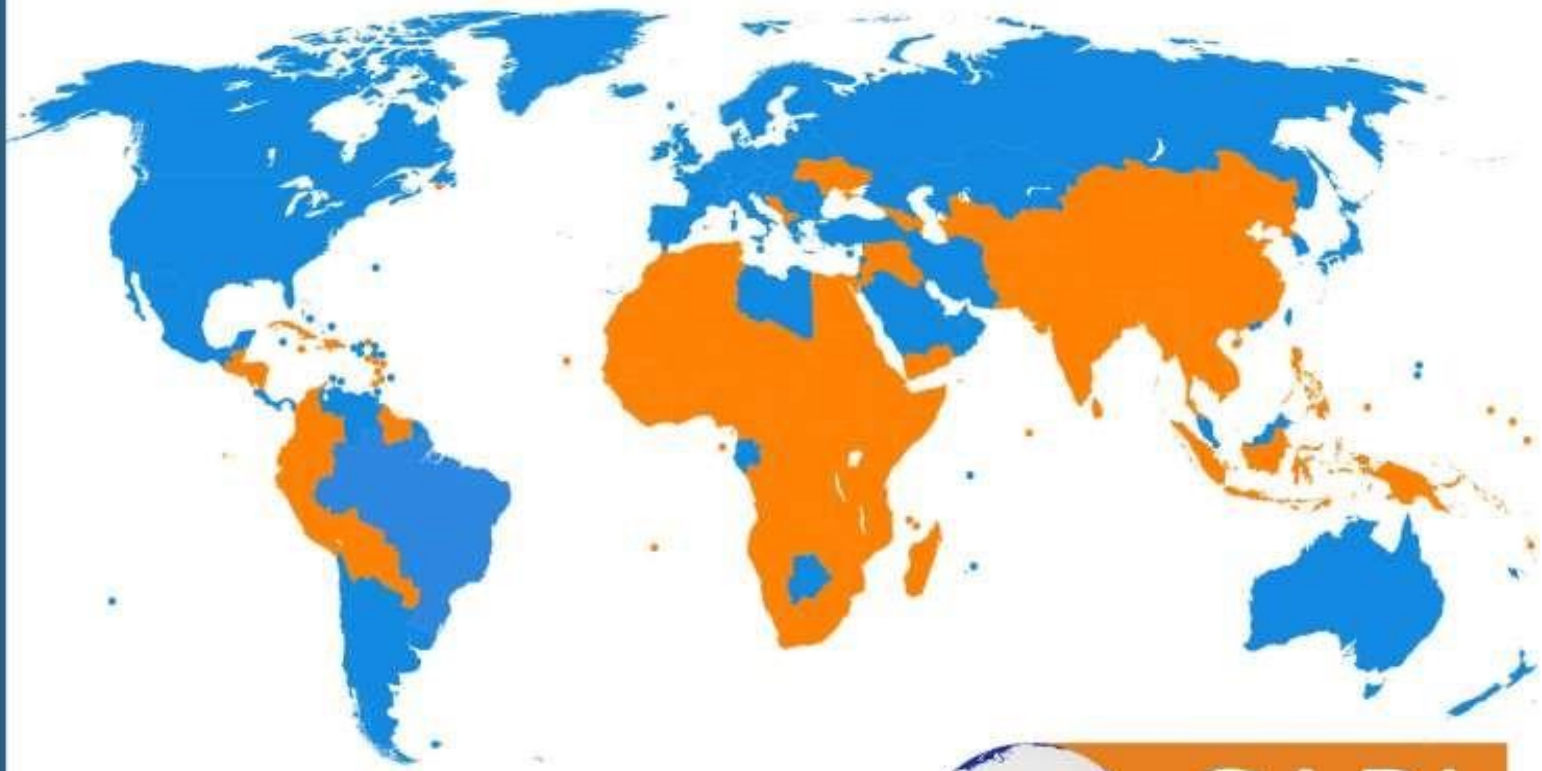

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Household Size and Household Food Security in Ngetta Ward, Lira City, Northern Uganda

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ABSTRACT

Purpose: The study examined the effect of Household size/family size on Household food security in Lira city East Division. Specific issues that were studied are; the impact of average household size on household food security, the level of household food security and the effect of household size on household food security "household food security and whether household size affects household food security.

Methodology: A purposive sampling and simple random sampling method for the study was used to select houses in each cell for the distribution of the questionnaire. Questionnaires and interview guide served as the main tools for data collection. The study targeted a sample population of 300 respondents out of which 60 participants were drawn from the small family and the other 240 from the large family in the study area.

Findings: The findings indicated that, large family size puts an extra burden on food consumption and is more likely to experience food insecurity in contrast to households with a small and average family size. Large households, with more young or school-going children, also tend to fall below the poverty line and vulnerable to food insecurity. The results further revealed financial problems, lack of parental care and poor heath as the challenges faced by large families.

Unique contribution to theory, practice and policy: This study contributes to the understanding of the relationship between household size and household food security so that policy makers can plan for an ever growing human population especially in the rural and peri-urban areas. The study recommends the need for intensive education on population related matters for parents and various incentives packages to families with smaller sizes.

Keywords: *household size, household, food security, family size, ngetta*

1. Introduction

Food security is key in ensuring that all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. However, 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. Hidden hunger has become a major development issue, especially in developing countries. The concept refers to a situation where households and individuals may have access to food in sufficient amounts but fail to attain the required quantities of micronutrients. These micronutrients include zinc, iron and vitamin A. hidden hunger is especially a major problem among poor rural households who cannot afford purchased supplements. The problem of hidden hunger, first coined in the 1990s, led to greater emphasis on defining food security to include the nutritional content of the food.

Globally, the number of smallholder farmers is estimated to be around 500 million and produce food for about 80% of the population also stated that smallholder farmers are paradoxically the poorest and most food insecure and that they suffer from malnutrition. Attaining food security at all level is a global Issue. With an expected global population increase to 9 billion by 2050, 70% or more food will be required to satisfy food demands. Poor level of household food security has grave health consequences (Akello J. , 2015). New evidence confirms arise in world hunger: the number of people who suffer from hunger has been growing over the past three years returning to levels from almost a decade ago. Multiple forms of malnutrition are evidence in many countries: adult obesity is growing even as forms of under nutrition persist. The reports say that climate variability and extremes are key drivers behind this rise, together with conflict and economic downturns and are threatening to erode and new challenges on the road to zero hunger, while setting out urgent actions needed to achieve the goal by 2030.

However, achieving the second objective of the sustainable development goals which is zero hunger requires finding ways to increase the income and assets of the rural people living in developing countries. Yet, reducing food and nutrition insecurity in the developing countries continues to be a major public policy challenge. Food insecurity has become a global challenge for policy makers particularly in the sub-Saharan Africa where the rate of population growth far exceeds the quantity and quality of food needed to feed and sustain the available population (Alexiuk et al., 2023). Most of the poor population like in Benin to some degree depends on agriculture and especially small-scale farming systems as the primary source of their livelihoods. Agriculture is central to rural development, food insecurity reduction and rural poverty alleviation. Smallholder farmers are fundamental in achieving food and nutrient security and sustainable rural development (Adjimoti & Kwadzo G, 2018).

Household size is one of the main challenges among food insecure households in Sub-Saharan Africa that is the sharing of limited food among family members. Household size is a significant determinant of household food security. A large family size puts an extra burden on food consumption and more likely to experience food insecurity in contrast to households with a small and medium family size. HH structure, the number of households and generally influence the household food insecurity as well. Members of large household size tend to compete for the limited resource available in the household. As a strategy, large households tend to consume a limited volume of frequency of meals, without considering the quality of the diet. Large households, with more young or school-going children, also tend to be below the poverty line and vulnerable to food insecurity. However, it reduces the adverse consequences of food insecurity if other household members are able to contribute to the total household income (Drammeh, Hamid, & Rohana, 2019)

Sub- Saharan Africa has one of the largest number of food insecure households. The inability of households to afford purchased food supplements required to meet micronutrients needs has led to rethinking of the strategies to improve access to essential micronutrients. Food security remains a serious challenge for many households in East African. It is argued that a strategy for attacking poverty in conjunction with policies to ensure food security offers the best hope of swiftly reducing mass poverty and hunger. However, recent studies show that economic growth alone will not take care of the problem of household food security.

In Uganda, households' food stocks are seasonally declining. Households are obtained below average crop population in the 2021 second season harvest especially in the greater northern Uganda are expected to have exhausted stocks and become reliant on market purchases earlier than usual (Stuart et al., 2023). These households are also likely to obtained below average incomes from labor opportunities and crop sales, as such and given eroded coping capacity following two consecutive seasons of below average production, an increasing number of affected households are expected to be accessing minimally adequate levels of food through market purchases but are likely unable to meet all the essentials non-food including adequate seed for current seasons give the prices of food and non-food commodities. The food security status of any household or individual is typically determined by the interaction of a broad range of agro- environmental, socio-economic and biological factors. As with the concept of health or social welfare, there is no single, direct measure of food security. However, the complexity of food security problem can be simplified by focusing on household size and dimensions of food security that is food availability, household food access, individual food utilization and household food stability. With households will be able to meet their dietary needs and hence a healthy livelihood among households.

1.1 Problem statement

Household size may be associated with reduced household food security given that larger families are likely to be food insecure than small households. Despite continuing Economic Growth, Uganda faces persistent challenges to achieve food security. The increasing population and

household size is likely to affect the enhancement of household food security. Different authorities and stakeholders of Lira City East Division through government programs have introduced various resources, services and projects to the community in order to address food security but seems not working at household levels. This is because of the negligence of various sizes of household that can eventually affect household food security. Therefore, this study aimed to examine the effect of household size on household food security in Lira City East Division a case study of Ngetta Ward.

1.2 Purpose of the study

To examine the effect of household size on household food security in Lira City East Division. Specifically, three questions were answered, namely: (i) what is the average household size in Ngetta Ward? (ii) What is the level of household food security in Ngetta Ward? And (iii) what is the effect of household size on household food security in Ngetta Ward?

2. LITERATURE REVIEW

2.1 Average household size on household food security

Household size is the number of usual members in a household. Usual members are those who have lived in the household for at least 6 months in the preceding 12 months. However, it includes persons who may have spent less than 6 months during the last 12 months in the household but have joined household with intensions to live permanently or for an extended period of time. This includes new-born children and newly married persons among others. It shows that the average household size in Uganda was estimated at 5 persons with variations observed by residence and region. The average household size was larger in rural 5 persons than in the urban areas 4 persons. Among the sub-regions, Teso and Bukedi had larger average household sizes compared to other sub-regions (Nassimbwa, 2022)

Small average household size of fewer than three persons per household, where found in most countries of Europe and Northern America. Large average household size of greater 5 persons per household were observed a cross much of Africa and Middle East. The largest household size was found in Senegal and Oman averaging 9.0 and 8.0 respectively. A moderately food secure household sacrifices more frequently by eating a monotonous diet but does not experience any of the three most severe conditions in the last four weeks (Olayemi, 2012). According to the US census Bureau, a family is a group of two people or more (one of whom is the householder) related by birth, marriage or adoption and residing together, all such people (including related sub-family members) are considered as members of one family. As 2021, the US census Bureau counted about83.9 million families in the United States. The average family consisted of 3.13 persons in 2021, down from 3.7 in the 1960s. This is reflected in the decrease of children in family households overall. The average size of a family household varies greatly from state to state. The largest average families can be found in Utah and Hawaii, with an average of 3.61 members respectively

the smallest family can be found in Vermont and Marine with an average size of 2.88 and 2.35 members respectively. The family size of food secure and food insecure households differs significantly. On average, food secure households were smaller (4.5) compared with the food insecure households (5.8). This result is consistent with findings of previous studies where larger household's sizes have been found to have a negative impact on calorie availability, especially in the context of female headed households. Since resources are very limited, the increase in family size may put more pressure on consumption than it contributes to production (Silvestri , et al., 2015)

2.2 Level of household food security

Food security exist when all people at all time, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preference for an active and healthy life. The four main dimensions of food security is physical availability of food that addresses the supply side of food security and is determined by the level of food production , stock levels and net trade, Economic and physical access to food where an adequate supply of food at the national and international level does not in itself guarantee household level food security, concerns about insufficient food access have resulted to a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives (Anderson et al., 2022). There is utilization is commonly understood as the way the body makes the most of various nutrient in the food. Sufficient energy and nutrient intake by individuals are the results of good care and feeding practices, food preparation, and diversity of the diet and intra household distribution of food. The stability of the other three dimensions over time: even if your food intake is adequate today, you are still considered to be food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status.

An estimated 85.7% of American households were food secure throughout the entire in 2013, meaning that they had access at all times to enough food for an active, healthy life for all household members (Coleman, Gregory, & Singh, 2013). Food security requires that all people can access sufficient food for a healthy life. Enough food is produced to feed the global population but more than 1.02 Billion people are malnourished. Malnutrition and chronic food insecurity are wide spread in some countries of the Asia-Pacific regions; as much as 20% to 60% of the region's population lacks sufficient food to meet their minimum energy requirements. Food security greatly depends on food availability, although this alone is not sufficient to secure satisfactory nutritional status. Food security at the national level requires an effective framework of food, health and economic system coupled with awareness and consideration of environmental conditions. To improve food availability and security in the short term, lower income countries should focus on the increasing productivity in the food system to generate higher incomes for workers on-farm and off-farm in the food chain (Yang & Hanson, 2009)

As a basic physiology need, threat to sufficient food production is threat to human survival. Food security has been an issue that has gained global concern. It reveals that population growth rate was higher than the growth rate of food availability in Nigeria for the earlier period of the study (Okolo & Obidigbo, 2015). Household food insecurity is a pervasive problem in North America with serious health consequences. While affordability housing has been cited as a potential policy approach to improve food insecurity, the relationship between conventional notions of housing affordability and household food security is not well understood. Food insecurity evident among two thirds of families was inversely associated with income and after shelter income. Food insecurity prevalence did not differ between family in market and subside housing, but families in subside housing had lower odds of food insecurity than those on a waiting list for such housing (Kirkpatrick & Tarasuk, 2011).

For decades, global food security has not been able to address the structural problem of economic access to food, resulting in a recent increase in the number of undernourished people from 2014. To elevate this drastic growth in food insecurity, it is necessary to understand the nature of the increase in the number of malnourished during the pandemic. In order to address this, we gathered and synthesized food security related empirical results from the first year of the pandemic in a systematic review. The vast majority (78%) of the 51 included articles reported household food insecurity has increased (access, utilization) and/or disruption to food production (availability) was a result of households having persistently low income and not having an adequate amount of savings. These households could not afford the same quality and/or quantity of food, and a demand shortfall immediately appeared on the producers' side. Producers thus had to deal not only with the direct consequences of government measures, (disruption in labor flow, lack of demand of the catering sector etc.) but also with a decline in consumption from low income households. In conclusion, the factor that most negatively affects food security during the COVID-19 pandemic is the same as the structural problem of global food security; low income (Elias & Jambor, 2021)

2.3 Effect of household size on household food security

According to Olayemi, (2012), the study investigated the effects of family size on household food security in Osun state Nigeria, the results of the study indicated that about 60.9% had family size of 5 and 8 members. Only 24.5% were food secure. The constraints faced includes, poor access to credit (84.5%), and lack of inputs (81.8%). The study concludes that large family size has negative impact on house food security. Also, consistent with prior expectation, larger household were found to be food insecure compared with households with smaller size keeping other factors constant. Also consistent with finding from previous empirical studies farm size off- farm income and credit access were found to have significant positive effect on household food security (Aidoo, Mensah, & Tuffour, 2013). There were more households with a family size of less than or equals to four people than those with family size of five to six people and more than or equal to seven people. Respondents who had a family size of less than or equal to four people tended to be food secure, while respondents who had a family size of five to six people and more than or equals to

seven people tended to have food insecure status. Family size is one of the factors that affects household food security especially in poor households. Olayemi (2012), the number of household members is negatively related to food security, which means that the more household members, the lower the level of household food security. This is related to the distribution of food in the household (Akbar , Darma, Fahmid, & Irawan , 2023).

The size of a household also influences the amount spent on food. Household food expenditure peak at a household size of 4 and decline with an increase in household size beyond 4. Households with 4 members spend R892 per month on food. Households with seven or more members, on the other hand, spend R811 per month on food. Thus, the larger the size of household, the higher the proportion of household expenditure allocated to food. Households with seven or more members spend 26% of their household expenditure on food whereas one-member household spend 16%household expenditure on food. Again rural households and larger-sized households have relatively lower food expenditure. This is however, due to the fact that these household categories have the lowest incomes in society. These groups of households are therefore more vulnerable to food insecurity and malnutrition (Bonti-Ankomah, 2001). Whereas the above studies showed a negative correlation between level of household size and household food security, many researchers have indicated the negative effect of household size on household food security where larger households were associated with lower chances of being food secure., for instance according to Olayemi, the number of household members is negatively related to food security, which means that the more the household members, the lower the level of household food security. The fact that not all studies were looking at the small household size as being more food secure and does not take into the account the dietary needs of these households, left a research gap for this study. To contribute to the closure of such gap, this study aims to examine the effect of small household size on household food security as a dietary need of the household members is concern in Lira City East Division.

3. METHODOLOGY

The study employed descriptive cross-sectional design to examine the effect of household size on household food security in Lira City East Division. The study was conducted in Ngetta Ward; Lira City East Division is one of the two divisions in Lira City Council which was the great Lira District Local Government. Lira City East Division covers approximately 9, 738 hectares of land, it receives a unimodal rainfall pattern reaching maximum during September each year, 31% of the total land area is covered by forests and swamps. The study population was the Local council one (1) of each cell and Household heads in every household of Ngetta Ward for instance, the parents of each household as the main participants. The population of Ngetta ward is approximately 37.809 Persons. A sample size of 379 respondents was selected from Ngetta Ward, Lira City East Division according to Krejcie and Morgan table. This included 55 Local council one Chairpersons and 324 Household heads (male and female) in Ngetta Ward, Lira city East division, Lira city. The study employed the following sampling techniques namely; purposive sampling and simple

random method. A purposive sampling means a sampling technique in which a researcher uses his or her own knowledge of the population and chooses to include in the sample only some particular respondents who have the relevant information to the study. On the other hand, a simple random sampling method is a type of probability sample where, the researcher randomly selects a subset of participants from the population and each member of the population has an equal chance of being selected. Data is then collected from as large a percentage as possible of this random subset. The researcher sampled 379 respondents and strictly dealt with 300 respondents. These respondents were best selected through purposive sampling and simple random sampling. The study employed simple random sampling technique to sample the household heads where pieces of papers were put in a container, mixed thoroughly and picked randomly without replacement. This was done in every cell to obtain the sample respondents.

3.1 Data Collection Methods

The researcher administered semi-structured questionnaire as a tool for data collection and the recruited participants. The semi-structured questionnaire was developed based on the pervious literature review. For validity content, the questionnaire for the study was reviewed by the supervisor for the expert opinion. Before data collection, the study was piloted among 5 household heads randomly in Ngetta Ward and helped to make adjustments where there was need for the purpose of comprehension and simplicity of the tool made. The data was collected by the researcher to ensure consistency and bias based of classification. The study included all participants who were living in Ngetta Ward and present at their respective households during the time of data collection. The study excluded all the household heads who declined to participate in the activity, especially those with mental health issues. Completeness of the data ought to be observed during the data collection through reviews and corrective actions especially before leaving the field. In cases of un-filled questions, request was made to the respondent to provide responses immediately. The study intended to collect quantitative data that was analyzed using statistical packages for social scientists (SPSS) version 25.0, 2017. Data was entered, cleaned in excel and imported into SPSS where it was analyzed. Analysis was of two levels for instance univariate and bivariate analyses. For univariate analysis, frequencies were run for various variables and results were presented in I table with percentage and figures. For bivariate analysis, crosstabs were run for outcome variables and independent variables where the results were presented in table containing chi-square, p-value degree of freedom (df) and 95% confidence intervals (C.I)

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Socio-demographic characteristics of respondents

As shown in Table 1 below, majority of respondents were males (79%) compared to females (21%). The respondents' age group ranged from 25 – 29 years to 50 years and above with majority (96.66%) of the respondent's belonging to the age group 25 - 49 years. The least represented age

group was 50 years and above (3%). At the time the study was conducted, 59.30% of the respondents were married, (11%) were separated, (17%) were single and 13.33%) were divorced. In addition, concerning occupation, majority (86.66%) of the respondents were household heads involved in farming, and the rest were Local leaders (LC1's) that accounted for (13.33%). With regard to education, majority of respondents (34%) stopped in primary level, followed by others at (26.33%), secondary education at (54/300; 18%), certificate had 12.66%), while diploma had (7%) and lastly, bachelors had 2%).

Table 1: Socio-demographic characteristics of respondents (n = 300)

Background characteristics	Categories	Frequency	%
Gender	Male	237	79
	Female	63	21
Age	25-29	28	9.33
	30-34	58	19.33
	35-39	98	32.66
	40-44	76	25.33
	45-49	30	10.00
	50>	10	3.33
Marital status	Married	178	59.30
	Separated	33	11.00
	Single	51	17.00
	Divorced	40	13.30
Occupation	Local council one	40	13.33
	Household head	260	86.66
Highest level of education	Degree	06	2.00
	Diploma	21	7.00
	Certificate	38	12.66
	Secondary	54	18.00
	Primary	102	34.00
	Others	79	26.33

This included both male and female with (79%) male and 21%) female respondents interviewed. The research reveals that male took a bigger percentage of the respondents with 79% male against 21% female meaning that, most male respondents were much interested in giving information related to effect of household size on household food security compared to female. The figure shows the age category of the respondent where, those between 25-29 years were 9.33%), 30-34

were (19.33%), 35-39 were (32.66%), 40-44 were (25.33%), 45-49 were (10%), and 50+ years were (3%) as presented in the pie chart above. This implies that data for the study was basically obtained from matured and responsible respondents with family responsibility, hence the reliability of the data. The research reveals that Household heads (farmers) took a bigger percentage of the respondents with (86.66%) against (13.33%) meaning that, most Household heads (farmers) were much interested in giving information related to effect of household size on household food security compared to LC1s (Local leaders) as presented above. The findings showed that majority of the respondents are married with about (59.30%), about (11%) are separated, (17%) are single and (13.3%) divorced which implies that, the data was obtained mainly from responsible and credible respondents (the married) who were parents and responsible people in the community, hence its reliability. The findings show that (2%) of the respondents are degree holders, (7%) have diploma, (13%) are certificate holders, (18%) stopped at secondary level, (34%) finished primary level and (26%) fall under others. This implies that data for the study was majorly obtained from respondents with low educational levels and basically peasant farmers who were greatly affected by large household size leading to food insecurity among different households in rural communities of Ngetta Ward, Lira city, hence the reliability of the data.

4.2 Contribution of average household size on household food security

When the respondents (Local council one Chairpersons) were asked whether average household size have any contribution on household food security. According to the table above, majority of respondents were of the view that, having average household size helps a lot in preserving household food security in Ngetta Ward with (12/40; 30%) of the respondents male and female strongly agreeing and about (10/40; 25%) male and female agreeing, however, (6/40; 15%) male and female were not sure whether having average household size helps in preserving household food security in Ngetta Ward, (8/40; 20%) of respondents disagreed with the objective variable whereas, (4/40; 10%) of the respondents strongly disagreed with the objective variable. Therefore, the above implies that the majority of Local council one chairpersons in Ngetta Ward (12+10/40; 55% against 15+20+10/40; 45%) are in great support of families having average household size so as to help preserve household food security, hence justifying the validity of the variable.

According to Nassimbwa (2022), household size is the number of usual members in a household. Usual members are those who have lived in the household for at least 6 months in the preceding 12 months. However, it includes persons who may have spent less than 6 months during the last 12 months in the household but have joined household with intensions to live permanently or for an extended period of time. This includes new-born children and newly married persons among others. It shows that the average household size in Uganda was estimated at 5 persons with variations observed by residence and region. The average household size was larger in rural 5 persons than in the urban areas 4 persons. Among the sub-regions, Teso and Bukedi had larger average household sizes compared to Lango and other sub-regions.

According to the US census Bureau, a family is a group of two people or more (one of whom is the householder) related by birth, marriage or adoption and residing together, all such people (including related sub-family members) are considered as members of one family. As 2021, the US census Bureau counted about83.9 million families in the United States. The average family consisted of 3.13 persons in 2021, down from 3.7 in the 1960s. This is reflected in the decrease of children in family households overall. The average size of a family household varies greatly from state to state. The largest average families can be found in Utah and Hawaii, with an average of 3.61 members respectively the smallest family can be found in Vermont and Marine with an average size of 2.88 and 2.35 members respectively.

Silvester, et al (2015) however argued that, the family size of food secure and food insecure households differs significantly. On average, food secure households were smaller (4.5) compared with the food insecure households (5.8). This result is consistent with findings of previous studies where larger household's sizes have been found to have a negative impact on calorie availability, especially in the context of female headed households. Since resources are very limited, the increase in family size may put more pressure on consumption than it contributes to production.

Reports from the population facts October 2017 shows that small average household size of fewer than three persons per household, where found in most countries of Europe and Northern America. For example, household in Monaco and in Serbia average 1.9 and 2.9 persons respectively with 2.6 persons per household in the United States of America. Some countries in Eastern Asia and the Caribbean exhibited small average household size as well in Japan and Montreal, the average number of persons per household was 2.4 and 2.0 respectively.

However, large average household size of greater 5 persons per household were observed a cross much of Africa and Middle East. The largest household size was found in Senegal and Oman averaging 9.0 and 8.0 respectively. According to Olayemi (2012), the study conducted in Osun state in Nigeria shows that above 24.5% of the respondents were food secure, 34.5% were severely food insecure. In essence 40.9% of the respondents were moderately food insecure. A food secured household experiences none food security conditions. A moderately food secure household sacrifices more frequently by eating a monotonous diet but does not experience any of the three most severe conditions in the last four weeks. It was found that, most families in the study area had larger family size with about 5-8children, very low academic levels basically primary level and with high rate of polygamous marriage in practice. However, the researcher also noted that, smaller households size ranges from 3-5children with fair academic levels basically ordinary level with monogamous marriage in practice. Therefore, the researcher got the average household size of the study area to be (8+3/2; 5.5), 5.5children per household in Ngetta Ward, Lira city. The researcher strongly concludes that, larger household's sizes have big negative impact on household food security compared to smaller household size which is a bit food secured and there is need for government to regulate birth especially in Uganda as one of the developing countries.

4.3 Contribution of seasonal household food production on household food security

When the respondents (Household heads) were asked whether seasonal household food production contributes to constant household food security in terms of food accessibility, stability, availability, and affordability. Accordingly, majority of respondents were of the view that, embarking on seasonal household food production, the households can have access to the available, stable and affordable foodstuff produced that greatly contributes to household food security in Ngetta Ward with (36%) of the respondents male and female strongly agreeing and about (19%) male and female agreeing, however, (19%) male and female were not sure whether seasonal household food production leads to household food security in Ngetta Ward, (15%) of respondents disagreed with the objective variable whereas, (11%) of the respondents strongly disagreed with the objective variable. Therefore, the above implies that the majority of Household heads in Ngetta Ward (55% against 45%) are in great support that, seasonal household food production greatly contributes to household food security, hence justifying the validity of the variable.

Food Accessibility refers to the ability to obtain food free from barriers posed by travel time, physical features of the area and store, neighborhood safety, and transportation costs (Cafer & Kaiser, 2016; Taylor & Villas-Boas, 2016b; Usher 2015). Food accessibility complements and builds on food availability by ensuring food is not only present, but that people are able to obtain that food. In this framing however, accessibility intersects heavily with both availability and affordability, acting as a bridge between the two dimensions. This study appears to agree with previous studies (such as McKinnon et al. 2009) that pointed out that, physical distance to food sources has long been a traditional measure of food accessibility, and a review of 137 articles on the "food environment" identified geographic analysis as the most often-used measure across articles. The findings further echo the views of Rhone et al. 2019) whose study established that the most frequent specification of distance, perhaps, is number of miles to a full-service grocery store, and it is the sole measure in the USDA Economic Research Service's most recent report on access to healthy food Much of this research treats physical distance as a proxy for access, assuming those who live further from food sources will be more often food insecure. Additionally, this study complements on the view that people's purchasing preferences and ability to navigate distance, for instance, through access to transportation, shift the distance-between-home-and-grocery-store relationship in nuanced ways (Coveney & O'Dwyer 2009). According to Taylor and Villas-Boas (2016a); Ver Ploeg et al. (2015), recent research analyzing the USDA's National Household Food Acquisition and Purchase Survey has found that households do not necessarily shop at the closest available store, and that consumers even lower income and SNAP-participating shoppers are willing to pay more to shop at their preferred store SNAP households, which are on average, less than two miles from a store that accepts SNAP, but travel more than three miles on average to get to their primary grocery store (Ver Ploeg et al. 2015).

Finally, the findings support other researches that explored food shopping preferences by store type, and finds that SNAP households who are willing to pay $27 more per week to shop at

superstores, and would need to be compensated with $9 per week to shop at a farmers market (Taylor and Villas-Boas 2016a). Thus, a broad body of work consistently finds that between 65 and 90 percent of people shop at supermarkets, regardless of food security status, (Ma et al. 2017) suggesting that factors other than pure distance from food sources play a role in shaping food acquisition behaviors. Additionally, (Gundersen 2020), given that so many households prefer shopping at supermarkets, food assistance programs that allow participants to shop at traditional food retail outlets are not only effective at getting food to families, but also ensure their dignity and ability to make individualized food choices.

Having available transportation is more consistently linked to food access than is a minimal distance between home and store as established in this study further underscoring transportation as a meaningful element of food accessibility, linking both lack and cost of transportation to food insecurity (Harrison et al. 2019). Hence, evidence of this relationship appears to be strong enough that one review paper concludes "Of all the factors that seemingly limit access to food, the most important is no money but second in importance is no car" as highlighted in other studies (such as Wright et al. 2016:180; Chang and Hickman 2018; Oemichen and Smith 2016; Schwartz, Buliung, and Wilson 2019; Harrison et al. 2019). Consequently, the degree to which food is consistently physically obtainable in desired quantities, shaped by the production, distribution, and exchange patterns of food goods was key in this study as was in other previous findings (Gregory, Ingram, & Brklacich 2005; Swaminathan & Bhavani 2013; Usher 2015). But although food availability does not appear to be the main driver of nutritional inequity, and has an uncertain relationship with measurable food security, there are some populations for whom food availability is a critical consideration. In particular, availability warrants special consideration around culturally significant foods or the cultural appropriateness of food more generally (Cafer & Kaiser 2016). One study interviewed indigenous urban residents in Canada, who reported it was very challenging to find culturally appropriate foods, inhibiting their ability to engage in Indigenous Food Sovereignty (IFS). However, even in these specific instances, efforts to simply increase the number of grocery stores locally would not necessarily enhance food security or healthful eating among these groups.

The findings further agree with Jablonski, McFadden, and Colpaart (2016) whose study highlighted that, using cluster analysis, the study authors identified five groups or "clusters" of residents based on their survey responses on demographics, level of food security, food purchasing habits, and preferences. The authors found that the local food retail environment was linked to food security for the most food insecure group (called "single and food insecure"), but that for other food insecure residents (called the "compromised consumer" group since they often compromise on healthful food choices due to budget constraints), proximity to a store with healthful food would not enhance their food security. For this second group, the barrier was not food accessibility or availability but rather food affordability at such retailers. Mayer et al. (2014) added that, a survey in Pennsylvania found that nearly 80 percent of food insecure households

reported that it was easy or very easy to find fruits and vegetables in their neighborhood. Additionally, 60 percent of food insecure households reported that their neighborhood had excellent or good quality grocery stores. Given the high availability and accessibility of healthy food in the neighborhood, authors suggest that affordability is a barrier to enhancing food security and improving diet (Mayer et al. 2014).

Cafer and Kaiser 2016) argued that, although food availability does not appear to be the main driver of nutritional inequity, and has an uncertain relationship with measurable food security, there are some populations for whom food availability is a critical consideration. In particular, availability warrants special consideration around culturally significant foods or the cultural appropriateness of food more generally. For indigenous people, IFS can be a key element of food security. For other populations, including those born outside the United States or living in refugee or resettlement communities, these issues may be especially critical, particularly in places like New Hampshire, where racial and ethnic diversity tends to be low statewide and concentrated in the southern cities of Manchester and Nashua, For those with specific cultural food needs outside this metropolitan tier of the state, the availability of appropriate food may be limited. However, even in these specific instances, efforts to simply increase the number of grocery stores locally would not necessarily enhance food security or healthful eating among these groups.

Chang and Hickman (2018) highlighted that, aside from physical distance to a store, another important element of accessibility is physical accessibility, especially for those with functional impairments and/or disabilities. A national study of low-income older Americans found that functional limitations were associated with a higher risk of both food insecurity and poor-quality diet. They added that, these associations were stronger for older adults living alone, highlighting the role that spouses and relatives often play in assuring access to healthful food for seniors with functional impairments. Wright et al. (2015) reacted that, for older adults in communities with few family members nearby or with few public transportation options characteristics that may be especially important in New Hampshire meal delivery programs can be critical for filling these gaps. These types of nutrition supports are discussed in more detail below. Schwartz et al. (2019) pointed out that, scoping review of literature on disability, food access, and food insecurity found that disability was consistently associated with a higher risk of household food insecurity across different places and populations So tightly linked are disability and food access that one type of disability commonly measured in national surveys directly relates to food accessibility.

A scoping review of literature on disability, food access, and food insecurity found that disability was consistently associated with a higher risk of household food insecurity across different places and populations. So tightly linked are disability and food access that one type of disability commonly measured in national surveys directly relates to food accessibility. According to U.S. Census Bureau (2017), a person is considered to have an independent living disability if they are unable to perform what are called “instrumental activities of daily living,” which includes errands like going grocery shopping. Schwartz et al. (2019) recommends that future scholarship and policy

efforts on food accessibility should consider how disability or other factors might shape travel times and consider household-level accessibility issues alongside broader environmental ones.

Food affordability refers to the ability to purchase enough safe and nutritious food given demands on household income outside of food (Gregory and Coleman-Jensen 2013). Alongside availability and accessibility, affordability is perhaps one of the best-known dimensions of food security. Like the former two, food affordability is not a static characteristic of food or food sources, but is best understood alongside characteristics of people, households, and communities. Gregory and Coleman-Jensen (2013) reacted that, food affordability does not refer to the cost of food alone, but should also consider non-food demands on household income, and the availability of nutrition supports to help defray those costs. First, there is some research linking food prices and food insecurity, although more often in a global context than in the United States. Lo et al. (2009) added that, generally, food prices have been steadily increasing worldwide, and have particularly surged in recent decades. Shapouri et al. (2009) reacted that, in developing nations, rising food prices and price volatility have happened in conjunction with increases in food insecurity. However, Gregory and Coleman-Jensen (2013) argued that, there is limited research on the relationship between food prices, affordability of those prices, and food insecurity in the United States, largely owing to a lack of household finance data. Nord et al. (2010) points that, broad studies find food insecurity is highest in the South, where food prices are among the lowest although because incomes are lower there too, food may be relatively less affordable. However Hardin-Fanning and Rayens (2015), variation in food costs within the region may also play a role: research in Kentucky found that food costs are higher in poorer, rural counties and lower in urban counties. Other research has identified temporal correlations between food prices, food spending, and food insecurity. Nord (2009) further explained that, for instance, research shows that when U.S. food prices rose at the start of the millennium, food spending among low- and middle-income households declined, as those households spent more on housing and experienced overall income declines. Another study found that falling unemployment after the Great Recession (December 2007 to June 2009) might have triggered an improvement in food insecurity if inflation and food prices hadn't increased at the same time (Nord, Coleman-Jensen, and Gregory 2014). Although these studies demonstrated correlations between higher food prices and higher food insecurity, very few have attempted to assess a causal link.

Cafer et al. 2018; Cafer and Kaiser 2016; Hardin-Fanning and Rayens (2015) pointed that, there is some evidence that food affordability varies between rural and urban counties in the United States. One national study found that households in rural counties spend 19 percent of income on food compared to 17 percent in urban counties (Cafer et al. 2018). The same study found that compared to urban counties, rural places have lower household incomes, lower access to food retailers, higher shares of poverty, and lower average SNAP benefits per participant all of which were found to contribute to lower food affordability. Cafer and Kaiser (2016) pointed that, an analysis of Missouri counties also found that rural households spent a larger percentage of

household income on food than their counterparts in urban counties, at least in part due to the lower incomes among the rural households. This same study also found that across all study counties, as the poverty rate increased, food became less affordable, as measured by an increasing share of household income spent on food. Although the notion that food is less affordable in rural places may be counterintuitive for those who equate "rural" with farm land, this relationship is driven by two factors, both of which cohere with patterns found in New Hampshire. First, incomes are lower in rural places, reducing the amount of money that a household has for food spending. In New Hampshire, these disparities are exemplified by comparing median income in the state's most remote county (Coös County) to income in some of its more urban spaces (like Rockingham County): in 2018, median household income was about $45,000 in Coös compared with nearly $90,000 in Rockingham. (American Community Survey, 2018). Second, although overall costs of living may be lower in rural places, the expenses associated with transporting food products into rural spaces can add to base prices.

According to world Food Summit (1996), Food security exist when all people at all time, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preference for an active and healthy life. The four main dimensions of food security is : physical availability of food that addresses the supply side of food security and is determined by the level of food production, stock levels and net trade, Economic and physical access to food where an adequate supply of food at the national and international level does not in itself guarantee household level food security, concerns about insufficient food access have resulted to a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives.

Coleman, Gregory, & Singh (2013), reacted that, food utilization is commonly understood as the way the body makes the most of various nutrients in the food. Sufficient energy and nutrient intake by individuals are the results of good care and feeding practices, food preparation, and diversity of the diet and intra household distribution of food. The stability of the other three dimensions over time: even if your food intake is adequate today, you are still considered to be food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status. An estimated 85.7% of American households were food secure throughout the entire in 2013, meaning that they had access at all times to enough food for an active, healthy life for all household members. The remaining household that is 14.3% were food insecure at least some time during the year, including 5.6% with very low food security, meaning that the food intake of one or more household members was reduced and their eating pattern were disrupted at times during the year because the household lacked money and other resources for food.

Yang and Hanson (2009) also argued that, Food security requires that all people can access sufficient food for a healthy life. Enough food is produced to feed the global population but more than 1.02 Billion people are malnourished. Malnutrition and chronic food insecurity are wide spread in some countries of the Asia-Pacific regions; as much as 20% to 60% of the region's population lacks sufficient food to meet their minimum energy requirements. Food security greatly

depends on food availability, although this alone is not sufficient to secure satisfactory nutritional status. Food security at the national level requires an effective framework of food, health and economic system coupled with awareness and consideration of environmental conditions. To improve food availability and security in the short term, lower income countries should focus on the increasing productivity in the food system to generate higher incomes for workers on-farm and off-farm in the food chain. According to Okolo and Obidigbo (2015), s a basic physiology need, threat to sufficient food production is threat to human survival. Food security has been an issue that has gained global concern. It reveals that population growth rate was higher than the growth rate of food availability in Nigeria for the earlier period of the study.

Kirkpatrick and Tarasuk, (2021), highlighted that, Household food insecurity is a pervasive problem in North America with serious health consequences. While affordability housing has been cited as a potential policy approach to improve food insecurity, the relationship between conventional notions of housing affordability and household food security is not well understood. Food insecurity evident among two thirds of families was inversely associated with income and after shelter income. Food insecurity prevalence did not differ between family in market and subside housing, but families in subside housing had lower odds of food insecurity than those on a waiting list for such housing. Deverux, Bene, and Hoddinott, (2020), explained that, COVID-19 undermines food security both directly, by disrupting food system and indirectly, through the impacts of lockdowns on household incomes and physical access to food. COVID-19 and responses to the pandemic could undermine food production, processing and marketing, but the most concerning impacts are on the demand-side-economics and physical access to food.

For decades, global food security has not been able to address the structural problem of economic access to food, resulting in a recent increase in the number of undernourished people from 2014. Elias & Jambor (2021) added that, the FAO estimates that the number of undernourished people drastically increased by 82-132million people in 2020 due to the COVID-19 pandemic. To elevate this drastic growth in food insecurity, it is necessary to understand the nature of the increase in the number of malnourished during the pandemic. In order to address this, we gathered and synthesized food security related empirical results from the first year of the pandemic in a systematic review. The vast majority (78%) of the 51 included articles reported household food insecurity has increased (access, utilization) and/or disruption to food production (availability) was a result of households having persistently low income and not having an adequate amount of savings. These households could not afford the same quality and/or quantity of food, and a demand shortfall immediately appeared on the producers' side. Producers thus had to deal not only with the direct consequences of government measures, (disruption in labor flow, lack of demand of the catering sector etc.) but also with a decline in consumption from low income households.

Based on the information generated, the researcher found that, community of Ngetta ward, Lira city east division are faced with massive challenge of food accessibility due to inadequate transport means and poor road network, coupled with lack of timely availability of foodstuff due to poverty

brought about by large household size. In line with food affordability, the researcher found that, most household couldn't afford foodstuffs due to their high prices. However, in terms of stability, the researcher found that, most households didn't have stable foodstuff in the house due to fact that, they are grown seasonally and consumed all due to large family size and cannot cater for the next season. As a consequence, household food security has become a global concern especially in Sub-Saharan Africa where most household heads cannot afford to effectively and efficiently feed members in the family household due to large household size, low income and severe hostile climatic changes, therefore, government intervention is paramount here in terms of introducing improved seed varieties to farmers, training them and setting demonstration farms in all parishes/Wards to impact knowledge to farmers, therefore improving on their yields, thus addressing food insecurity among communities.

4.4 Effect of household size on household food security

Household size appears to have an effect on household food security. For instance, Olayemi (2012) investigated the effects of family size on household food security in Osun state Nigeria, the results of the study indicated that about 60.9% had family size of 5 and 8 members. Only 24.5% were food secure. The constraints faced includes, poor access to credit (84.5%), and lack of inputs (81.8%). That study concluded that large family size has negative impact on house food security compared to small family size. Another study by Aidoo, Mensah and Tuffour (2013), explained that, consistent with prior expectation, larger household were found to be food insecure compared with households with smaller size keeping other factors constant. Also consistent with finding from previous empirical studies farm size off- farm income and credit access were found to have significant positive effect on household food security. Population facts (October 2017) indicates that, small average household size of fewer than three persons per household, where found in most countries of Europe and Northern America. For example, household in Monaco and in Serbia average 1.9 and 2.9 persons respectively with 2.6 persons per household in the United States of America. Some countries in Eastern Asia and the Caribbean exhibited small average household size as well in Japan and Montreal, the average number of persons per household was 2.4 and 2.0 respectively. However, large average household size of greater 5 persons per household were observed a cross much of Africa and Middle East. The largest household size was found in Senegal and Oman averaging 9.0 and 8.0 respectively.

This suggests that typically large family size has significant relationship with much greater risk of poverty (Maxwell 1996). Obamiro et al (2003) reported that an increase in household size would likely being the household membership to food insecure group. For example, in Nigeria, the production of food has not increased at the rate that can match the food demand of the increasing population. But while food demand increases annually at the rate of 2.5 percent, food demand increases annually at a rate of more than 3.5 percent due to the high rate of annual population growth of 2.83 percent (Oluyole and Lawal 2008). However household food security depends not only on the available of an adequate and sustainable supply of food but also on the coping strategies

employed by households for its acquisition. Also, Okolo and Obidigbo (2015) found that a basic physiology need, threat to sufficient food production is threat to human survival. Food security has been an issue that has gained global concern. It reveals that population growth rate was higher than the growth rate of food availability in Nigeria for the earlier period of the study. Additionally,

Yang and Hanson (2009) added that, food security requires that all people can access sufficient food for a healthy life. Enough food is produced to feed the global population but more than 1.02 Billion people are malnourished. Malnutrition and chronic food insecurity are wide spread in some countries of the Asia-Pacific regions; as much as 20% to 60% of the region's population lacks sufficient food to meet their minimum energy requirements. Food security greatly depends on food availability, although this alone is not sufficient to secure satisfactory nutritional status. Food security at the national level requires an effective framework of food, health and economic system coupled with awareness and consideration of environmental conditions. To improve food availability and security in the short term, lower income countries should focus on the increasing productivity in the food system to generate higher incomes for workers on-farm and off-farm in the food chain.

Based on the information gotten from the field, it was found that the community of Ngetta ward, were faced with many negative effects of food security in that, large households have many number of family members that gives much risk to food security, this was evidenced with about 5-8members excluding parents in a large family household. However, families with small household size consisted of about 3-5members excluding parents. On this, they were able to secure available foodstuff to cater for family wellbeing, thus food security was realized among small family size household. In a nutshell, large household size gives an extra burden on food consumption, and more likely to experience food insecurity in contrast to households with a small family size therefore, government and non-government organization should intensify effort on the importance of family planning and advocate small family size coupled with easy access to credit facilities and government should subsidized cost of input.

5. Conclusion

Larger household's sizes have big negative impact on household food security compared to smaller household size which is a bit food secured and there is need for government to regulate birth especially in Uganda as one of the developing countries. Household food security has become a global concern especially in Sub-Saharan Africa where most household heads cannot afford to effectively and efficiently feed members in the family household due to large household size, low income and severe hostile climatic changes, therefore, government intervention is paramount here in terms of introducing improved seed varieties to farmers, training them and setting demonstration farms in all parishes/Wards to impact knowledge to farmers, therefore improving on their yields, thus addressing food insecurity among communities. Large household size gives an extra burden on food consumption, and more likely to experience food insecurity in contrast to households with

a small family size therefore, government and non-government organization should intensify effort on the importance of family planning and advocate small family size coupled with easy access to credit facilities and government should subsidized cost of input.

Recommendations

Basing on the findings of the study, t is recommended that;

a) There is need for intensive education on population related matters for parents and various incentives packages to families with smaller sizes.

b) The government should thus be active in helping to provide jobs for the majority of the populace.

c) A community demonstration farm should be set in Ngetta Ward and farmers should be trained on many new improved farming skills in such demonstration farms so as to equip farmers with practical farming skills with aim of realizing heavy agricultural harvest and fighting household food insecurity among rural communities.

d) Knowledge of the national population policy and its appendages such as contraceptive usage are vital for attaining smaller household sizes.

e) Strict laws, heavy fines and punishment be put on young men encouraging polygamous marriage in their area (cell) with no proper means of family survival that in turn lead to large household size, thus food insecurity.

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