Analysis of Food Security Status among Rural Households in Okehi Local Government, Kogi State, Nigeria

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Abstract
The purpose of this study is to analyze food security status among rural households in Okehi Local Government Area of Kogi State, Nigeria. Multistage random sampling technique was employed in selecting the respondents for this study. Primary data was collected using structured questionnaire. The data was analyzed using descriptive statistics and logit regression model. The logit regression model tested the impact of age, education, household size, and poverty status on food security. P-values > 0.05, they are not statistically significant possibly due to multicollinearity or a small sample size. The coefficient for poverty status (17.74) was extremely high, suggesting a high level of influence on food security. The most common coping strategy during food insecurity is reducing meal size (98%). Findings from the study indicated that education, access to credit, household size and income level were the significant determinants of Food Security and Poverty. The findings of this study suggest the need for policy-makers to adopt a multi-sectoral approach to rural development. Policies should support integrated programs that combine agricultural innovation, poverty alleviation, educational initiatives.

Keywords: *Agriculture, Farm Income. Food Security, Poverty, Rural Households.*

1. Introduction

The major task facing the world today is that of feeding the ever-increasing population of over 7 billion people subject to climate change and natural resource constraints, (FAO, 2012). Global hunger is severe, as nearly 30 per cent of the world's population is currently suffering from one or more forms of malnutrition, including inadequate caloric consumption, protein deficiency, poor dietary quality, and inadequate concentrations of protein and micronutrients, (Khasnobi, Shabd and Benjamin, 2007). Food, being one of the most basic needs for living, has become one of the most important concerns for the world, as more and more people are living in poverty and hunger. Food security has been a matter of concern in recent years due to the global food crisis and rising food prices. Food, nutrition and livelihood security are essential for a nation (Chand and Gartia, 2016). Food security and nutritional security are the subsets of livelihood security. Governments promote initiatives to ensure that every household can at least provide three square meals for their family, however, food insecurity continues to be a major development problem across the globe, undermining people's health, productivity, and often their very survival (FAO, 2008). Reducing food insecurity continues to be a major public policy challenge in developing countries. Many countries experience food insecurity with food supplies being inadequate to maintain their citizens' per capita consumption (Shala and Stacey, 2012). There are overwhelmingly large proportions of Nigerians who are food insecure that spread across both urban and rural communities, though most of the food insecure are found in

the rural areas (Akinyele, 2009). Reducing the number of food insecure households, therefore, continues to be a top priority of Nigerian governments.

Poverty, the inability to meet basic human necessities such as food, shelter, clothing and medication could be relative or absolute (Edokpolo and Egbri, 2017). Relative poverty varies with the income or economic growth, while absolute poverty refers to subsistence poverty based on the assessment of minimum subsistence requirements involving a judgement of basic human needs and measured in terms of resources required to maintain health and physical efficiency (Foster, Greer and Thorbecke, 2010). Poverty dimension of food security is one of the targets of the sustainable Developmental Goals and is widely considered as important measure for evaluating the progress of a country in terms of wellbeing (Opaluwa, Opeyemi, Ajibade and Jonah, 2019). Nigeria's huge agricultural resource base offers great potential for growth not only for the rural sector but the entire economy (Tolulope and Chinonso, 2013). However, in spite of the enormous natural resources in the country, rising poverty remains a real challenge (Chimobi, 2010). It is the quest to curb this menace that propel this study, Analysis of food security and poverty status among rural households in Okehi Local Government Area of Kogi State, Nigeria.

Okehi Local Government Area (LGA), located in Kogi State, Nigeria, is predominantly rural and agricultural in nature. The residents engage primarily in small-scale farming, cultivating crops such as cassava, yam, maize, and vegetables, alongside limited livestock production. Evidence suggests that a significant proportion of the rural population continues to experience food insecurity and poverty, raising questions about the effectiveness of agricultural practices, food distribution systems, and socio-economic support mechanisms in the area (Opaluwa, Opeyemi, Ajibade, and Jonah, 2019). Food insecurity and poverty remain deeply interconnected challenges in many parts of Nigeria, particularly in rural communities like Okehi Local Government Area of Kogi State. While natural factors such as erratic rainfall and soil degradation play significant roles, the increasing prevalence of man-made disasters, droughts, and disease outbreaks have further compounded the crisis, (Olaniyan, 2024). In Okehi, these factors collectively undermine agricultural productivity, disrupt livelihoods, and strain already limited resources, creating a vicious cycle of hunger and poverty.

The cumulative effect of these challenges is a persistent state of food insecurity, which in turn fuels deeper poverty. Children suffer from malnutrition, families reduce their meal portions, and community development stalls. The situation in Okehi exemplifies the broader national struggle where structural, environmental, and health-related issues converge to threaten sustainable food systems.

2 Materials and Methods

2.1 Study Area

SOURCE: GOOGLE SEARCH

Fig 1: Map of kogi Central

This study will be carried out in Okehi Local Government Area (LGA), of Kogi State, Nigeria which was created out of the then Ebira division during the President Olusegun Obasanjo administration in 1976. The Local Government is made up of two districts – Eika and Ihima. Ihima district is made up of seven wards – Obeiba I, Obeiba II, Ikuehi, Ohueta, Ohueta, Oboroke-eba, Oboroke-uvete I and Oborokeuvete II. Eika district comprises of four wards – Obangede/Uhuodo, Eika-Ohi zenyi Okaito/Usungwe, and Uboro/Omavi/ohuepe wards. The Local Government has its administrative headquarters located at Obangede, (Usman, 2015). It is in Kogi Central Senatorial District, the LGA shares boundaries with Adavi, Lokoja, Akokoedo and Kabba-Bunu local governments. It has an area of 661 km2 and a population of 199,999 at the 2006 census (National Population Commission (NPC), 2006). The area mostly populated by members of the Ebira ethnic group. It shares a common boundary with Igalamela-Odolu to the North, Ibaji to the South and Edo State to the West. Okehi is located between Latitude 70 33' and 70 35'N and Longitude 60 10' E and 60 14'E of the equator. (Kogi State Ministry of Information, 2016). The major economic activities of the people in this study area include farming, fishing, crafting, trading and food processing.

2.2 Sampling Techniques

The population for this study includes farming households in Okehi local government area of Kogi State. 100 respondents were selected due to budget constraint. Multistage random sampling technique was employed in selecting the respondents for this study. In stage one, the two (2) districts in the Local Government were selected. In stage two, three (3) council wards were randomly selected from Ihima and two (2) council wards were randomly selected from Eika district giving a total of five (5) wards. In stage three, one (1) village was randomly selected from each of the council wards giving a total of five (5) villages. In stage four, twenty (20) respondents were randomly selected from each village making a total of one hundred (100) respondents. Structured questionnaires were administered to the respondents after Informed consent and approval from Community leaders and representatives. Confidentiality, transparency, and commitment to avoiding harm was guaranteed. Face validity was assessed

by presenting the questionnaire to a project manager who agreed that the items appear to be relevant, clear and appropriate.

2.3 The Empirical Strategy

Adewuyi and Hayatu, (2011) examined the effect of poverty on food security of rural households in Adamawa State, Nigeria. Data were collected from randomly sampled 230 households in Adamawa State Nigeria, using structured questionnaire. The data were analysed using the Logit Regression model. The result of the study revealed that there is a negative and statistically significant relationship between the household food and the poverty status of the household. This suggested that the food security of households will improve if household poverty is reduced. Hence, it was the recommended that the design of poverty reduction programmes should focus more on improving food production for the growing population through increased funding of agriculture and controlled food prices.

Most Nigerians are perpetually hungry, unemployed and have limited access to good healthcare, education, amenities for safe drinking water and sanitation among others. The increasing rate of poverty in Nigeria is becoming alarming. Nigeria is ranked among poorest nations of the world. This is so distressing considering the fact that the nation is endowed with vast human and natural resources. Famine and hunger are the most crucial dimensions of poverty. Governments at all levels are continuously striving to ensure that millions of households living in poverty have access to enough food. The Federal Government formulated policies and measures to reduce poverty and food insecurity menaces, Nigeria is still facing the problems of hunger and low standard of living. Thus, the paper started with introduction and discus the key concepts related to the title. Different polices measures embarked upon by Federal Government of Nigeria to reduce food insecurity and poverty was reviewed. Most importantly, an in-depth examination of nexus between food security and food security was carried out. (Nnamonu, Catherine, Ejimonye, Jovita, Omaliko, and Chikaodil, 2021).

From the above review, it can be seen that there is a dearth of empirical studies on food security and poverty in Okehi local government area of Kogi state, which is the focus of my study. Most of the studies are either national or regional in scope, and do not capture the specific characteristics and challenges of the rural farming households in my area of study. It was difficult to apply and generalize their results as they were specific to the specific study areas with some different peculiarities. Furthermore, these studies notwithstanding, low level of food security and poverty is still increasing in an alarming rate in Okehi local government area of Kogi State. Therefore, there is a need for a more comprehensive and context-specific study that addresses these gaps and limitations, and that is the aim of my study.

2.4 Relationship between Food Security and Poverty Status of Rural Households

The logit regression model will be used to measure the relationship between food security and poverty status of the households. This model is stated as follows:

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \ldots + \beta nXn + ui$

Where Y = is a binary variable defined as 1 if the household is food secure and 0 if Otherwise

B1 – βn = Logit regression

Coefficients X1 = Age ☹ Years)

X2 = Level of Education ☹ Number of years spent in school)

X3 = Household Size

X4 = Farmer's Association ☹ Yes =1, 0 otherwise)

X5 = Access to Credit ☹ Yes =1, 0 otherwise)

X6 = Farm Size ☹ Hectares)

X7 = Poverty Status ☹ Poor =1, 0 otherwise)

X8 = Farm Income (#)

3 Results and Discussion

This report presents an elaborate discussion of the socio-economic characteristics of rural farming households in Okehi Local Government Area, Kogi State, and the implications of these findings on the research objectives. The primary objective of the study was to analyse food security and poverty status among these households.

TABLE 1: SOCIOECONOMIC FACTORS OF THE RESPONDENTS

SOCIO-ECONOMIC FACTORS	FREQUENCY	PERCENTAGE
AGE		
30	25	25
40	50	50
50	75	75
HOUSEHOLD SIZE		
6.000000	25	25
7.000000	75	75
GENDER DISTRIBUTION		
MALE		
FEMALE	46	46
	54	54
MARITAL STATUS		
SINGLE	01	01
MARRIED	95	95
WIDOWED	04	04
DIVORCED	-	-
EDUCATION LEVEL		
NO FORMAL		
PRIMARY	13	13
SECONDARY	12	12
TERTIARY	58	58
	17	17
OCCUPATION		
FARMING	53	53
FISHING	-	-
TRADING	46	46
CRAFTING	01	01
OTHERS (SPECIFY)		
	-	-
INCOME (MONTHLY)		
LESS THAN 10,000		
10,000 – 30,000	19	19
30,001 – 50,000	49	49
50,001 – 100,000	17	17
ABOVE 10,000	11	11
	04	04

SOURCE: FIELD SURVEY

TABLE 2: SOCIOECONOMIC FACTORS OF THE RESPONDENTS

SOCIO-ECONOMIC FACTORS	MEAN	STANDARD DEVIATION	MIN	MAX
AGE	43.210000	10.389675	19.000000	70.000000
HOUSEHOLD SIZE	6.780000	2.162957	3.000000	15.000000

SOURCE: FIELD SURVEY

The mean age of respondents is approximately 43 years, with a standard deviation of 10.39. This suggests that the farming population is predominantly middle-aged, indicating a mature workforce with some experience in agricultural activities. The age distribution also implies potential for stability in farming operations, although the lower presence of younger farmers may point to a need for youth engagement in agriculture. This pattern is consistent with findings in agricultural studies where the average age of farmers tends to fall within the middle-age bracket, reflecting both experience and challenges related to generational renewal in farming (FAO, 2017).

The average household size is about 6.78 persons. This relatively large household size could exert pressure on available food resources, especially in the absence of corresponding income or food production. It may also affect the dependency ratio and exacerbate food insecurity. This dynamic was clearly observed in the Comprehensive Food Security and Vulnerability Analysis (CFSVA) conducted by the World Food Programme (WFP) in northern Nigeria (2016). The report highlighted that households with more than six members were disproportionately affected by food insecurity, especially in rural and conflict-affected areas. These households often had a higher dependency ratio—with more non-working members (children and the elderly) — which reduced their income-generating capacity while increasing consumption needs. Moreover, the WFP study indicated that larger households were more likely to adopt negative coping mechanisms such as reducing meal portions, skipping meals, or selling productive assets to access food. These further compounds the cycle of poverty and food insecurity, making them more vulnerable to external shocks such as climate variability or market disruptions. Thus, in the context of the current findings, the relatively high average household size of 6.78 persons is not only a demographic indicator but a factor influencing food security, economic resilience, and overall household well-being.

The gender distribution shows a slightly higher number of female respondents (54%) compared to males (46%). This suggests that women play a significant role in rural farming, which is crucial when designing gender-inclusive interventions for food security and poverty alleviation. This report aligns with the highlight that women constitute nearly half of the agricultural labor force worldwide and often play key roles in smallholder farming systems, especially in rural areas, making their inclusion essential in interventions targeting food security and poverty reduction, (FAO, 2011).

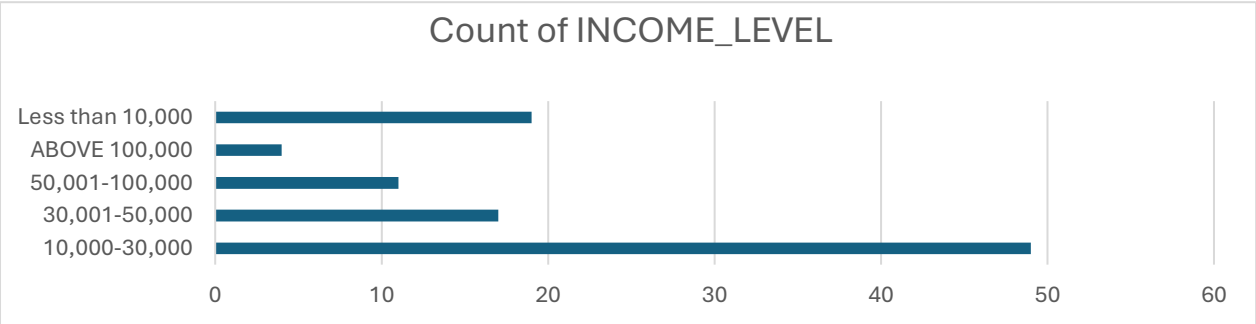
A vast majority of respondents (95%) are married. This may imply a more stable household structure, which can positively influence food production and household decision-making. However, widowed individuals (4%) may require targeted support to manage their households. With more household members, labor can be shared, and resources can be pooled. The predominance of married respondents (95%) in this study and its possible implications for household stability and food production aligns with findings from a study by (Yusuf, Abdulrahman and Ibrahim, 2017) on household demographics and food security in rural Kaduna State, Nigeria. Their research established that marital status plays a significant role in household food security outcomes. Specifically, married individuals were more likely to participate in joint decision-making regarding farming and household resource allocation, which contributed to more stable food production and better nutritional outcomes. Yusuf et al.

(2017) also noted that widowed and single-headed households faced heightened food insecurity due to reduced labor availability and financial vulnerability, requiring specific support mechanisms. This is consistent with the observation that widowed individuals (4%) may need targeted interventions to effectively manage their households and maintain food access.

Most respondents (58%) have secondary education, while only 17% have tertiary education. A notable 13% have no formal education. This distribution may affect the adoption of modern farming techniques and the ability to engage with extension services or market information effectively. This concern is supported by findings from the FADAMA II Project in Nigeria, where it was observed that farmers with at least secondary education were more likely to adopt improved farming technologies and utilize agricultural extension services effectively. According to the World Bank Implementation Completion Report on the project, limited education was a key barrier for some participants in understanding training content and applying recommended practices. Farmers with little or no formal education struggled with interpreting agro-advisories, particularly those delivered via mobile platforms or written materials, resulting in slower adoption rates and reduced productivity gains. This demonstrates that education level plays a critical role not only in technology uptake but also in integrating smallholder farmers into modern agricultural value chains (Erieme, 2006).

Farming is the predominant occupation (53%), followed closely by trading (46%). This reveals that many households may be involved in multiple income-generating activities. Crafting is almost non-existent (1%), indicating limited diversification in skilled trades. A comparable trend was observed in the Rural Livelihoods Improvement Programme (RLIP) in Nigeria, implemented by the International Fund for Agricultural Development (IFAD). The project revealed that while agriculture remained the mainstay for most rural households, a significant proportion engaged in petty trading as a complementary income source. However, participation in skilled non-farm activities — such as tailoring, carpentry, and metalwork — was minimal due to a lack of vocational training opportunities and limited market access (IFAD, 2012). The project emphasized the need to promote diversified livelihood options, especially for youth and women, to reduce vulnerability to agricultural shocks and broaden income sources.

This underscores the importance of not only supporting agricultural productivity but also investing in rural vocational training and enterprise development to unlock broader economic resilience.



SOURCE: FIELD SURVEY

Fig 2: Income Level of Respondent

The income distribution of rural households in Okehi LGA reveals a significant disparity, underscoring prevailing poverty and food insecurity concerns. Nearly half of the respondents earn between ₦10,000 and ₦30,000 monthly. Another 19% earn less than ₦10,000, indicating widespread low-income levels. These figures reinforce the economic vulnerability of rural households and their susceptibility to food insecurity. It reflects the predominance of

subsistence-level earnings and aligns with observed household occupations, mainly small-scale farming and petty trading. Food security is severely affected by low income. Households earning below ₦30,000 struggle to meet daily nutritional needs, making them vulnerable to food insecurity. The income distribution confirms widespread poverty, with a notable percentage falling below the national minimum wage. Finally, income proves to be a key factor in influencing both poverty and food security.

The income distribution pattern observed in rural households of Okehi LGA is consistent with findings from previous studies conducted in similar Nigerian rural settings. For instance, the research by Adekoya and Adekunle (2018) on income levels and food security among rural households in Ekiti State reported that a majority of rural households earn below the national minimum wage, with many subsisting on less than ₦20,000 monthly. This income bracket significantly constrained their access to adequate food, mirroring the economic vulnerability noted in Okehi LGA. Their study emphasized that low and unstable incomes directly contribute to food insecurity, as households prioritize immediate survival over nutritional quality. Similarly, Olawale, Musa and Abdullahi (2020) examining rural livelihoods in Niger State found that small-scale farmers and petty traders constitute the bulk of rural economies, with over 60% earning less than ₦30,000 per month. This income inadequacy was linked to limited access to markets, credit facilities, and agricultural inputs, factors which exacerbate poverty and food insecurity. These prior studies corroborate the observed income disparities and subsistence-level earnings in Okehi LGA, highlighting the persistent structural challenges facing rural households. The convergence of findings underscores the need for targeted interventions to improve rural incomes and food security across Nigeria.

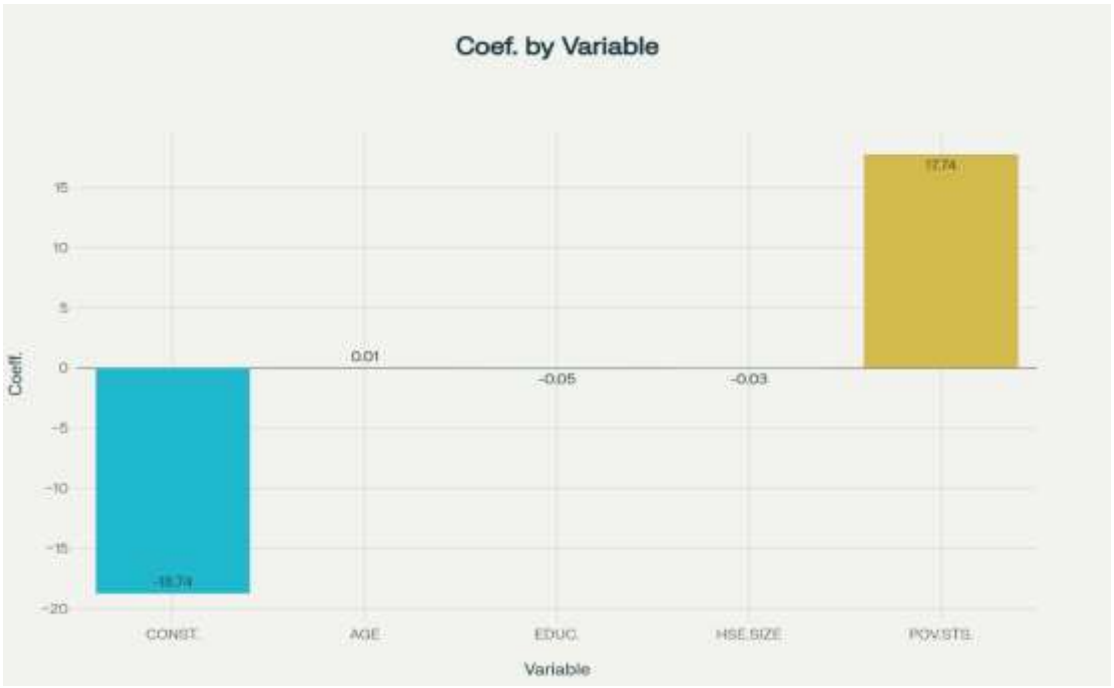
TABLE 3: FOOD SECURITY AND POVERTY STATUS OF RESPONDENT

FOOD SECURITY	FREQUENCY	PERCENTAGE
FOOD SECURITY		
NO	80	80
YES	20	20
POVERTY		
NO	06	06
YES	94	94

SOURCE: FIELD SURVEY

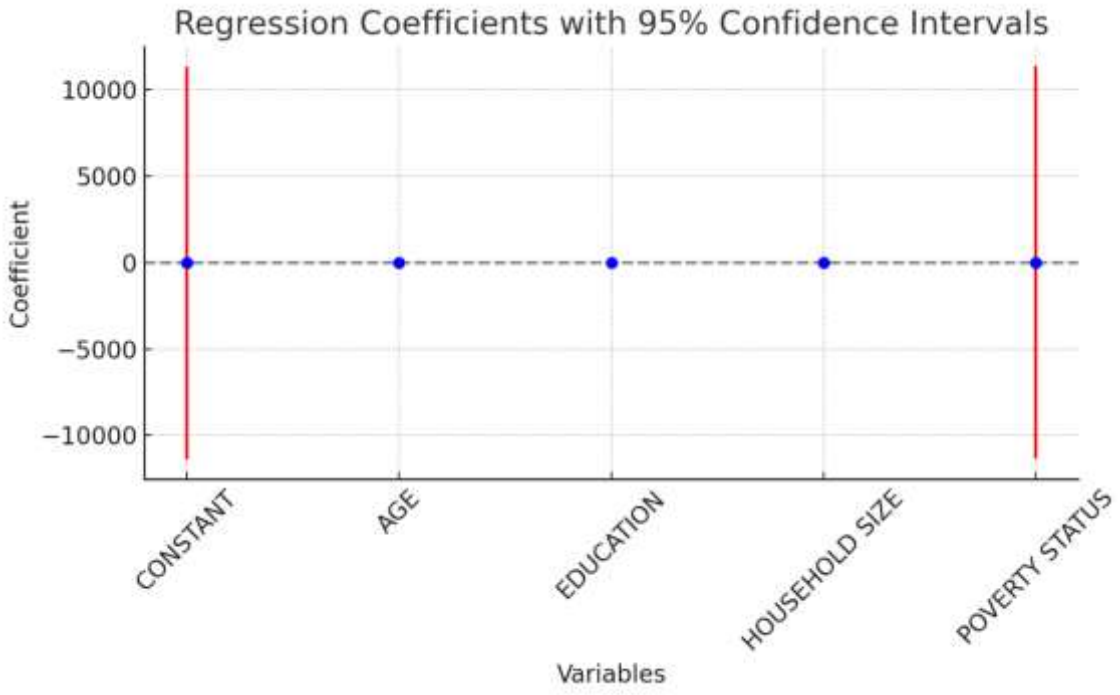
TABLE 4: LOGIT REGRESSION RESULTS

	COEFF.	STANDARD ERROR	Z	P > |Z|	CONFIDENCE INT. 0.025	0.975
CONSTANT	-18.742	5806.695	-0.003	0.997	-11399.655	11362.170
AGE	0.009	0.027	0.338	0.736	-0.043	0.061
EDUCATION	-0.054	0.055	-0.979	0.328	-0.161	0.054
HOUSEHOLD SIZE	-0.025	0.130	-0.191	0.848	-0.279	0.229
POVERTY STATUS	17.743	5806.695	0.003	0.998	-11363.169	11398.655



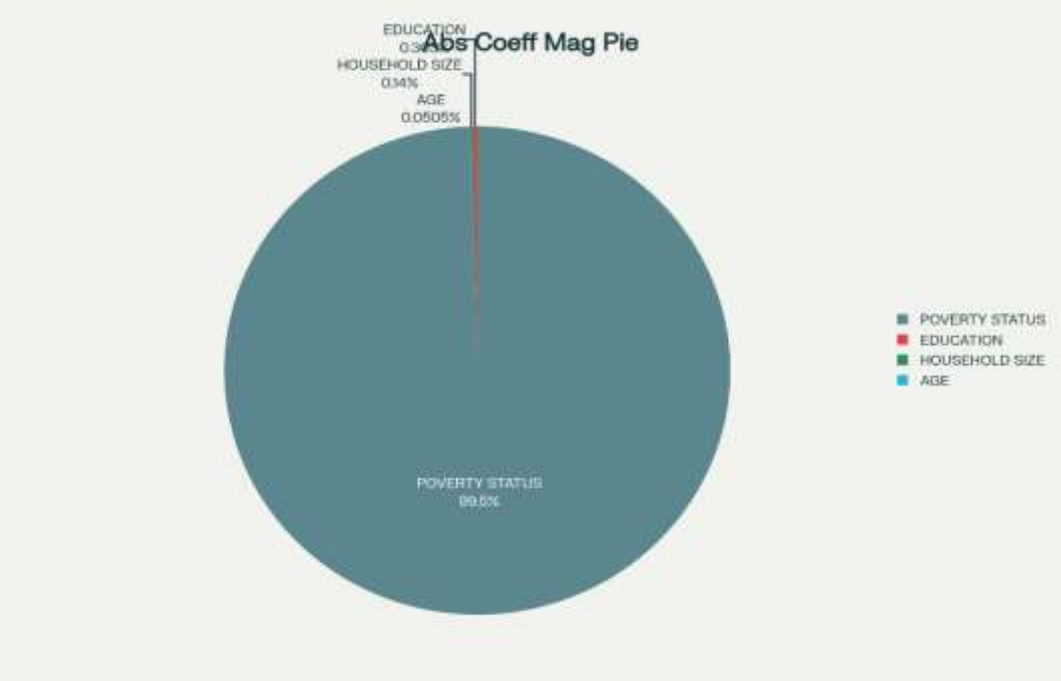
SOURCE: FIELD SURVEY

Fig 3: Bar Chart of Regression Coefficients for Age, Education Level, Household Size and Poverty Status



SOURCE: FIELD SURVEY

Fig 4: Relative Magnitude of Variable's Coefficient (excluding CONSTANT)



SOURCE: FIELD SURVEY
Fig 5: Regression Coefficients for each Variable (95% Confidence Interval)

A staggering 94% of respondents reported that poverty affects their food availability. Additionally, 80% stated that they do not have year-round access to food. These statistics highlight the critical food insecurity situation in the region and the urgent need for targeted interventions.

The logit regression model tested the impact of age, education, household size, and poverty status on food security. None of the independent variables showed statistically significant effects at the conventional 5% level (p-values > 0.05), suggesting that, within the context of this model, there is insufficient evidence to conclude that these variables individually predict food security outcomes possibly due to multicollinearity or a small sample size. However, the coefficient for poverty status (17.74) was extremely high, suggesting a major influence on food security.

Specifically, the coefficient for age ($\beta = 0.009$, $p = 0.736$) indicates a very weak and statistically non-significant positive association with food security. Similarly, education level ($\beta = -0.054$, $p = 0.328$) showed a negative but also statistically non-significant relationship, implying that increased years of schooling did not demonstrate a measurable impact on food security within this sample. Household size, often theorized to influence food security due to resource dilution or economies of scale, also did not show significance ($\beta = -0.025$, $p = 0.848$), with the direction of effect aligning with the hypothesis that larger households might face greater food insecurity, though this cannot be confirmed statistically here.

Most notably, the coefficient for poverty status ($\beta = 17.743$) was substantially large, though accompanied by a very high standard error (SE = 5806.695) and a non-significant p-value ($p = 0.998$). This inflated coefficient, along with an extremely wide confidence interval (CI: -11363.169 to 11398.655), suggests potential estimation issues — likely attributable to multicollinearity or sparse data in certain poverty categories. Such anomalies are typical when there is quasi-complete separation in the data or when sample sizes are inadequate for reliable maximum likelihood estimation in logistic regression. Despite the lack of statistical

significance, the magnitude of the coefficient suggests that poverty may be a critical determinant of food security, meriting further investigation using refined modeling approaches or larger, more representative datasets.

The contextual evidence supports this interpretation. Descriptive statistics from the field survey indicate that a vast majority of respondents (94%) perceive poverty as a key factor adversely affecting their food availability, and 80% report lacking year-round access to food. These figures underscore a high prevalence of food insecurity and affirm the socioeconomic vulnerability of the population. The statistical insignificance in the regression model does not negate the practical and substantive relevance of poverty in shaping food security outcomes; rather, it reflects the limitations of the current model and dataset in capturing these complex relationships.

Overall, while the regression model did not yield statistically robust predictors of food security, the descriptive findings and the large coefficient for poverty status strongly suggest that income-related factors play a pivotal role. This calls for more nuanced models that incorporate additional economic, environmental, and institutional variables, as well as improved sampling strategies to ensure analytical precision. The findings advocate for policy interventions that prioritize poverty alleviation as a critical pathway toward achieving food security in the study area

The most common coping strategy during food insecurity is reducing meal size (98%). Many also resort to consuming cheaper food (69%) and borrowing (62%), while 42% take on extra work. These adaptive strategies underline the severity of food insecurity, and the lengths households go to mitigate it.

The significant influence of income on food security and poverty status aligns with findings from a study conducted by Ogundari and Ojo (2019), which examined determinants of food security among rural households in Southwest Nigeria. Their logistic regression analysis similarly found income to be a crucial determinant of food security status, with higher income levels strongly associated with improved food availability and access. The study reported that poverty severely constrained food access for a majority of households, with over 90% acknowledging poverty as a limiting factor for food availability—closely matching the 94% reported in this study.

Moreover, Ogundari and Ojo (2019) highlighted common coping mechanisms during food insecurity, including meal size reduction, consumption of less preferred foods, and borrowing, reflecting the adaptive strategies observed in this study. Their findings also noted that while demographic factors like age and education had limited direct statistical significance, poverty's influence remained dominant, supporting the interpretation that poverty is a critical but complex factor in food insecurity.

3.1 Implications for Research Objectives

The findings have significant implications for the research objectives. The socio-economic data reveal a population that is vulnerable due to low income, large household sizes, and limited formal education. These conditions directly affect food security and poverty levels. The high dependence on coping strategies also suggests that current interventions are insufficient. Addressing these issues requires comprehensive policies that support income generation, educational opportunities, and access to agricultural inputs.

4 **Conclusions and Policy Recommendations**

4.1 Conclusion

The study provides critical insight into the socio-economic dynamics and challenges facing rural farming households in Okehi. The overwhelming presence of poverty and food insecurity underscores the urgency for sustainable interventions. Addressing these challenges through

inclusive, gender-sensitive, and education-focused strategies is essential for improving household welfare and ensuring year-round food availability.

4.2 Recommendations

Based on the findings and discussion, the following recommendations are proposed to improve food security and alleviate poverty among rural farming households in Okehi Local Government Area.

1. Implement targeted agricultural extension services that are tailored to the needs of middle-aged and female farmers, ensuring inclusivity and practical knowledge transfer.
2. Provide capacity-building programs focused on climate-smart agriculture and financial literacy to enable households to manage resources efficiently and adapt to changing climatic conditions.
3. Promote youth engagement in agriculture through incentives, training, and access to land and credit facilities.
4. Encourage household planning and support services to manage large family sizes, including health and reproductive education programs.
5. Strengthen social safety nets and introduce food assistance programs to reduce the burden of poverty on food access.
6. Enhance access to markets and value chains for smallholder farmers, especially women traders, to improve income levels.
7. Develop microfinance schemes and cooperative societies to provide affordable credit to support farming and trading activities.
8. Introduce adult education and vocational training programs to improve literacy levels and diversify income sources.

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