

The Nexus of Income, Gender, And Food Security in Kyela District-Tanzania: A Comprehensive Analysis

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Abstract

The purpose of this research is to identify and analyze the influence of income and gender on food security in rural society. Kyela district is one of five districts in the Mbeya region, and many people in this area still have the problem of malnutrition. In this study, we aim to investigate based on problematic income and gender conditions in the community in Kyela District. Both of these factors are crucial problems in Kyela District. Poverty and limited economic opportunities enhance the food security crisis in Kyela District. Gender roles and inequalities affect access to resources necessary for food security and livelihoods. Data utilized in this research were primary and secondary data. Primary data were compiled through interviews and a well-structured questionnaire will be used to collect data. Secondary data were compiled from various publication sources.. Then the data will be assessed and analyzed with by the help of SPSS statistics software, from the study, we found that income is one of the most effects on people to access the quality of good food, and poverty is also one of the big challenges to affording healthy food. From the study above households, farming is one of the alternative solutions to overcome food insecurity because it's cheaper and practical.

Keywords: food security; gender, income, malnutrition and rural society in kyela -Tanzania

1. Introduction

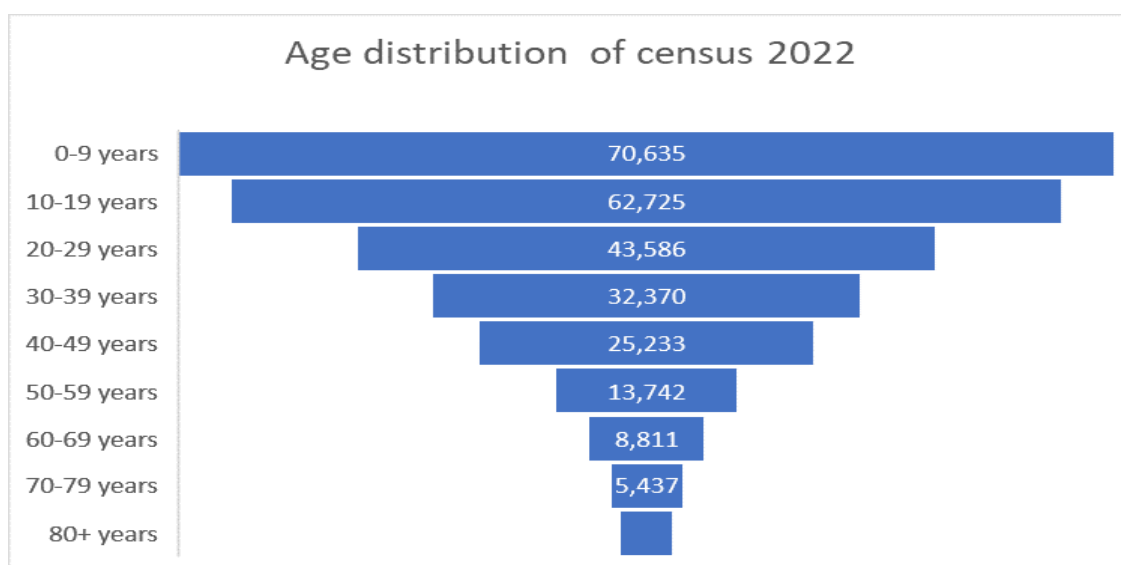
Kyela is one of the seven districts of Mbeya Region, Tanzania. It is bordered to the north by Rungwe District, to the northeast by Njombe Region, to the southeast by Lake Nyasa, to the south by Malawi, and to the west by Ileje District. In 2016, the Tanzania National Bureau of Statistics reported there were 244,108 people in the district, from 221,490 in 2012. The District Commissioner of the Kyela District is Katule G. Kingamkono. The economy of Kyela District is mainly based on productive sectors such as transportation, small scale industries, Tourism, Fishing, business activities and Agriculture. Agriculture is a major dominant sector of production and it employs about 80% of the total population in the district and the remaining sectors employ only 20%. The highest amount of District GDP comes from agricultural activities. Many people in the district about 80% depend on agriculture and the mostly cultivated food crops being paddy, maize, banana, cassava, beans and groundnuts. The major cash crops are cocoa and palm oil('Kyela_District_in_Mbeya_2022', no date). The two crops contribute to the income of the people by 65% of their total income and 70% on the District GDP. Farming activities are being conducted by using poor implements such as hand hoes and it is family labor based which results into low yields per area thus a need to invite investors to come and invest in agriculture so that the sector will be improved, However, the 10 District is supporting farmers in acquiring tractors through District Agricultural Development Plan (DADPs) by cost sharing(Esther and Chioma, 2018).

Table 1. Age Distribution (C 2022)

0-9 years	70,635
10-19 years	62,725
20-29 years	43,586
30-39 years	32,370
40-49 years	25,233
50-59 years	13,742
60-69 years	8,811
70-79 years	5,437
80+ years	3,887

Source: (Brinkhoff 2023)

Table 1. Age Distribution (C 2022)



Source: (Brinkhoff 2023)

The food insecurity situation in Kyela District is a pressing concern that affects the well-being and livelihoods of its residents. Kyela District, located in the Mbeya Region of Tanzania, is predominantly rural, with agriculture being the primary source of income and food production for the local population. High levels of poverty in Kyela District contribute to food insecurity (McCurdy *et al.*, 2014). Limited economic opportunities and low incomes make it challenging for households to afford an adequate and nutritious diet. Poverty also hinders access to healthcare and education, affecting the overall well-being and resilience of the community (Sadati *et al.*, 2021). Due to poverty, many farmers in Kyela District face challenges in accessing crucial resources for agricultural production. Limited access to land, quality seeds, fertilizers, and modern farming techniques hampers productivity and affects the quantity and quality of food produced. Lack of access to credit and financial resources also limits farmers' ability to invest in their agricultural activities. Besides that, gender inequalities can further exacerbate food insecurity in Kyela District. Women, who play a crucial role in agricultural production and household food security, often face limited access to resources, education, and decision-making power. These disparities can impede their ability to engage in productive agricultural activities and access the necessary support systems for food production. In the Kyela district, focusing on income and gender is crucial for understanding and addressing various social and economic issues. Income and gender are interconnected factors that significantly influence the well-being, opportunities, and empowerment of individuals and communities ('Kyela_District_in_Mbeya_2022', no date). By examining these aspects, policymakers, researchers, and organizations can gain insights into inequality, poverty, and social exclusion dynamics. By examining existing studies and research, this review will identify to which extent income and gender contribute to food security issues in the region. Understanding these factors is essential for developing targeted interventions and policies to improve food

availability, access, utilization, and stability in Kyela District, ultimately promoting food security for the local population (Moussa, Sidbewendé, and Elodie 2021). Based on the background above, in this research, we will explore the following aspects:

1.How does income affect food security among members of families in the Kyela district?

How does diversity in gender affect the food security between people in Kyela district

I. Income

The Income Inequality Theory suggests that income disparities within a society can significantly impact individuals' ability to access nutritious and high-quality food. When income distribution is highly unequal, it often results in a significant portion of the population living in poverty or experiencing low income. This, in turn, affects their purchasing power and limits their ability to afford nutritious food options (Harris-Fry et al. 2020).

Understanding income disparities in the Kyela district is essential for identifying and addressing economic inequalities. Income disparities refer to the unequal distribution of financial resources among individuals or groups within a society. In many districts, including Kyela, income disparities are often influenced by factors such as education, employment opportunities, access to resources, and social structures ('Kyela_District_in_Mbeya_2022', no date).

Examining income disparities in Kyela can shed light on the extent of poverty and its impact on different segments of the population. It helps identify vulnerable groups who may require targeted interventions to improve their living conditions. Moreover, income disparities can also reflect broader structural issues within the economy, such as limited job opportunities or unequal access to productive resources (Ct and Angiography 2018).

In the context of food security, poverty plays a crucial role as a determining factor. People living in poverty often struggle to meet their basic needs, including accessing adequate and nutritious food. Poverty can result in a lack of financial resources to purchase a diverse range of food items, leading to a monotonous diet and lacking essential nutrients (Akhtar et al. 2018).

Furthermore, poverty can limit access to education, healthcare, and employment opportunities, indirectly impacting food security. Lack of education may result in limited knowledge about proper nutrition, leading to poor dietary choices. Limited access to healthcare can increase the risk of malnutrition and related health issues. Additionally, limited employment opportunities can restrict income generation,perpetuating the cycle of poverty and food insecurity ('Kyela_District_in_Mbeya_2022', no date).

II. Gender Dynamics

Gender plays a significant role in shaping social norms, power dynamics, and access to resources in any society. In the context of Kyela district, understanding gender dynamics is crucial for addressing gender-

based inequalities and promoting gender equality. Gender disparities can manifest in various forms, including unequal access to education, healthcare services, employment opportunities, decision-making power, and property rights (Amir and Mat 2021). Focusing on gender in Kyela allows for an examination of how societal norms and expectations affect women's economic participation and empowerment. It helps identify barriers that hinder women's access to resources and opportunities for economic advancement. Additionally, analyzing gender dynamics can reveal patterns of discrimination and marginalization faced by women in different spheres of life. Food security is a complex issue that affects both rural and urban societies (Moussa et al. 2021). The idea of food security is intricate and has changed significantly throughout time. Food security is defined as "all people, at all times, having physical and economic access to adequate, safe and nutritious food that fits their dietary needs and food choices for an active and healthy life" by the World Food Summit in 1996. (FAO, 1996; FAO, 2008, p.1).

Food insecurity can increase malnutrition problems which can lead to stunted growth and development, particularly in children (Harris-Fry et al. 2020). It weakens the immune system, making individuals more susceptible to diseases and infections. Malnourished individuals may experience cognitive impairments, reduced productivity, and increased morbidity and mortality rates. In addition to the individual health consequences, malnutrition can also have broader societal implications, such as hampering economic development and placing a burden on healthcare systems. Health implications: Insufficient intake of essential nutrients, such as proteins, vitamins, and minerals, can lead to conditions that can impair physical and cognitive development, weaken the immune system, increase susceptibility to infections and diseases, and lead to higher morbidity and mortality rates and may result to nutritional disorders to family members like obesity, rickets, scurvy, and so forth. Food insecurity can lead to maternal and infant health complication's poor cognitive function, increased vulnerability to disease, Increased healthcare burdens, reduced work productivity, impaired physical growth and development among members of the household, reduces labor forces-which is a source of poverty, Death, Cause physical and mental health problems (Bábosik 2019). Food security is a multifaceted issue influenced by various factors that affect the availability, accessibility, utilization, and stability of food within a specific region or community (Buabeng and Aduiteye 2022).

1.3 Research gaps

Sure, here are some potential research gaps about The Nexus of Income, Gender, and Food Security in Kyela District. According to what I know, research on the nexus of income, gender, and food security in Kyela District, Tanzania, faces several gaps. These gaps highlight the need for further investigation to understand the complex interplay of these factors and develop effective interventions'

1.3.1 Investigating the Link Between Food Security and Women's Empowerment

Research is needed to explore the relationship between women's empowerment and food security in Kyela District. This includes examining the impact of women's education, access to healthcare, and

participation in decision-making on household food security. It is important to understand how empowering women can contribute to improving food security for both women and their families.

1.3.2 Limited Data on Gender-Specific Income Sources and Food Access

There is a lack of comprehensive data on the specific income-generating activities of women and men in Kyela District. This data is crucial for understanding the gendered division of labor and its impact on food security. Furthermore, research is needed to assess the extent to which women and men have equal access to resources, markets, and decision-making power related to food production and consumption. This includes understanding the barriers women face in accessing land, credit, and agricultural inputs.

3. Understanding the Impact of Climate Change on Gendered Food Security

Climate change is a significant threat to food security in Kyela District, and its impact on women and men may differ. Research is needed to investigate how climate change affects the income-generating activities of women and men, and how these changes impact their access to food. It is essential to understand the gendered coping mechanisms employed by households in response to climate-related shocks and stresses. This includes examining the role of women in managing household food security during periods of drought or other climate-related events.

2. Literature Review

Food security is a critical issue for member of households in rural area in Tanzania, as many families struggle to access adequate food to meet their nutritional needs. This is particularly true in Kyela District, where poverty and gender inequality are prevalent ('Kyela_District_in_Mbeya_2022', no date). Income, gender, and food security are interconnected, and understanding the relationship between these factors is essential for developing effective interventions to improve food security in the district (Coffee et al. 2023).

(a) Income and Food Security

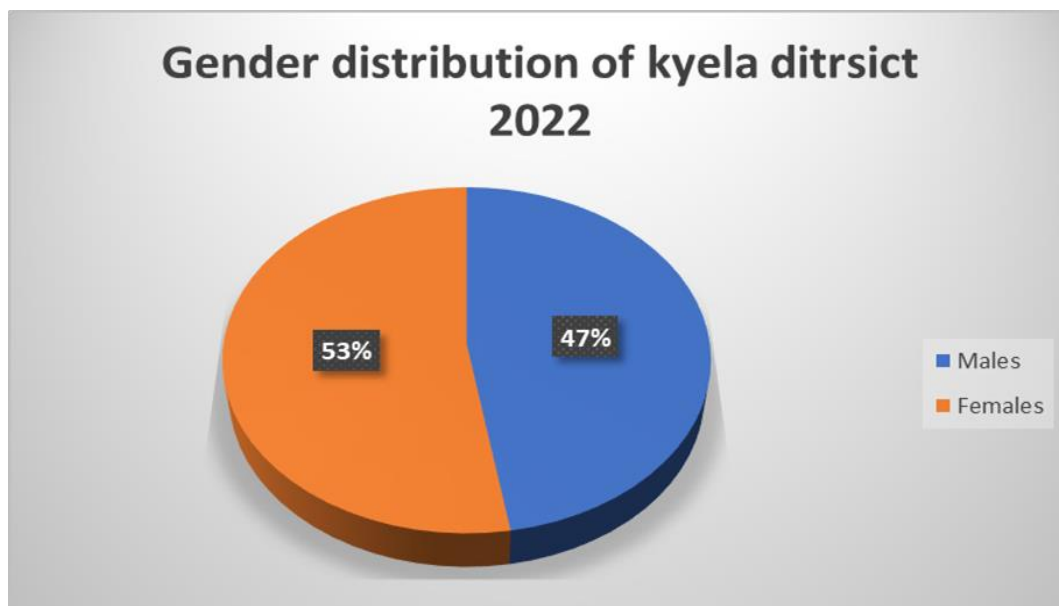
Income is a key determinant of food security. Households with higher incomes are better able to afford food, even during times of scarcity. In Kyela District, income levels are generally low, and many households rely on subsistence agriculture (Harris-Fry et al. 2020). This means that they produce food primarily for their own consumption, rather than for sale. As a result, they are vulnerable to food insecurity when their crops fail or when food prices rise ('Kyela_District_in_Mbeya_2022', no date).

(b) Gender and Food Security

Gender plays a significant role in food security. Women are often responsible for food production and preparation, but they often have less access to land, resources, and decision-making power than men (Esther and Chioma 2018). This can make it difficult for women to ensure that their households have access to adequate food. In Kyela District, women are typically responsible for childcare and household chores, which can limit their time and energy for food production. Further information about the population

structure of gender 2022. Males are 126,235, and Females are 140,191 so the number of females is bigger than the number of males('Kyela_District_in_Mbeya_2022', no date).

Figure 2; the population structure of gender 2022. Males126,235, and Females140,191



Source: (Brinkhoff 2023)

(c)The Nexus of Income, Gender, and Food Security

The nexus of income, gender, and food security is a complex one. There is a strong positive correlation between income and food security, and gender can influence this relationship. For example, women in Kyela District with higher incomes are more likely to be food secure than women with lower incomes. However, even women with higher incomes may face challenges in ensuring food security, due to gender inequality and social norms(Esther and Chioma, 2018).

(d)Interventions to Improve Food Security

There are a number of interventions that can be implemented to improve food security in Kyela District. These interventions should focus on increasing income, empowering women, and improving access to food. Some specific examples of interventions include, Providing agricultural training and extension services to women farmers, supporting women's access to land, credit, and other resources, investing in infrastructure that improves access to markets, implementing social protection programs that provide cash transfers or food assistance to vulnerable households('Kyela_District_in_Mbeya_2022', no date).

2.1Theoretical Framework of The Nexus of Income, Gender, and Food Security in Kyela District: A Comprehensive Analysis

The nexus of income, gender, and food security is a complex issue that requires a multidimensional approach to understanding. In the context of Kyela District in Tanzania, this issue can be analyzed through

the lens of various theoretical frameworks. Two prominent theories that provide insight into this nexus are the Capability Approach and the Feminist Political Economy.

The Capability Approach, developed by Amartya Sen and Martha Nussbaum, focuses on individuals' abilities to function and lead meaningful lives. It emphasizes that income alone is not sufficient for achieving food security; rather, it is the ability to convert income into food that matters. In the context of Kyela District, where agricultural productivity is low and income levels are often insufficient, this approach highlights the importance of addressing constraints to the conversion of income into food. These constraints may include lack of access to productive resources such as land and water, limited market opportunities for agricultural produce, and inadequate infrastructure for storage and transportation.

Feminist Political Economy theory provides another perspective on the nexus of income, gender, and food security in Kyela District. This approach emphasizes the gendered nature of economic processes and how they impact food security differently for men and women. Women in Kyela District often bear the brunt of food production labor while having limited control over resources such as land and income. Additionally, cultural norms may limit women's decision-making power within households regarding food consumption and allocation. Therefore, a feminist political economy analysis would focus on addressing these gender disparities as a means to improve overall food security outcomes.

In summary, a comprehensive analysis of the nexus of income, gender, and food security in Kyela District requires an interdisciplinary approach that draws from multiple theoretical frameworks. The Capability Approach highlights the importance of addressing constraints to converting income into food, while Feminist Political Economy theory emphasizes the gendered nature of economic processes impacting food security. By combining these perspectives, we can develop effective policies and interventions aimed at improving both individual capabilities to achieve food security and reducing gender disparities within households and communities.

3. Research Methodology

This study uses a qualitative descriptive method that provides detailed descriptions and symptoms of certain situations. A qualitative approach is used through library research and content analysis methods. Data sources used in this study were obtained from research questionnaire, articles, face to face interview, and reference books related to research. At the same time, the content analysis method is used to find out the conclusions of a text of this research.

3.1. Data Collection Methods

Qualitative Data In-depth interviews will be conducted with a subset of women from different socioeconomic backgrounds to explore their experiences of food insecurity and the gendered dimensions of food access and utilization. Focus group discussions will be conducted with women and men to

understand their perceptions of gender roles and responsibilities in food production, consumption, and decision-making(Sadati et al. 2021).

3.2.3 Data Analysis Methods

This section presents the data analysis related to blockchain energy consumption and sustainability considerations. The analysis is structured to align with the paper's objectives, which include The purpose of this research is to identify and analyses the influence of income and gender on food security in Kyela District. The findings from the qualitative data will be triangulated with the quantitative data to provide a more nuanced understanding of the nexus of income, gender, and food security in Kyela District.

Table 1: Gender discrimination against Income access

Response	Frequency	Percent
Agree	10	8.3
Disagree	46	38.3
Neutral	27	22.5
Strongly agree	10	8.3
Strongly Disagree	27	22.5
		100

The result shows that the majority 38.3% of respondents strongly disagree with gender discrimination against credit access. Surprisingly, 22.5% of the respondents were neutral and disagree about gender discrimination against credit access, 8.32% and 8.3% of the respondents strongly agree and agree that there is discrimination against credit access in the community due to the difficulties in accessing credits for agribusiness activities. Although, gender stereotypes make it difficult for women in agribusiness in accessing credits from financial institutions, low market opportunities, lack of training and business development programs. However, this study proves that there is no gender discrimination against women in accessing to credits from financial institutions and informal money lenders.

2.Factors influencing food security in the household

There are a lot of social, economic, environmental, agricultural, political and physiological factors that influence food security at household level. This current study focuses on agriculture, environmental and political factors that influence food security at household level. The result is well displayed in the table below.

Table 2: Factors influencing food security in the household

Response	Frequency	Percent
Access to land for agriculture	13	10.8
Climate and environmental factors	36	30.0

Gender dynamics within the household	16	13.3
Availability of food in local markets	17	14.2
Government assistance programs	8	6.7
Income level	30	25
Total	120	100

3.To analyze the impact of income inequality and gender disparities on the food security situation in Kyela District.

The impact of income inequality and gender disparities on the food security situation in Kyela District is documented in Table 3. The total number of respondents interviewed was 120 respondents who reside in the above district.

Table 3: Impact of income inequality and gender disparities on the food security situation in Kyela District

Response	Frequency	Percent
Negatively	58	48.3
Neutral	32	26.7
Positively	11	9.2
Very negatively	15	12.5
Very positively	4	3.3
		100

Approximately, 48.3% of the sampled respondents reported that income inequality and gender disparities have negatively impacted on food security, 26.7% of respondents also claimed that income inequality and gender disparities neutrally influenced food security, 12.5% of respondents also reported that income inequality and gender disparities very negatively influenced food security, 9.2% and 3.3% of respondents reported that income inequality and gender disparities very positively and positively influenced food security. The results indicate that income inequality and gender disparities negatively affect food security due to income disparities and gender discrimination against women in agriculture due to their lack of access to natural and productive resources, credits and agricultural extension services. Naturally, women are disproportionately affected by food insecurity due to gender-based inequalities in access to resources, employment and income. They often face labor market discrimination, receive lower wages and spend a higher share of their income on food. Women are more likely to experience food insecurity and

malnutrition due to limited access to quality education, good healthcare and economic opportunities such as operating businesses.

4.To develop policy recommendations for addressing food insecurity in Kyela District, emphasizing women's empowerment and income equality.

There are many policy recommendations for addressing food insecurity namely, expand food and nutrition assistance programs, target social protection, climate resilient agriculture, transform food systems and investing in women in agriculture and promoting sustainable and equitable food systems for less privileged people in rural communities.

Table 4: Policy recommendations for addressing food insecurity

Response	Frequency	Percent
Creating awareness campaigns to challenge gender norms and promote equal participation of women in decision-making processes related to food security.	13	10.83
Enhancing access to education and training opportunities for women in agricultural practices and entrepreneurship.	16	13.33
Establishing community-based savings and loan associations to support women's economic empowerment.	8	6.67
Implementing income-generating programs specifically targeting women in agriculture.	47	39.17
Strengthening social safety nets to protect vulnerable households, particularly those headed by women.	4	3.33
Providing subsidized agricultural inputs and credit facilities tailored for small-scale women farmers.	13	10.83
Strengthening land rights for women to enhance their access to productive resources.	12	10.00
Investing in infrastructure development to improve market access for women farmers.	7	5.83
Total	120	100.00

Table 4 showing the policy recommendation for addressing food insecurity in Kyela District, emphasizing women's empowerment and income equality. The results indicates that 39.17% of the sampled respondents recommended implementing income-generating programs specifically targeting women in agriculture as the best policy recommendation followed by enhancing access to education and training opportunities for women in agricultural practices and entrepreneurship

represented by 13.33%, creating awareness campaigns to challenge gender norms and promote equal participation of women in decision-making processes related to food security (10.83%) and provision of subsidized agricultural inputs and credit facilities tailored for small-scale women farmers (10.83%) were also one of the best policy recommendations by the respondents based on their experience in the study community. The rest of the policy recommendations gathered from the interview were establishing community-based savings and loan associations to support women's economic empowerment, investing in infrastructure development to improve market access for women farmers and strengthening social safety nets to protect vulnerable households, particularly those headed by women. Capacity building and entrepreneurship will help improve in women participation in decision making, increase their income and ensure food security at the household level.

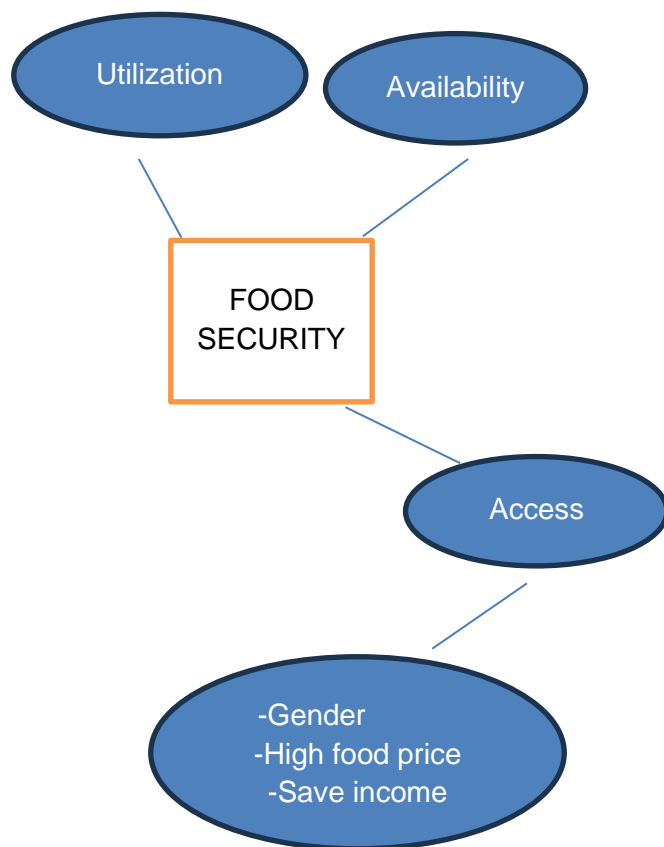
4.Result and Discussion

This section titled "Result and Discussion" is a crucial part of scientific research papers, reports, and experiments. In this section, researchers must present the outcomes of their study and engage in a discussion of the results . Here's are the general outcomes of identified problems about the connection of income and gender in Kyela district :

I. Income Disparity and its Implications for Food Security in Kyela District.

It is a complex issue with significant implications for human well-being, including food security. In the context of Kyela District, income disparity can have profound effects on the ability of individuals and households to access sufficient, safe, and nutritious food (Alwi and Susanti 2020).

Figures 2. Key factors influencing food security of smallholder farmers in Tanzania and the role of cassava as a strategic crop Income disparity refers to the unequal income distribution among individuals or households within a particular area or society



Source: (Reincke et al. 2018)

One of the key implications of income disparity for food security in Kyela District is limited access to food to the member of house holds. When there is a significant gap between the incomes of different groups within a community, those with lower incomes often struggle to afford an adequate diet. This can lead to food insecurity, which is defined as limited or uncertain availability of nutritionally adequate and safe foods or limited ability to acquire them in socially acceptable ways. Key factors influencing food security of smallholder farmers in Tanzania and the role of cassava as a strategic crop. Due to financial constraints, low-income individuals and households may face challenges in accessing nutritious food. They may be unable to afford a diverse range of foods necessary for a balanced diet. As a result, they may rely on cheaper, less nutritious options that can contribute to malnutrition and other health issues. Limited access to food can also lead to inadequate calorie intake, impairing physical and cognitive development, particularly among children(Esther and Chioma, 2018).

Another implication of income disparity for food security in Kyela District is an unequal distribution of resources and opportunities. In societies with high levels of income inequality, certain groups may have better access to resources such as land, credit, and education, which are crucial for agricultural production and livelihoods. This can create disparities in agricultural productivity and income generation, further exacerbating food insecurity. For example, wealthier individuals or large-scale commercial farmers may have access to modern farming technologies, irrigation systems, and market networks that enable them to

produce higher yields and generate more income. On the other hand, small-scale farmers with limited resources may struggle to compete in the market and face challenges in improving their agricultural practices. This can perpetuate a cycle of poverty and food insecurity, as those with limited resources are unable to invest in their farms or access markets effectively (Alwi and Susanti 2020).

The situation of income in Kyela District is a complex and multifaceted issue influenced by various factors such as economic activities, employment opportunities, education levels, and government policies. To understand the income situation in Kyela District, it is important to analyse these factors and their impact on the local economy (Akhtar et al. 2018).

ii. The Impact of Income in Kyela on Food Security

Food security is a critical issue that affects the well-being and livelihoods of individuals and communities worldwide. It refers to the availability, accessibility, and utilization of sufficient, safe, and nutritious food to meet dietary needs and preferences for an active and healthy life. Income plays a significant role in determining food security levels, as it directly affects people's ability to access and afford an adequate diet. Kyela is a district located in the Mbeya Region of Tanzania. Like many other rural areas in developing countries, Kyela faces various challenges related to food security. Income levels determine individuals' purchasing power, directly affecting their food buying ability. Higher incomes enable households to afford a diverse range of nutritious foods, including fruits, vegetables, proteins, and dairy products. Conversely, low-income households may struggle to meet their basic food needs and rely on cheaper, less nutritious options. In rural areas like Kyela, where agriculture is a primary source of income for many households, income levels can significantly impact food security. Higher incomes allow farmers to invest in improved agricultural practices, such as purchasing quality seeds, fertilizers, and machinery. This can lead to increased productivity and higher crop yields, ensuring both household food security and potential surplus for sale or trade. The diagram below illustrates the links between food security and loans taken in village savings and loan associations groups. The linkages were determined through data collected, focus group discussions, and the experience of Catholic Relief Services and Floresta staff (Nawaz et al. 2022). Many of the most popular loans offered by Catholic Relief Services and Floresta village savings and loan associations groups can be linked to the four key components of food security (Nawaz et al. 2022).

iii. How does income support members of households in improving food security?

Income plays a crucial role in improving food security for households. Higher income levels give households more resources to purchase an adequate and diverse range of food items. It enables them to access nutritious food options, meet dietary requirements, and ensure food availability throughout the year. Income can also provide households with the means to invest in agricultural inputs, such as seeds and fertilizers, leading to increased food production and self-sufficiency. The income can help afford to buy food and also helps to buy fertilizers, seeds and manage other farm activities while preparing the farm. So, all of them need income to ensure food security. Income enhanced purchasing power provides additional

financial resources to households, enabling them to afford an adequate and nutritious diet, ii. Reduced food insecurity, this means With a steady income, households are better equipped to plan and budget for their food needs, reducing the risk of insufficient or inadequate food access

iii. It enhances access to food resources. With increased financial resources, families can afford to access a wider variety of food options (Akhtar et al. 2018).

Iv. How does income help members of households obtain malnutrition food?

Income alone does not determine the quality of food obtained by households. Inadequate income levels may restrict access to nutritious food, leading to malnutrition. Lower-income households may prioritize cheaper, calorie-dense food options that lack essential nutrients, contributing to malnutrition. However, income can indirectly affect access to quality food by providing the means to purchase diverse and nutrient-rich food items, thereby improving nutrition outcomes.

The following are the results of the survey research question this means that Through income, members can afford and maintain a healthy diet ,also Unaffordability of nutritional food low income makes an individuals and households not able to afford a wider range of food options including nutrients-dense food such as fruits, vegetables, etc., hence malnutrition , Low-income housing is limited to get the daily nutritional value food instead they eat the same type of food most of the time this means Due inconsistency in income status, Member of household are not able to access most of the nutritious food sources like meat, eggs, milk, vegetables and fruits from the market. This would trigger the problem of malnutrition. It will enable them to buy different varieties of food (Balance diet foods) (Akhtar et al. 2018).

V. How do members of households generate income to purchase healthy food?

Households employ various strategies to generate income for purchasing healthy food. This can include engaging in formal employment, self-employment, agricultural activities, entrepreneurial ventures, or participating in local markets. Additional sources of income may come from government support programs, remittances, or social welfare initiatives. The income generation methods vary depending on the specific context, available opportunities, and resources within the community Agriculture and fishing activity ,Through physical works for the low-income families while the better and mild economy families get through white collar job salary, normally monthly another is Farming appears to be the main economic activity that supply member of household with income to be able to buy health food and also Wages from their workplace, Self-employment, loans (Alwi, Rukmana, and Susanti 2020).

vi. Is it easy for members of households to obtain quality food?

The ease of obtaining quality food can vary depending on factors such as geographical location, availability of markets, infrastructure, income levels, and agricultural practices. In rural areas, distance to markets and limited transportation can pose challenges in accessing a variety of fresh and nutritious food. Additionally, affordability plays a significant role. Higher prices for quality food items may hinder access for lower-income households. Enhancing market accessibility, promoting local food production, and

implementing income-supporting programs can improve the ease of obtaining quality food, It is not easy because we depend on agriculture and fishing. So, these are seasonal activities. Another Through Formal and informal Employment, Entrepreneurship. , Through physical works for the low-income families while the better and mild economy families get through white collar job salary, normally monthly. Yes, awareness raised by offering trainings and other support on how to effectively utilized the house yards for food crop cultivation to members of household would enhance quality food. It depends on the awareness of a person regarding quality food and the place where he can get them, income ability to buy quality food, and availability of quality food (Nawaz et al. 2022).

vii. Which socio-economic factors significantly influence food security in rural areas?

Several socio-economic factors significantly influence food security in rural areas. These factors include income levels, employment opportunities, credit and financial services, land ownership, agricultural practices, infrastructure, market access, education, and social support systems. Additionally, cultural norms, gender dynamics, and community engagement play crucial roles in shaping food security outcomes. Understanding these factors and developing targeted interventions can help improve food security in rural areas. On agriculture and fishing. So, these are seasonal activities. <Poverty, limited employment opportunities, infrastructure and market access, limited access to education about nutritional food and security. Income, social taboos, and culture of the society. Yes, with awareness raised by offering trainings and other support on how to effectively utilized the house yards for food crop cultivation to members of household would enhance quality food, Poverty, grassroots level authority, low education and skills, gender inequality, Land tenure and access, and culture are some of the socio-economic factors. , <Poverty (difficult to manage agriculture expenses), Poor farming methods. <Gender inequalities (Harris-Fry et al. 2020).

viii. Could Income enough to buy quality food within member of households?

The adequacy of income to buy quality food within households depends on various factors, including the income level itself, the cost of food items, and the overall cost of living. In some cases, households with higher income levels may have sufficient resources to afford quality food. However, it may be challenging for households with lower income levels to allocate a significant portion of their income to purchasing quality food. Additionally, other expenses and financial obligations may limit the amount of income available for food purchases, further affecting the ability to buy high-quality food consistently. < I don't have enough income because our activities are seasonal activities. Business mainly selling rice, cocoa and fish. < Yes then Of course income is the key factor of earnings nutritional nutrient food, though cultural factors may hinder the mission but lawyerly. <With effective strategy in partnerships with private sectors and other stakeholders to empower and support members of household in various aspects especially through efficiently and suitable utilization of home yards get health food and sell surplus to get sustainable income. It will be possible to secure health food.

<It is not enough, Member of household need to have more knowledge about Quality food, Availability of quality food, Agriculture support (Fanny and A. 2014).

ix. The impact of gender in Kyela to food security

Gender plays a significant role in food security in Kyela district, located in the Mbeya Region of Tanzania. Food security refers to the availability, accessibility, and utilization of food that ensures individuals have an adequate and nutritious diet to meet their dietary needs. In Kyela, gender dynamics influence various aspects of food security, including agricultural practices, access to resources, decision-making power, and nutritional outcomes (Esther and Chioma 2018).

Gender equality is a fundamental human right and a necessary condition for achieving sustainable development. It refers to the equal rights, responsibilities, and opportunities for individuals of all genders. Despite significant progress in recent decades, gender inequality remains a pervasive issue globally, affecting various aspects of life, including education, employment, healthcare, and political representation. To address this issue, interventions to improve gender equality have been implemented at various levels, including policy changes, legal reforms, and social initiatives. One key intervention to improve gender equality is the implementation of gender-responsive policies and legislation. Governments play a crucial role in promoting gender equality by developing and enforcing laws that protect women's rights and ensure equal opportunities. These policies can include affirmative action programs, gender quotas in political representation, and laws against gender-based violence. By enacting these policies, governments can create an enabling environment for women to participate fully in all spheres of life. Another important intervention is the promotion of women's economic empowerment. Economic empowerment is essential for achieving gender equality as it gives women control over their resources and decision-making power. This can be achieved through various means, such as providing access to credit and financial services, promoting entrepreneurship among women, and ensuring equal pay for equal work. Additionally, investing in women's education and skills training can enhance their employability and enable them to access higher-paying jobs (Koroma, Gogra, and Yokie 2019).

x. Are women, as members of households, able to access healthy and nutritious food?

The ability of women to access healthy and nutritious food depends on various factors, including their income, household dynamics, cultural norms, and decision-making power within the household. In many societies, women may face gender-based disparities and limited control over resources, including income. This can impact their ability to access and procure healthy food for themselves and their families. Addressing gender inequalities and empowering women economically can contribute to improving their access to nutritious food. < It is a must for women to get healthy food because they carry pregnancy so they need healthy food (Republic, 2019).

< Sometimes YES sometimes NO as it depends on social constrains as in some societies women may bear the primary responsibility for food preparation and cooking. While this can empower them to make

food choices, it can also place additional burdens on them to provide nutritious meals within limited resources or time constraints. <This depends with the economic status of the family; the high and mild economy families' women are able to get nutritional value food while it is vice versa for the low-income families. <It depends on culture, family economic situation, beliefs and women preferences. Some women get while others it is difficult for them to have nutrition food (Amir and Mat 2021).

xi. Are the women able to generate income for buying quality food among member of households?

The ability of women to generate income for buying quality food among households can vary depending on several factors, including socio-cultural norms, access to employment opportunities, educational attainment, and household dynamics. In many societies, women face gender-based disparities and limited access to resources, including income-earning opportunities. However, empowering women economically and promoting gender equality can enhance their ability to generate income, thus increasing their capacity to contribute to purchasing quality food for the household. Initiatives that provide women with skills training, access to credit, and support for entrepreneurship can help improve their income-generating potential and ultimately their ability to buy quality food. <They earn income because they participate in various activities of production like agriculture and selling fish from Lake Nyasa (Amir and Mat 2021).

<Yes, women can play a crucial role in generating income to buy quality food for their household as most are engaging in formal employment, informal labor and entrepreneurship, in agriculture and farming <Not all women but some can generate income especially those who works in a white-collar job<Women are considered as the main producers and change makers in most rural areas. When they are supported in terms of exposure to trainings, formal education, access to credit, land ownership and opportunity to share their viewpoints. Women may become a key player towards securing quality food for the household; <Yes (Sahu and Yadav 2018).

It's important to note that drawing accurate and reliable conclusions from data analysis requires careful interpretation and consideration of the context and limitations of the data. Additionally, the specific conclusions would vary depending on the scope, focus, and quality of the data used for analysis (Alwi and Susanti 2020).

xii. Enhancing Income and Gender Equality

Income and gender equality are crucial factors for sustainable development and social progress. Enhancing income and promoting gender equality have significant implications for various aspects of society, including economic growth, poverty reduction, food security, and environmental sustainability. Enhancing income is essential for individuals, households, and communities to improve their living standards and achieve economic well-being (Alwi and Susanti 2020).

Agriculture is a significant sector in Kyela district, and interventions focused on improving agricultural productivity and diversification can have a substantial impact on income generation. This can be achieved

through the provision of improved seeds, fertilizers, and modern farming techniques. Additionally, promoting sustainable farming practices such as agroforestry and organic farming can enhance productivity while preserving the environment. Strengthening farmer cooperatives and providing extension services can also contribute to increased income by improving access to information, markets, and resources (Akhtar et al. 2018).

Skills Training and Capacity Building, investing in skills training and capacity building programs is crucial for empowering individuals and communities to engage in income-generating activities. Vocational training centers can offer courses in various fields such as agriculture, entrepreneurship, tailoring, carpentry, and computer skills. These programs equip individuals with the necessary knowledge and skills to start their own businesses or secure better employment opportunities. Additionally, providing training on financial literacy and business management can enhance the chances of success for small-scale entrepreneurs (Rabbia Nawaz et al. 2022).

Access to Finance, Limited access to finance is a common barrier to income improvement in many rural areas. Interventions aimed at increasing access to financial services can help individuals and small businesses overcome this challenge. Microfinance institutions can provide small loans to entrepreneurs who lack collateral or formal credit history. Savings groups or village savings and loan associations (VSLAs) can also be established to promote savings habits and provide access to credit within the community. Furthermore, linking these financial services with mobile banking technology can facilitate convenient and secure transactions (Akhtar et al. 2018).

However, with the limitation of agricultural resources, access to training and finance, urban farming, is a practice that involves cultivating crops and raising animals within urban areas, can play a vital role in addressing these issues. Urban farming can contribute to income generation in several ways, Gender equality is a fundamental human right and a prerequisite for achieving sustainable development. Promoting gender equality in the context of urban farming has several important implications, Urban farming has the potential to be a catalyst for income enhancement and gender equality due to its unique characteristics (Fanny and A. 2014).

In line with Income Inequality Theory, the result of this study highlights the importance of addressing income disparities and poverty as key factors influencing food security. Efforts to reduce income inequality, alleviate poverty, and promote economic opportunities can help enhance individuals' access to quality food and improve overall food security within a society this idea will work to reduce malnutrition. In conclusion, enhancing income and promoting gender equality are crucial for sustainable development, and urban farming can contribute significantly to achieving these goals. By providing income-generating opportunities, empowering women, and fostering social cohesion, urban farming can create a more inclusive and equitable society (Harris-Fry *et al.*, 2020).

5. Conclusion, Implication, and Recommendation

In this research can be found significant changes from households about the factors that influencing food security in rural area especially in Kyela district according to the research methodology and technique we used by both primary and secondary data we determine that From the study above households farming is the main solution to overcome these three problems we mentioned so, we suggest each house hold to cultivate urban farming in their house yards freely and easily, empowering women, and improving access to food to the member of households so this will held to reduce the problem of malnutrition based on community input in food security. On the other hand, the nexus of income, gender, and food security is a complex issue in Kyela District. There is a strong positive correlation between income and food security, and gender can influence this relationship. Interventions to improve food security in the district should focus on increasing income, empowering women, and improving access to food. Specific Recommendations are the government must Invest in agricultural training and extension services for women farmers. This will help them to improve their agricultural practices and increase their yields, Support women's access to land, credit, and other resources. This will give them the means to invest in their farms and businesses, invest in infrastructure that improves access to markets. This will make it easier for women to sell their crops and livestock and earn income, implement social protection programs that provide cash transfers or food assistance to vulnerable households. This will help to ensure that everyone has access to food, even during times of crisis. By implementing these interventions, Kyela District can work towards achieving food security for all.

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