



Gender Equality and Food Security in Households in Kumi Municipality

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How to cite this paper: Gertrude, B. (2025) Gender Equality and Food Security in Households in Kumi Municipality. *Open Access Library Journal*, **12**: e13818. <https://doi.org/10.4236/oalib.1113818>

Received: June 23, 2025

Accepted: September 25, 2025

Published: September 28, 2025

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Abstract

This study examined the role of gender equality in promoting food security among households in Kumi Municipality, Uganda. Utilizing a cross-sectional research design and employing both quantitative and qualitative methodologies, the study triangulated data to enhance the reliability and depth of its findings. It focused on how access to land, financial resources, education, and justice affects agricultural productivity and food availability across gender lines. The findings indicate that women despite their central role in food production and household care continue to face systemic barriers in land ownership, financial inclusion, and participation in decision-making processes. Quantitative data revealed that 82% of respondents identified land access as critical to food security, while 80% emphasized the importance of access to financial resources. Similarly, 78% underscored the significance of education and justice in achieving food security. A multiple linear regression analysis further demonstrated that gender equality significantly contributes to food security ($R^2 = 0.074$, $p = 0.001$). The study concludes that gender equality is not only a matter of social justice but also a strategic imperative for building sustainable food systems. Enhancing women's access to productive resources and decision-making opportunities can lead to increased agricultural productivity, reduced poverty, and improved household nutrition.

Subject Areas

Sociology

Keywords

Gender Equality, Food Security, Gender, Household, Equality

1. Introduction

This article presents a comprehensive overview of the study, including the back-

ground, problem statement, literature review summary, methodology, and key findings. It also outlines the study's recommendations and proposes areas for further research on gender equality and food security among households in Kumi Municipality.

1.1. Background of the Study

Globally, gender inequality remains a major barrier to achieving sustainable food security, particularly among vulnerable populations. Women contribute approximately 56.5% of agricultural labor and trade but face systemic challenges such as limited land ownership and restricted access to financial and productive resources, which constrain their productivity and impact on food systems (Walter *et al.*, 2020) [1]. Climate change has worsened these challenges, disproportionately affecting rural women reliant on natural resources for farming and household needs. The COVID-19 pandemic further exposed food system vulnerabilities, highlighting the urgent need for gender-inclusive agricultural development strategies.

Gendered patterns in agriculture vary worldwide. In Europe, women account for 51.3% of farm labor but are underrepresented in processing and marketing roles (Duncan & Margulis, 2016) [2]. In Asia, women make up 62.1% of the agricultural workforce yet have limited market access and fewer resources (McKeon, 2018) [3]. Australia sees women contributing 53% to agricultural economic growth but with low land ownership (FAO *et al.*, 2018) [4]. African women provide over 60% of agricultural labor but often lack land rights due to customary practices [5]. Despite efforts like the Comprehensive Africa Agriculture Development Programme (CAADP), which recommends allocating 10% of national budgets to agriculture, actual funding averaged only 2.3% in 2017, limiting support for gender-responsive investment.

In the Americas, women represent 57.9% of farming labor in North America and 54.1% in South America but are less involved in trade and industry [6]. West African women supply 53.2% of agricultural labor but face barriers to land ownership and credit access (Murphy & Schiavoni, 2017) [7]. South African women lead household food production (61.4%) but often lack formal agricultural training (FAO, 2017) [8].

East Africa relies heavily on agriculture, with over 68% of the population engaged in farming across Uganda, Kenya, Tanzania, Rwanda, and Burundi. Government programs like Uganda's Parish Development Model aim to boost agriculture but gender disparities continue to weaken their effectiveness. Central Africa struggles with political instability and entrenched cultural norms limiting women's access to land, inputs, and training, deepening food insecurity.

In Uganda specifically, women contribute 58.1% of agricultural labor but face cultural restrictions that limit land ownership despite constitutional guarantees of equal rights. Government efforts under President Museveni have promoted gender equality, yet women's limited access to productive resources and financial ser-

vices hampers their agricultural productivity. The United Nations General Assembly (UNGA, 2019) [9] reports that 58.8% of Ugandan women depend on agriculture for income and food. In Western Uganda, women dominate farming, contributing to regional food stability (Botreau *et al.*, 2019) [10] while in Central Uganda, 53.8% of women engage in agriculture compared to 46.2% of men. Northern Uganda struggles with climate shocks and insecure land tenure, even though women perform over half of agricultural labor. In Eastern Uganda, women contribute 63.2% to agriculture, with districts like Mbale, Tororo, Jinja, and Soroti reflecting the vital role of women farmers. However, the Teso sub-region, including Kumi Municipality, faces persistent famine, malnutrition, and mortality linked to gender inequality and environmental vulnerabilities.

Despite national initiatives, food insecurity remains high in Kumi Municipality. A 2021 report by the Kumi District Local Government found that household food insecurity rose to 53.3%, driven by climate variability and ongoing gender disparities. The Ministry of Agriculture (2022) [11] noted that women contribute up to 50% of food production in rural Teso but are often regarded as assistants rather than primary farmers, undermining their agency. Empowering women farmers is critical to combating poverty and food insecurity, especially in regions affected by environmental degradation, urbanization, HIV/AIDS, and economic hardship. The Kumi Farmers Association (2019) [12] emphasized that improving agricultural output alone is insufficient; gender-responsive interventions are essential for sustainable development.

Although women in Kumi play a central role in farming and food production, they face systemic inequalities in land ownership, financial services, education, and justice. These barriers limit their ability to effectively support household food security. Despite various government and NGO efforts to enhance gender equality and agricultural productivity, food insecurity remains widespread. The marginalization of women in agriculture hampers individual livelihoods and broader development objectives. This study, therefore, aims to assess the influence of gender equality on household food security in Kumi Municipality, Eastern Uganda (Kumi Farmer's Association report, 2019) [13].

1.2. Conceptual Framework

The conceptual framework guiding this study illustrates the relationship between gender equality (independent variable) and household food security (dependent variable). Gender equality is measured through indicators such as land ownership and access, equal financial opportunity, access to education, and justice. Food security is assessed across key dimensions: availability, accessibility, utilization, stability, and affordability.

The framework posits that increased gender equality enhances household food security by improving women's access to and control over critical agricultural resources. In turn, this leads to improved productivity, better household nutrition, and long-term food system sustainability. The model underlines the need for gen-

der-sensitive approaches to agricultural development, particularly in regions like Kumi Municipality where women are central to food production but face disproportionate barriers (See **Figure 1**).

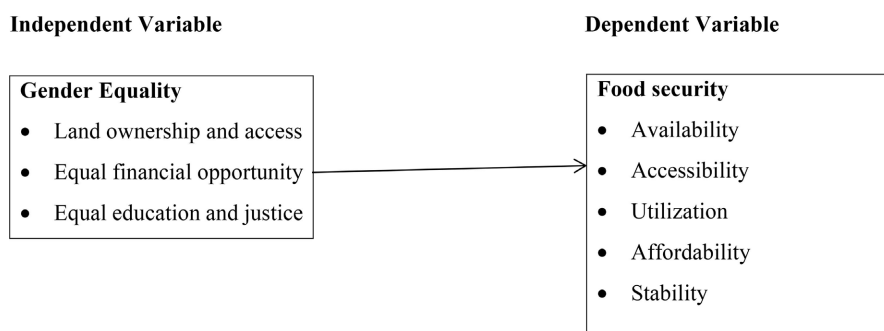


Figure 1. Conceptual framework. Source: The conceptual framework is adopted from George *et al.* (2018) [14]. Conceptual framework shows the relationship between Gender Equality and food security in Households in Kumi Municipality.

Gender equality is widely recognized as essential for sustainable development and food security, especially through equal access to education and justice. However, in developing countries like Uganda, persistent gender disparities in land ownership, resource access, and financial credit continue to undermine household food security. In Kumi Municipality, these inequalities contribute significantly to ongoing food insecurity.

2. Literature Review

This study explores how gender equality affects household food security in Kumi Municipality, defining food security as the dependent variable and gender equality measured through access to land, credit, education, and justice as the key independent variable. Research shows that although women comprise 36% - 60% of the agricultural workforce in sub-Saharan Africa, men generally control more land, credit, and mobility (Lohani & Konuma, 2013) [15]. Women often bear sole responsibility for food production during agricultural stress, facing restricted access to essential resources such as water, energy, and knowledge, which limits productivity and sustainable food systems (Brody, 2015) [16].

International organizations emphasize gender-sensitive policies as vital. The World Food Programme (2020) [17] advocates legal reforms to strengthen women's roles in food systems, while CGIAR (2025) [18] estimates that closing gender resource gaps could boost farm productivity by up to 40% and add nearly USD 1 trillion to global GDP. UNESCO (2017) [19] highlights inclusive education as foundational for gender equity and food security, noting that limited education restricts women's formal employment and ability to provide nutritious food. FAO (2024) [20] shows that school feeding programs can improve nutrition and learning outcomes, breaking cycles of poverty and food insecurity.

Gender norms affecting access to land, credit, and information reduce women's

capacity to respond to shocks such as drought or inflation (2022 gender and food systems review). Mabikke *et al.* (2023) [21] found that secure land tenure among Ugandan farmers correlates with greater adoption of risk-reducing practices and food stability. CARE (2020) [22] notes that although women produce 60% - 80% of food in developing countries, productivity gains alone won't end hunger without equitable access and empowerment.

The study employed a cross-sectional mixed-methods design to analyze gender equality's impact on food security in Kumi Municipality. This approach combined quantitative surveys using structured questionnaires for standardized data (Taherdoost, 2022) [23] with qualitative interviews capturing participants' perspectives on gender issues related to land, finance, and justice. Such triangulation enriches understanding by linking statistical trends with lived realities (Zangirolami-Raimundo, 2018) [24].

The study population included 500 agricultural and community development stakeholders, such as farmers, market vendors, district officials, and extension workers. Using Krejcie and Morgan's (1970) sampling table, a representative sample of 217 respondents was selected, including nine key informants purposively chosen for in-depth insights. Proportional sampling ensured that different groups were accurately represented, enhancing the validity of findings across the diverse Kumi community.

This mixed-methods approach allowed the study to provide a comprehensive, credible analysis of how gender equality shapes household food security in Kumi Municipality. The findings are intended to inform gender-responsive policies and interventions aimed at addressing the structural inequalities limiting women's agricultural contributions and improving food security outcomes in the region (See **Table 1**).

Table 1. Population simple size.

Categories of Respondents	T. Population	Sample size	Sampling techniques
District Production Officer	01	01	Purposive sampling
Municipal Production Officer	01	01	Purposive Sampling
District Gender Focal Person	01	01	Purposive sampling
CDOs	03	03	Purposive sampling
Municipal Town Agents	10	04	Simple random (S)
Farmers	253	109	Simple random (S)
Market Food Vendors	207	89	Simple random (S)
Operation Wealth Creation Officers	08	03	Simple random (S)
Municipal Extension Workers	03	03	Purposive sampling
Municipal Counsellors	13	05	Simple random (S)
Total Respondents	500	217	Field data, 2025

Source: Kumi Municipality report (2023).

Stratified random sampling was employed in this study to ensure fair and proportional representation of different household types in Kumi Municipality, with a focus on gender roles and food security (Mohamed, 2023) [25]. As defined by Mazaki (2017) [26], stratified sampling involves dividing the population into sub-groups (strata) to enhance representativeness. Households were stratified based on the gender of the household head female-headed (18%, n = 46) and male-headed (82%, n = 207) to capture distinct patterns in food access, control, and utilization. Data were sourced from Local Council 1 registers and Community Development Officers, and each household was coded (1 for female-headed, 2 for male-headed).

Given that female-headed households often face greater food insecurity (Barak, 2024) [27], this stratification enabled a deeper analysis of gender-based disparities in food production, income control, and decision-making. Systematic random sampling was applied within strata, selecting every 2nd or 3rd household from an ordered list. One adult respondent either the head or co-head was interviewed per household. To address non-responses, pre-identified replacement households were included, ensuring the final sample of 217 respondents was representative of the broader population of 500.

The study used a mixed-methods design, combining quantitative and qualitative approaches. For the quantitative component, 208 respondents including farmers, councilors, town agents, vendors, and Operation Wealth Creation officers were randomly selected. A structured questionnaire with close-ended items was administered to collect standardized data, analyzed using SPSS (Version 23). Responses were measured using a 4-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree) across key themes: land access, financial opportunity, education and justice, and household food security.

For the qualitative component, nine key informants such as Production Officers and Community Development Officers were purposively selected for their expertise. Interviews captured nuanced insights into gender dynamics and food access. To ensure validity and reliability, the questionnaire underwent pretesting. Based on expert reviews and a literature-informed conceptual framework, a Content Validity Index (CVI) was calculated: $CVI = 29 \div 36 = 0.8$, exceeding the acceptable threshold of 0.7. This confirmed the instrument's appropriateness for measuring gender equality and food security in Kumi Municipality (See **Table 2**).

Table 2. Reliability statistics.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.826	0.830	29

Source: Pre-testing result, 2025.

It is noticed from this formula that if the numbers of items are increased, it would increase the value of Cronbach's alpha. Additionally, if the average inter-

item correlation is low, alpha measures low. As the average inter-item correlation increases, Cronbach's alpha increases as well. Reliability coefficient 0.830 or higher is considered acceptable in most social sciences research.

3. Findings of the Study

3.1. An Overview of the Study

Achieving gender equality in Kumi Municipality is essential for improving household food security. This involves addressing deep-rooted inequalities, empowering women economically, and ensuring their active participation in decision-making. Collaboration between government, civil society, and local communities is key to creating an inclusive environment where both men and women contribute equally to food production and sustainable development.

Gender equality, as defined by UNESCO (2022) [28], means equal rights, responsibilities, and opportunities across social, economic, and political spheres, while Essilfie *et al.* (2024) [29] emphasize eliminating discrimination and promoting fairness. This study assessed gender equality through three main factors: land ownership and access, equal financial opportunities, and equal access to education and justice.

Land ownership, critical for agricultural productivity, is limited for women in Kumi due to cultural norms restricting their rights to own or inherit land (Meinzen-Dick *et al.*, 2019) [30]. Equal financial opportunity means access to credit, savings, and insurance regardless of gender, yet many rural women in Uganda remain excluded from formal financial systems (Demirgüç-Kunt *et al.*, 2018) [31]. Equal education and justice reduce gender disparities by enhancing women's capacity to contribute meaningfully to household food security (UNESCO, 2023) [32].

Food security, defined by the FAO (2017) [33], requires consistent physical, social, and economic access to sufficient, safe, and nutritious food, based on four pillars: availability, access, utilization, and stability. This study measured gender equality using composite indices of land, finance, and education/justice, and assessed food security through a modified Household Food Insecurity Access Scale (HFIAS), evaluating key dimensions over a 30-day period.

3.2. Sex of Respondents

The study found that 52% of respondents were women, while men made up 48%. This gender balance provided a solid foundation for examining how sex influences food security outcomes. In Kumi Municipality, women play a critical role in food production and caregiving but often lack control over land and finances. The findings revealed that food insecurity tends to persist in households where men alone control land and resources, as this limits the decision-making power and resource utilization of women. When women are excluded from land ownership and financial systems, the household's ability to produce and secure food decreases. Conversely, empowering women leads to better nutritional outcomes, increased

household income, and improved education for children. The findings underscore that tackling gender inequality is not only a human rights issue but also a strategic approach to improving food systems (See **Table 3**).

Table 3. Sex of respondents.

Sex	Frequency	Percentage
Male	100	48
Female	108	52
Total	208	100

Source: Primary data (2025).

“Sex has a great effect on food security. The assertion was that, if women are allowed to own land and decide on how to deal with farming, this would improve food security in Kumi Municipality.”—Ms. A

3.3. Age of Respondents

The study revealed that 26% of respondents were aged 38 - 43, 20% were between 44 - 48 and 14% were aged 20 - 31. Age significantly influences food security, as individuals face different responsibilities, resource access, and income stability at various life stages. Younger respondents (20 - 31 years) reported greater economic instability, largely due to limited access to formal employment. Many relied on seasonal or informal jobs, making it difficult to maintain consistent access to food (See **Table 4**).

“Sometimes I work in people’s gardens, but the pay is not regular. If there is no work, there is no food.”—Female, 25

In contrast, middle-aged respondents (38 - 43 years) often had more stable incomes through businesses or salaried jobs, allowing better food planning and purchasing.

“I run a small retail shop and my husband works with the district. We can afford to buy food regularly and even store some.” Said by a female of 35 years in Aterai community.

In farming communities around Kumi, physical strength and health are critical because agriculture is still labor-intensive, with limited mechanization. Middle-aged people (25 - 45 years) are usually the most physically capable, combining good health, farming experience, and responsibility for household food supply.

“This is the age when we can still dig from morning to afternoon and sometimes resume in the evening. We produce enough food for our homes and even some for selling.”—Male, 39

These individuals also engage in other income-generating activities like live-stock rearing or brick-making to support food security

“At my age, I still have the strength to do garden work. That’s how we get food. When you’re young or old, it’s harder.”—Female, of 40 years from Kabata com-

munity.

Older respondents (44 years and above) reported reduced physical ability, limiting their farming capacity and reliance on others for food.

Mr. O, 45 asserted that, "I can't farm the way I used to. My children have moved to town, so I depend on neighbors or buying food."

Health issues, even within the middle-aged group, such as back pain or illness, also reduce farming productivity, affecting food availability.

A 44 years female said that, "Last season I was sick for two months. My husband couldn't manage the garden alone, and we harvested very little maize."

This highlights that although age may suggest potential for food production, actual productivity relies more heavily on health. In areas like Kumi, where farming is labor-intensive and mechanization is scarce, physical strength is essential. Poor health often caused by chronic or infectious diseases reduces productivity and increases food insecurity (Lunner-Kolstrup & Ssali, 2016) [34]. This problem is most severe among poorer households lacking access to labor alternatives or farming equipment, with limited rural healthcare compounding the challenge (World Bank, 2022) [35]. In south-central Uganda, research shows that crop yields strongly influenced by labor and health are better indicators of food security than non-farm income (Kayongo-Langen *et al.*, 2018) [36]. Similarly, despite their physical capacity, many young Ugandan farmers experience food insecurity due to underemployment and limited access to resources (Nyanga *et al.*, 2023) [37]. Therefore, improving food security requires enhancing rural healthcare, supporting labor capacity, and promoting labor-saving technologies.

Table 4. Age of respondents.

Age range	Frequency	Percentage
20 - 25	11	5
26 - 31	19	9
32 - 37	38	18
38 - 43	53	26
44 - 48	40	20
49 - 54	34	16
60 and above	13	6
Total	208	100

Source: Primary data (2025).

3.4. Education of Respondents

The study found that 35% of smallholder farmers in Kumi Municipality had never received formal education or agricultural training, while 62% held educational qualifications ranging from certificates to bachelor's degrees, and 3% had master's degrees. These findings highlight the critical role of education in improving food security through better knowledge, decision-making, income generation, and re-

source management (See **Table 5**).

Mr. O emphasized that “*both formal and informal education equip farmers with essential skills like crop rotation and composting, which boost yields and prevent soil degradation, directly enhancing food security*”. This aligns with the quantitative data showing that educated farmers were more likely to adopt improved agricultural practices.

However, **Ms. N** pointed out the limitations faced by educated women. Despite her qualifications, she explained that *she lacks control over land owned by her husband’s family, preventing her from applying her knowledge*. This reflects the persistent influence of patriarchal systems, which restrict women’s land rights and decision-making power.

Such exclusion undermines women’s financial independence and limits their contribution to household food production, ultimately hindering overall food security and nutrition.

Table 5. Education of respondents.

Education Level	Frequency	Percentage
Certificate	73	35
Diploma	35	17
Bachelor’s	22	10
Masters	6	3
None	72	35
Total	208	100

Source: Primary data (2025).

3.5. Religion of Respondents

The study revealed that in Kumi Municipality, 27% of respondents were Roman Catholic, 25% Protestant, and 12% Muslim. These findings indicate that religion can influence food security by shaping cultural norms, dietary restrictions, gender roles, and attitudes toward resource use. For example, religious dietary laws such as Muslims requiring halal food or Hindus avoiding beef can limit food choices, especially in areas with scarce food options, potentially leading to nutritional deficiencies. The study emphasizes that in communities like Kumi, where Christianity and Islam are prominent, religious beliefs significantly impact household food practices and support systems for vulnerable members (See **Table 6**).

Table 6. Religion of respondents.

Religion	Frequency	Percentage
Muslim	24	12
Protestant	53	25
Roman Catholic	58	27

Continued

Pentecostal	49	24
Seventh Day Adventist	24	12
Total	208	100

Source: Primary data (2025).

3.6. Agriculture Experience

Agricultural experience plays a key role in shaping food security in rural and semi-urban areas like Kumi Municipality. The study found that 45% of respondents had over 15 years of farming experience, 16% had 10 years, and 39% had 3 - 8 years. Greater experience was associated with improved food production and access. However, gender disparities in agricultural training and extension services mean that men often gain more experience than women, limiting women's contribution to food security. Since many households rely on subsistence farming, experienced farmers generally enjoy better food security, while younger or less experienced farmers face greater challenges unless supported through training and capacity-building programs (See **Table 7**).

Table 7. Agriculture experience.

Experience in years	Frequency	Percentage
3 years	30	14
5 years	24	12
8 years	26	13
10 years	33	16
Over 15 years	95	45
Total	208	100

Source: Primary data (2025).

This study explored the relationship between gender equality and household food security in Kumi Municipality. Globally, food security remains a critical challenge, often resulting in hunger and famine. Despite women's central roles in agriculture, food preparation, and nutrition, they continue to face systemic barriers including limited access to land, credit, education, and decision-making power. These inequalities not only marginalize women but also undermine efforts to build sustainable food systems. Promoting gender equality is therefore both a social justice issue and a strategic necessity for improving food availability and resilience.

In Kumi Municipality, land access emerged as a key determinant of food security. The study found that 82% of respondents agreed that access to land significantly affects household food security, while 18% disagreed. Quantitative results (mean $\mu = 1.77$, SD = 0.732) suggest that although both men and women access

land to some extent, cultural norms still limit women's ownership and control. Qualitative interviews confirmed that women often perform the majority of farming work but lack authority over land-related decisions such as when and where to plant. This lack of control frequently causes delays in farming activities, resulting in reduced yields and increased food insecurity.

One respondent noted that, "*even though government programs encourage women's empowerment through education and leadership, traditional beliefs continue to assign land ownership to men. As a result, women's potential contributions to food security are limited*". This view was echoed by several others, reinforcing that women's lack of land ownership and control is a community-wide issue, not an isolated case.

Financial access was identified as a key contributor to household food security in Kumi Municipality. The study showed that 80% of respondents agreed that access to credit and financial services enhances food security, while 20% disagreed. The mean score ($\mu = 1.97$, $SD = 0.821$) reflects a general recognition of the importance of financial resources, particularly for women and smallholder farmers.

However, qualitative interviews revealed a deeper issue: while women increasingly access credit through savings groups and microloans, many lack decision-making power over how those funds are used. In households where men control financial decisions, the benefits of financial inclusion are often diminished. This disconnect between access and control, limits the effectiveness of financial tools in reducing food insecurity and highlights the need to pair financial access with gender empowerment in decision-making.

A female respondent pointed out that "*although she could borrow money, her husband often made all decisions regarding how it was spent, particularly concerning food purchases or agricultural inputs*". Another interviewee added that, "*loan requirements, such as land titles for collateral, exclude many women who work the land daily but are not legally recognized as its owners*". These findings emphasize that true financial inclusion must go beyond access, it must also empower women with decision-making authority.

The study found that post-harvest handling and value addition in Kumi Municipality rely heavily on traditional, low-cost methods like sun-drying on bare ground or tarpaulins. These practices are prone to spoilage due to sudden rain or animals, resulting in major crop losses, especially for women, who handle most post-harvest work while also managing domestic responsibilities. Despite their central role, women face limited access to processing tools, storage facilities, and cooperatives mainly due to financial barriers and lack of land ownership.

A woman entrepreneur shared how her efforts to market groundnuts were hindered by lack of capital and exclusion from support networks. These gender-based constraints deepen household food insecurity. Additionally, 78% of respondents agreed that equal access to education and legal protection improves food security ($\mu = 1.88$, $SD = 0.865$). Education equips farmers with knowledge and decision-making skills, supporting better yields and resource use further linking gender

equality with improved food security outcomes.

Interviews confirmed that educational attainment, particularly among women, influences food security outcomes. However, traditional gender norms continue to limit girls' access to education in rural areas.

According to Mr. X, "*cultural practices and low education levels restrict women's ability to adopt sustainable agricultural techniques and manage resources effectively. This results in reduced farm output, poor household nutrition, and increased vulnerability to economic shocks*". Respondents agreed that tackling gender inequality and promoting education especially for women, are essential steps toward building resilient, food-secure households.

The study revealed that women in Kumi Municipality face significant barriers in accessing post-harvest technologies and advanced value addition. While both men and women engage in basic tasks like drying and shelling, men dominate processing centers and cooperatives, limiting women's market opportunities. Women cited the need for localized cooperatives, access to grinders or oil presses, and credit support. However, many were denied loans due to lack of land ownership, despite being primary laborers.

These systemic gender biases directly affect household food production. Even with progress in education and training, rural women remain vulnerable due to rigid gender norms, financial exclusion, and climate shocks. The study concludes that gender inequality particularly limited access to land, credit, education, and decision-making is a core barrier to food security. It recommends reforms in land rights, inclusive finance, better access to agricultural tools, and education to empower women and ensure a sustainable, food-secure future for Kumi Municipality (See **Table 8**).

Table 8. Gender equality and food security.

Objectives	SD	D	A	SA	Mean	St. Deviation
Land ownership and access and Food Security	43	39	17	1	1.77	0.732
Equal financial opportunity and food security	45	35	17	3	1.97	0.821
Equal education & justice and Food Security	38	40	18	4	1.88	0.865
Gender Equality and Food Security	42	38	18	2	1.11	0.483

Source: Primary data (2025).

In summary, gender equality is fundamental to achieving food security, with 80% of respondents agreeing it significantly supports sustainable food availability. The study's mean score ($\mu = 1.11$, $SD = 0.483$) reflects strong agreement that equal access to land, credit, education, and decision-making boosts agricultural productivity, nutrition, and poverty reduction. Despite women's major role in agriculture, systemic barriers still limit their full participation. Promoting gender equality is therefore both a matter of justice and a crucial strategy for building resilient, food-secure communities. A multiple linear regression analysis showed a signifi-

cant positive relationship between gender equality and household food security in Kumi Municipality, explaining 27.2% of the variation ($p = 0.001$). This confirms that improving gender equality is key to enhancing food security outcomes in the area (See **Table 9**).

Table 9. Multiple linear Regression Model Summary of gender equality and food security

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.272 ^a	0.074	0.060	0.37733	0.074	5.442	3	204	0.001

^aPredictors: (Constant)

Source: Primary data (2025).

4. Discussion

This study highlights the crucial role of gender equality in enhancing household food security in Kumi Municipality, reflecting broader findings across Uganda, Africa, and globally. When women gain equitable access to essential resources land, credit, education, and decision-making the results include increased agricultural productivity, improved household nutrition, and stronger food security.

Despite women producing 70% - 80% of Uganda's food, they own less than 20% of agricultural land (Harris-Fry *et al.*, 2020) [38]. This disparity limits women's control over key farming decisions, often leading to delays in planting and reduced yields. Similarly, in Kumi, 82% of respondents emphasized land access as vital to food security, while qualitative data revealed cultural norms restricting women's land ownership, reinforcing systemic barriers.

The Food and Agriculture Organization (FAO, 2011) [39] reports a 20–30% yield gap between male and female farmers, mainly due to unequal access to credit, inputs, and extension services. The study supports this: 80% of respondents identified financial access as crucial, yet women often face cultural and institutional hurdles that restrict their control over borrowed funds. Environmental challenges like unpredictable weather and poor infrastructure further compound these difficulties.

According to the World Bank (2014) [40], closing the gender gap in agriculture could boost sub-Saharan Africa's agricultural output by up to 20%, significantly reducing hunger and poverty. This aligns with the study's regression results showing a statistically significant link between gender equality and food security ($R^2 = 0.074$, $p = 0.001$). Similarly, the FAO (2021) [41] estimates that equalizing women's access to productive resources could raise farm yields by 20% - 30%, potentially lifting 150 million people out of hunger worldwide. The World Bank (2020) [42] adds that gender equality enhances resource efficiency and sustainability, especially in smallholder farming systems where women are central.

Combining quantitative data with qualitative insights, the study reveals how cultural, social, and institutional factors intersect to influence food security. While

some urban respondents noted progress in education and microcredit access, rural women continue to face traditional norms limiting their agricultural decision-making autonomy. Even educated women often lack the skills and institutional support to fully leverage available resources, while infrastructure deficits and climate variability persist as obstacles.

Overall, the findings affirm that gender equality is not a marginal issue but a core pillar of food security in Kumi Municipality. Addressing gender disparities in land ownership, financial access, education, and decision-making is essential for boosting productivity, reducing poverty, and building sustainable food systems. These conclusions align with national data and global development goals, underscoring the universal need for gender-responsive agricultural policies.

5. Conclusions

Gender equality is crucial for household food security in Kumi Municipality. Equal access to land, credit, education, and decision-making empowers women to enhance agricultural productivity and nutrition. However, traditional norms and systemic barriers, especially in rural areas, continue to restrict women's participation.

The study found that despite policies promoting gender equity, women still have limited control over land and resources ($\mu = 1.97$, $SD = 0.821$), with cultural restrictions and low education further hindering their roles. Women do most agricultural work but lack decision-making power, weakening household resilience to climate and economic shocks.

Addressing food security in Kumi requires gender-responsive policies that improve women's access to assets and challenge limiting cultural norms, essential steps toward building resilient, food-secure communities.

6. Recommendations

Ensure Equal Access to Resources

Guarantee that both women and men farmers have equal access to land, agricultural credit, inputs, and training. This will enhance productivity and empower women to fully participate in food systems.

Develop and Implement Gender-Responsive Policies

Formulate policies that recognize and support women's roles at every stage of the food system—from production through processing to marketing.

Expand Inclusive Education and Leadership Programs

Promote women's participation in agricultural decision-making by scaling up education, extension services, and leadership training at local and national levels.

Reform Legal and Customary Frameworks

Secure land ownership and inheritance rights for women and girls through reforms in both legal and customary laws, providing essential protections for equitable resource access.

Foster Inclusive Economic Opportunities

Collaborate with government and civil society to create economic opportunities for women across food value chains, including investments in agribusiness, value addition, and market access at domestic and regional levels.

Suggestion for further studies

Impact of Women's Land Ownership on Household Well-being

Investigate how women's ownership of land influences household food security, child nutrition, and poverty reduction over time. This study would provide valuable insights into the long-term effects of empowering women with land rights.

Intersectionality in Access to Food and Resources

Analyze how gender intersects with other social factors such as class and ethnicity to shape access to food, land, and agricultural resources. Understanding these complex dynamics can help design more inclusive policies.

Influence of Development Programs on Gender Equality

Conduct a study assessing the impact of development initiatives on promoting gender equality in agriculture and food distribution, comparing outcomes in rural versus urban settings. This would identify best practices and gaps in current programming.

Women's Empowerment and Climate Adaptation

Explore how empowering women enhances climate adaptation strategies in agriculture and food security, particularly within Kumi Municipality. This research could highlight women's roles in building resilient food systems amid environmental challenges.

Acknowledgements

I am deeply grateful to the most-high God for His grace, wisdom and guidance throughout the course of this research work.

"I would like to express my sincere gratitude to everyone who supported me throughout the process of writing this article. My special thanks go to Mr. Fakhri Mohamed for his valuable insights and guidance, and to Ms. Gloria Angela Mukova for her constant encouragement and unwavering support throughout this journey."

"I am also sincerely grateful to the Vice Chancellor for the generous financial support that made the publication of this article possible."

Conflicts of Interest

The author declares no conflicts of interest.

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