

# How Gender roles Determine Resilience to Food Insecurity among Agro-pastoral Communities in Central Tanzania: HFIAS Analysis

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## **Abstract**

*The study assessed how gender roles determine resilience to food insecurity among agro-pastoral communities in central Tanzania specifically in Chamwino, and Chemba Districts in Dodoma region. Chi-square and One-way ANOVA tests were used to analyze each variable's independence and compare the means respectively. Findings revealed that gender roles determine resilience mechanisms to food insecurity and those roles assigned to women were reported to have higher scores of resilience to food insecurity in all attributes of absorptive, adaptive, and transformative. The higher score indices signify that women are the key players in fighting food insecurity instances; this is because of the roles assigned to them. The findings under the Chi-Square test and One-way ANOVA results show a significant correlation between the assigned gender roles and resilience attributes. Gender roles including responsibilities to address seasonal variations, taking care of children, sick and old people, cooking, selection, allocation, distribution, and preservation of food were reported to have statistically significant associations with resilience mechanism to food insecurity as  $p= 0.03, 0.03, 0.04, 0.03, 0.03$  correspondingly. Thus, gender roles predominantly those assigned to women need hypersensitive considerations when addressing resilience to food insecurity not only in Dodoma region, Tanzania but in Africa where gender norms are still mounting.*

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## 1. Introduction

Globally, gender equality is still a challenge where opportunities and life changes are not equal (Kalumanga et al., 2023; UNDP, 2018). The patriarchal system is still ruling in most of the developing countries especially agro-pastoral communities and the position of women in terms of equality is not recognized (Jaka & Shava, 2018; UNDP, 2018). Gender inequality is rooted in cultural norms; roles cause the existence of patriarchal systems in different communities which guide resource inheritance, access, and ownership (Barbara, 2012; IFAD, 2010). Gender roles are set by societies under cultural orientations; they also guide the opportunities and participation between men and women in decision-making and divisions of labor (WB, 2014). Africa has many ethnic groups that have a vested interest in upholding the burden on women which creates bias between men and women and generates the gap of food insecurity (WFP, 2020). Gender roles among agro-pastoral communities cause oppression and discrimination against women in getting their required rights including owning land and livestock which are key resources for household food security (WFP, 2014).

Among agro-pastoral communities, food insecurity impacts women and men differently where women are reported to be highly impacted due to the roles they perform resulting from gender norms. Addressing food insecurity issues requires an understanding of gender issues, particularly their roles this is because they have been reported to discriminate against women and girls via decision-making and division of labor (Kalumanga et al., 2021; WFP, 2014). Gender roles provide fate to whom should search for or tender food during food insecurity situations, it also shows how the responsibilities of men and women in food preparations, allocation, distribution, and cooking (UNDP, 2019). Gender roles also indicate some reproductive responsibilities like taking care of children, and old and sick people which have some implications on resilience to food insecurity (Muderedzi et al., 2019).

Agro-pastoral communities in Tanzania like other developing countries in the world are still faced with a food insecurity situation and the number of people who do not have enough food remains unacceptably high, with disproportionate impacts on women and girls particularly in rural areas (Kalumanga, 2023). Gender roles in rural areas in Tanzania have demanded women work tirelessly for their household livelihoods including searching for, preparing, and cooking food (Tandon & Wegerif, 2013). In Tanzania, women are reported as guarantors of food security at the household and societal level but show poor food insecurity status as compared to men because of their responsibilities to their households (FAO, 2010). Traditionally, subsistence crops grown for personal consumption fall into women's domain, while commercial crops fall into men's domain who also bear command of selling the crops (European Union, 2013). Women produce more than 70 percent of the food (UNDP, 2014). Despite their involvement in the high food production rate yet, women in Tanzania are still reported to have high food insecurity as compared to men (World Bank, 2014). Women continue to be regarded as home producers or assistants on the farm, and not as farmers and economic agents on their merit, this is due to gender roles assigned to them which results in inequalities within most communities in the country (ECOSOC, 2007).

Gender roles among agro-pastoral communities are also reported to hinder social and economic activities in terms of decision-making, power relations, freedom, and opportunities among women and men (Smith, 2012; Kalumanga, 2015). It also delays individual capacity to decide on the

available opportunities and resources due to responsibilities they are limited (UNDP, 2014). Gender roles are reported also to play a part in the production, allocation, and usage of available resources including food (Chambers & Conway, 2000). Gender roles create power differences, dynamics, and decision-making processes in and out of the house as well as gender differences which interfere with household members to absorb, adapt, and transform shocks and stress caused by food insecurity. Thus, there is a need to consider gender roles as the key component to achieving food security in the country (UNDP, 2018). Understanding gender roles in responding to all shocks and stress of food insecurity helps both agro-pastoral communities and others to build the required resilience mechanisms towards the hazards of food insecurity (Harper et al., 2014; World Bank, 2018). Gender roles are mentioned to influence household's power structures, intra-household dynamics, division of labor, the decision-making process in and outside the house, and creating inequalities in terms of workloads, employment, control of assets, financial capital, and household income (UNDP, 2018; WFP, 2020). Therefore, this study assessed how gender roles determine resilience to food insecurity at the household level among agro-pastoral communities of Chamwino and Chemba Districts in Tanzania. It also helped to understand specific gender roles and their relationship on resilience to food insecurity among agro-pastoral communities in Chamwino and Chemba Districts.

## **2. Methodology**

The study was conducted specifically to agro-pastoral communities found in Chamwino and Chemba Districts in Dodoma region. The reasons for selecting Chamwino and Chemba Districts are; that the Districts were reported to have chronic food insecurity records for the previous five and six years respectively and communities have been surviving (2009-14 and 2010-18) (DAICO, Chamwino District, Personal Communication, 2014 and DAICO, Chemba District personal communication (2010-16). The districts have shown a high need for food aid from the government and other stakeholders without any success RALG, (PMO-2015). Chamwino and Chemba Districts were also reported to have a large number of people with stunted growth (Mbwana et al., 2017; URT, 2015; Kalumanga et al., 2020). Gender inequalities were also reported to be high in the districts where women were also reported to be more food insecure as compared to men (Galiè et al., 2015; URT, 2015). The reason for selecting agro-pastoral communities is because they practice both crop farming and animal husbandry, thus expected to survive due to the options they have.

The study employed a cross-sectional research design. The rationale for employing a cross-section design is based on the fact that the researcher collected data at one point in time across several units. The cross-sectional design also aimed to answer descriptive research questions like "What were the gender roles governing resilience to food insecurity in the study area?. A total of 333 households were surveyed with special questionnaires with HFIAS-related questions. Data analysis used IBM-SPSS software as proposed by Kothari (2003). This statistical package has features that can accommodate categorical variables and numerical and non-numerical variables, it is also readily available and user-friendly. The statistical Chi-square test was used to compare the impact of gender roles on the resilience mechanisms obtained which are absorptive, adaptive, and transformative. The obtained gender roles (cooking, distribution, allocation, and preparations) were then cross-tabulated with each category of the HFIAS to assess their relationships. The associations of gender roles and food insecurity categories were then established in terms of their p-value significance. The associations of gender roles and resilience mechanisms to food insecurity

were also determined by one-way ANOVA which provided the Mean resilience indices of each attribute and its magnitudes in terms of its significance.

### **3. Results and Discussion**

#### **3.1: Gender roles and resilience on worry of not having enough food to eat**

Results shown in Table 3.1 show that individuals who were more responsible for cooking scored higher Mean absorptive, adaptive, and, transformative resilience indices where women scored 51.87, 49.89, and 55.88, compared to men who scored 48.29, 45.78, and 53.16 mean absorptive, adaptive and, transformative indices, respectively. In addition, women also exhibited a higher aggregated resilience Mean index of 52.96 compared to men who scored 49.19. The study findings imply that assigning cooking roles was highly associated with the resilience mechanisms to food insecurity one was able to apply, which is why, those who were responsible for cooking showed higher resilience mechanisms indices especially when there is not enough food to eat at household level. Thus, with not enough food to cook, those responsible for cooking must employ some mechanisms to make sure at least they get food to cook. Furthermore, findings from Table 3.1 also show that those who were assigned roles to searching and bringing food scored higher resilience Mean indices, and of these, women scored 47.10, 46.12, and 52.76, compared to men who scored 46.72, 45.94, and 52.65 absorptive, adaptive and, transformative, respectively. Again, women scored higher aggregated resilience Mean index of 50.03 compared to men who scored 48.28. These findings justify that the role of searching for food was highly associated with the levels of resilience mechanisms.

However, the differences between gender roles and worry about not having enough food were not statistically significant ( $p=0.08$ ). This implies that both men and women become worried when there is not enough food in the household.

The findings were supported by one key informant, a woman of 72yrs at Suli village who said.

*When I am worried about food insecurity, I am the one to take immediate measures and make informed choices about alternative livelihood strategies including reducing the amounts of food to consume or searching for wild fruits. I do this to minimize the worries of my family members including children who are most at risk during food insecurity.*

**Table 3.1: Gender roles and resilience on worry of not having enough food to eat**

Worry about having enough food		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Responsible for cooking	Male	48.29	8.55	45.78	8.33	53.16	8.60	49.19	6.18	
	Female	51.87	8.61	49.89	8.11	55.88	8.79	52.96	7.86	0.08*
Searching and bring food	Male	46.72	8.11	45.94	8.87	52.65	8.13	48.28	7.18	
	Female	47.10	8.17	46.12	8.89	52.76	8.20	50.03	7.84	

**Source:** Researcher own constructs

### 3.2: Gender roles and resilience on inability to eat kinds of food preferred

Results as shown in Table 3.2 indicate that those who were more responsible for selecting food to eat scored higher absorptive, adaptive, and, transformative Mean resilience indices, and of these women scored 50.98, 48.24, and 54.79, compared to men who scored 49.17, 47.71, and 52.90 absorptive, adaptive and, transformative, respectively. Women also exhibited higher aggregated resilience with a Mean index of 51.26 compared to that of men with 49.86. The study findings imply that food selection as one of the gender roles is highly associated with the level of resilience mechanisms to food insecurity. That is why women who are more responsible for selecting food to cook and eat showed higher resilience mechanisms especially when there is not enough food to eat at the households among agro-pastoral communities in the study area.

The high absorptive mean indices among women suggest that in developing countries women are more able to eat the kinds of food they most prefer compared to men even though they are mentioned not to be more responsible for tendering food in some communities. Because of the assigned gender roles women find themselves to champion all resilience attributes while addressing food scarcity. Women have more ability to eat the kinds of food preferred than men as they are more able to apply many instant absorptive strategies they have on mitigating food insecurity including borrowing food and money from friends and neighbors. The findings were supported by the statements given by one key informant at Makorongo village a man (57) who said that.

*“Generally, we men return late to our families sometimes at midnight. We even fail to get food, if we find food, we become happy because we are not responsible for choosing any food we prefer to cook because those are women's responsibilities”.*

The differences between gender roles and inability to eat the kinds of food preferred were found to be statistically significant at  $p=0.04$  implying that during food insecurity, women are the ones who select the food they most prefer at the household level.

**Table 3.2: Gender roles and resilience on inability to eat kinds of food preferred**

Inability to eat kinds of food preferred		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Food selection	Male	49.17	8.15	47.71	8.33	52.90	8.12	49.86	6.18	
	Female	50.98	8.22	48.24	8.10	54.79	8.67	51.26	7.23	0.04*
Food tendering	Male	46.93	7.99	45.19	8.62	51.91	7.89	48.08	6.13	
	Female	47.22	8.07	46.12	8.97	52.88	8.08	48.77	6.27	

**Source:** Researcher own constructs

### 3.3: Gender roles and resilience on limitations to eat varieties of food

Results as shown in Table 3.3 indicate that those who were more responsible for taking care of children and sick people in the household scored higher absorptive, adaptive, and, transformative Mean resilience indices, of these women scored 51.14, 51.37, and 51.90, compared to men who scored 48.66, 48.19, and 50.79 absorptive, adaptive and, transformative indices, respectively. Similarly, women also scored higher aggregated resilience Mean index of 51.15 compared to men who had 49.49. The findings justify that there is a relationship between gender roles assigned and resilience mechanisms to food insecurity, and those who are responsible for taking care of the children and sick people had higher absorptive and adaptive resilience indices. The results also tell that by being much more accountable for taking care of children and sick people women find themselves having more resilience to food insecurity as they are responsible for taking care of the most vulnerable groups in the households. Similar results were given by the UNDP report (2018) which indicated that agro-pastoral communities in developing countries especially those in Sub-Saharan, women are responsible for undertaking a range of community adaptive activities including the preparation of alternative food for their children and old people at their households. Results also inform that those who are responsible for subsistence crops scored higher absorptive and adaptive resilience indices but with low transformative resilience index, these women scored 50.50, 50.65 and 49.86 while men scored 47.83, 46.69 and 50.73 absorptive, adaptive, and, transformative indices, respectively.

Women exhibited high aggregated resilience by eating varieties of food because they engaged in gathering different food types for the household members to eat. The findings are supported by Béné et al. (2018) and Gundersen et al. (2017) who said, that women in agro-pastoral communities invest their time in searching for food for their children and family members as their roles require them to do that. They are accountable for changing their food basket for their families by undertaking a range of livelihood diversifications to develop robustness against specific kinds of shocks resulting from food insecurity. The differences between gender roles and limitations to eating varieties of food were found to be statistically significant at  $p=0.03$ . This implies that during food insecurity, women eat a variety of food due to the roles they are responsible for undertaking.

**Table 3.3: Gender roles and resilience on limitations to eat varieties of food**

Limitations to eat varieties of food		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Taking care of children, sick, and old people	Male	48.66	8.09	48.19	8.12	50.79	8.00	49.49	8.13	0.03*
	Female	51.14	8.27	51.37	8.61	51.90	7.98	51.15	7.93	
Responsible for subsistence crops	Male	47.83	8.17	46.69	8.62	50.73	8.11	48.42	7.93	
	Female	50.50	8.88	50.65	8.97	49.86	8.69	50.14	8.07	

**Source:** Researcher own constructs

**3.4: Gender roles and resilience on eating food that they real don’t want**

Results shown in Table 3.4 indicate that those who were responsible for preparing alternative foods scored higher Mean absorptive, adaptive, and, transformative resilience indices, and of these women scored 52.92, 53.52, and 55.79, compared to men who scored 50.17 51.27, and 53.87 mean absorptive, adaptive and, transformative resilience indices, respectively. Women also showed a higher aggregated resilience Mean index of 53.33 compared to men who had 51.86. The findings justify that there is a relationship between gender roles assigned and resilience to food insecurity and those who are responsible for preparing alternative foods exhibit higher absorptive, adaptive, and transformative resilience indices. The finding corresponds to those of Njuki et al., (2016) who stressed that the gendered division of labor makes women with certain agricultural-related tasks including preparing alternative foods, women bear daily responsibilities of collecting fuel wood and fetching water they also responsible for making sure they prepare food for their family members. Results also inform that in agro-pastoral communities those who are more responsible as family breadwinners have relatively similar absorptive, adaptive and transformative resilience indices.

However, the findings are contrary to those reported by Pingali (2006) and Kieu et al. (2020) who argued that during food insecurity women regardless of having higher absorptive resilience mechanisms find them eating food they don’t want. Furthermore, Patton (1989), Barrett, and Conostas (2014) argued that, during food insecurity, women are responsible for organizing alternative and undesirable food for the sake of satisfying the needs of their children and other family members. Generally, women have higher adaptive resilience than men because their roles permit them to look for any food available regardless of its palatability. The findings are also similar to those of Kieu and Islam (2020) and Alemu et al., (2017) who reported that women in agro-pastoral communities have more adaptive power to food insecurity than men because sometimes they are responsible for looking for food that they don’t want just for the sake of their household members. Pingali et al., (2006) find that women dominate wild plant food collection activities as part of their responsibilities in Africa. Nevertheless, wild plants provide an alternative source of food and contribute to the diversification of diets, which is important for food security.

**Table 3.4: Gender roles and resilience on eating food that they real don't want**

Eating Food that they real don't want		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Preparations of alternative foods	Male	50.17	8.00	51.27	7.87	53.87	8.00	51.86	8.27	0.03*
	Female	52.92	8.16	53.52	8.59	55.79	8.23	53.33	8.73	
Control financial capital goods	Male	51.90	8.11	53.76	8.09	53.67	8.02	53.76	8.01	
	Female	51.78	8.73	53.54	8.67	53.51	8.26	52.97	8.23	

**Source:** Researcher own constructs

### 3.5: Gender roles and Resilience on Eating Smaller Meal than Needed

Results, as shown in Table 3.5, indicate that those who were responsible for distributing and allocating food scored higher Mean absorptive, adaptive, and transformative resilience indices, and of these women scored 52.19, 51.31, and 51.23 compared to men who scored 50.59, 51.27, and, 50.61 respectively. Women also have a higher aggregated resilience Mean index of 53.33 compared to men who had 51.86. The findings imply that there is a relationship between gender roles and resilience to food insecurity and those who are responsible for distributing and allocating foods are more resilient. The findings are supported by Kalumanga et al., (2020) who pointed out that, due to their responsibilities for household chores including allocation and distribution of cooked food women have high resilience strategies including eating smaller amounts of food as a mechanism to rescue their family members, especially children. Findings from Nelson (2009) show that in semi-arid rural areas, women are responsible for most of the absorptive strategies for food insecurity like using savings to buy food, making women exhibit relatively higher absorptive resilience by eating smaller meals than needed. Similarly, findings by Rao and Pingali (2018) reported that due to high knowledge and ability to overcome immediate hunger among women in developing countries, they opt to eat smaller amounts of meals than men to cope with food insecurity in a given time.

However, the relationship between gender roles and eating smaller meals than needed was statistically significant at (p=0.003).

This finding was also supported by the FGD conducted at Makorongo village where women participants said;

*“We, have to do all abrupt absorptive alternatives to rescue hunger at our families; we know men don't take care of the food security issues because they lack immediate means to rescue families when food insecurity occurs and this is due to the roles they have to perform. We always use our savings to buy food, sell nonproductive assets like manure, sell milk and sometimes we sell chicken and get income to buy household food. For us, the immediate alternatives to rescue our*



*families vary according to the network we have, the history and culture we share among ourselves which also define our roles”.*

**Table 3.5: Gender roles and eating smaller meals than needed**

Eating smaller meals than needed		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
To distribute and allocate food	Male	50.59	8.17	51.27	7.74	50.61	8.11	51.86	8.07	
	Female	52.19	8.34	51.31	8.19	51.23	8.43	53.33	8.32	0.03*
Tendering of food	Male	50.75	7.88	50.07	8.16	50.27	8.09	50.39	8.04	
	Female	50.79	8.37	50.43	8.47	51.11	8.18	50.65	8.42	

**Source:** Researcher own constructs

### 3.6: Gender roles and Resilience on Eating Fewer Meals in a Day

Results as shown in Table 3.6 indicate that those who were more responsible for addressing seasonal variation scored higher Mean adaptive and, transformative resilience indices to food insecurity and of these men scored 51.27, and 51.61, compared to women who scored 50.31 and 50.23 mean adaptive and, transformative resilience indices, respectively. Nevertheless, men also had a higher Mean aggregated resilience index of 50.86 than women who had 50.17. The study implies that men apply more adaptive and transformative resilience mechanisms which enable them to eat few meals to address seasonal variations. The findings show that men have relatively higher resilience compared to women on eating few meals in a day because they are responsible to take care of cattle and sometimes end up eating few meals.

The findings are supported by Mutabazi et al, (2015) who argued that in the fight against food insecurity men tend to deal with transformative kinds of changes including livelihood diversifications like short migration with cattle outside their houses and sometimes eating few meals in a day. This was also supported by findings revealed by key informants and during focus group discussions that it is men’s responsibility to make sure families are left safe, and sometimes sell assets and livestock to keep the household safe. During food insecurity, they normally spend most of their time outside their families looking for new places where they can take their families and livestock hence protecting the family from extended suffering due to food insecurity. However, relationships between gender roles and resilience mechanism by eating few meals were statistically significant ( $p=0.03$ ) this justifies that the adopted resilience mechanism by eating few meals correspond to gender roles because both men and women eat few meals during food insecurity period.

**Table 3.6: Gender roles and resilience on eating fewer meals in a day**

Eating smaller meals than needed		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Addressing seasonal variations	Male	49.23	8.00	51.27	8.08	51.61	7.94	50.86	8.04	
	Female	52.19	8.10	50.31	8.12	50.23	8.07	50.17	8.26	0.03*
Food preparations	Male	48.71	8.12	50.07	8.16	50.27	8.19	49.23	8.09	
	Female	50.87	8.12	52.43	8.34	53.11	8.63	51.65	8.51	

**Source:** Researcher own constructs

### 3.7: Gender roles and resilience on inability to eat any food

Results as shown in Table 3.7 indicate that those who were more responsible for collecting wild food during food insecurity scored higher Mean absorptive, adaptive, and, transformative resilience indices and of these, women scored 52.19, 50.86, 51.23 compared to men who scored 49.23, 49.27 and 49.74 of absorptive, adaptive and, transformative resilience indices, respectively. Nevertheless, women also had a higher aggregated Mean resilience index of 51.08 than men who had 48.95. The study implies that gender roles were associated with resilience to food insecurity as those who are more responsible for collecting wild food during food insecurity have higher chances to eat different foods available during food insecurity compared to those who are not responsible to search and collect wild food. Due to their high absorptive resilience, women seem not to lack the ability to eat any kind of food compared to men. Other findings including Gebre et al., (2001) propounded that due to the gender roles assigned to women including that of collecting wild foods, make them have higher absorptive means to food insecurity. The findings are similar to those reported by Brody et al, (2008) and Alemu et al., (2017) who argued that due to gender roles performed by women in agro-pastoral communities they find themselves as chief controllers of the adaptive mechanisms of all challenges of food insecurity occurring at household including food insecurity, health, and education and they are responsible with all domestic activities including collections of wild foods.

Further findings as shown in Table 3.7 also indicate that those who are responsible for preparing food had higher Mean absorptive, adaptive, and transformative resilience indices, and of these, women were champions in all categories as they scored 52.37, 52.49, 53.19 compared to men who scored 48.53, 47.76, 49.64 of Mean absorptive, adaptive and transformative indices, respectively. The findings signify that women have a higher ability to eat any kind of food than men as shown by high absorptive, adaptive, and transformative resilience indices possessed partly associated with the gender roles assigned. The findings are supported by the UNDP report (2014) which indicated that women in Sub-Saharan Africa transformed their family livelihoods due to their gender roles which made them have more responsibilities including adoption of conservation agriculture, horticulture activities like vegetable production, fish keeping for the intention of getting food and

have ability to eat any kind of food compared to men. The relationship between resilience and gender roles on inability to eat any kind of food was statistically significant at ( $p=0.04$ ) justifying that gender roles were associated with resilience levels to food insecurity and those who were more responsible for preparing food and collecting wild foods could eat food during food insecurity incidences.

**Table 3.7: Gender roles and resilience on inability to eat any food**

Eating smaller meals than needed		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Collect wild food	Male	49.23	7.98	49.27	8.03	49.74	8.00	48.95	8.06	
	Female	52.19	8.51	50.86	8.43	51.23	8.24	51.08	8.47	0.04*
Food preparations	Male	48.53	8.06	47.76	8.11	49.64	8.10	48.41	8.11	
	Female	52.37	8.34	52.49	8.50	53.19	8.33	52.59	8.61	

**Source:** Researcher own constructs

### 3.8: Gender roles and resilience on going to sleep at night hungry

Results as shown in Table 3.8 indicate that those who were more responsible for preserving food as part of their gender roles scored higher Mean absorptive adaptive and transformative resilience indices and of these women scored 53.59, 49.49, and 55.43, compared to men who scored 52.66, 48.11, and 52.87 mean absorptive, adaptive and transformative resilience indices, respectively. Nevertheless, women also showed a higher aggregated resilience Mean index of 53.57 than men who had 50.89. The findings justify that there is a relationship between the gender roles one is assigned and resilience mechanisms employed for food insecurity and those who are responsible for preserving food have more resilience indices of absorptive, adaptive, and transformative indices. The findings imply that in agro-pastoral communities' women because they are responsible for preserving food, have a high probability of not going to sleep hungry compared to men who are not much responsible with food preservation processes. Findings are also justified by the UNDP report (2018) on empowering lives resilience nations which reported that in Sub-Saharan Africa women play a vital role in food production, food distribution, and food preservation as part of their roles while also doing a range of community-level activities that support agriculture development, such as soil and water conservation, afforestation and crop domestication. The findings concur with the WFP report (2020) which reported that women in developing countries usually engage in different food absorptive mechanisms for the well-being of themselves and their children.

These findings also are similar to those documented by Nelli, (2018) who connoted that women have more resilience capacities in adapting to harsh and chronic food insecurity, they have the power to utilize preserved food when food insecurity becomes inflexible. Women also play a crucial role in the subsistence of their communities and taking care of domestic chores, such as fetching water and collecting firewood, performing agricultural and livestock tasks, and selling surplus from their harvests at local markets which ensure the survival of their household members. Findings are contrary to that of Kalumanga et al., (2014) who found that in African countries the

majority of men are polygamists and tend to shift from one family to another and attending any needs arising at the place they will be. Due to the nature of polygamists, they probably do not go to sleep at night hungry as they have a high chance of eating from any family of their preference. However, the differences between gender roles and going to sleep hungry were found to be statistically significant at  $p=0.04$ . This implies that during food insecurity, women have little chance of going to sleep hungry as they are more responsible to preserve and prepare food.

**Table 3.8: Gender roles and resilience on going to sleep at night hungry**

Going to sleep at night hungry		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Food preservation	Male	52.66	8.00	48.11	8.02	52.87	8.00	50.89	8.01	
	Female	53.56	8.12	49.49	8.15	55.43	8.12	53.57	8.17	0.04*
Tendering of food and domestic water	Male	52.71	8.02	49.66	8.08	54.19	8.07	52.48	8.10	
	Female	51.98	8.19	50.54	8.18	54.35	8.21	52.81	8.23	

**Source:** Researcher own constructs

### 3.9: Gender roles and resilience on going a whole day without eating

Results as shown in Table 3.9 indicate that those who were more responsible for caring for children as part of their gender roles scored higher Mean absorptive adaptive and transformative resilience indices and these women scored 53.56, 49.49, 55.43 compared to men who scored 52.66, 48.11, and 52.87 Mean absorptive, adaptive and transformative indices, respectively. Nevertheless, women also exhibited a higher Mean aggregated resilience index of 53.57 than men who had 50.89. The findings justify that gender roles and resilience mechanisms to food insecurity correspond to each other and those who are responsible for caring for children are more resilient. The findings imply that women who are responsible for taking care of the children at all times need to figure out where to get food for their children and probably that is why they have higher resilience indices making them have lesser chances of going the whole day without eating anything.

However, the findings correspond to those of Vermeulen et al., (2019) who argued that women are the main caretakers of the children, representing their reproductive gender roles which they start after birth and become responsible for providing quality care and nutrition as part of food security. While taking care of the children and making sure they protect and equip them with food security they get time to eat increasing their chances of not going to sleep without eating. The findings are supported by Gebre et al., (2019), who stressed that women are more inquisitive with absorptive mechanisms to food insecurity for their household benefits, and this is possible because of the responsibilities they perform including child caring. As they are more prone to food insecurity, they defend themselves by engaging in more absorptive activities including borrowing money from friends and relatives to buy food for their children. Having higher resilience mechanisms to food insecurity, women in agro-pastoral communities have less chances of going the whole day without eating as they also engage in different activities that address food insecurity including;

milking, conducting petty trading and lending of money from different rural institutions and groups to secure their family members, especially children. Similar findings by Akinwumi et al., (2017) connote that women do engage more in food insecurity mitigation processes thus increasing their chances of not going the whole day without eating because of the reproductive roles they perform. The findings correspond with those reported by Walker (2007) who indicated that women play a big role in transforming their families from food insecurity situations; they use different replacements including applying food storage techniques that assure them to have food and not go to sleep without eating anything.

**Table 3.9: Gender roles and Resilience on going a whole day without eating**

Going a whole day without eating		Absorptive		Adaptive		Transformative		Aggregated		Sign
Gender roles	Sex	Mean	Std.dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	
Caring of children	Male	52.66	8.00	48.11	8.02	52.87	8.00	50.89	8.01	
	Female	53.56	8.12	49.49	8.15	55.43	8.12	53.57	8.17	0.04*
Food storage	Male	52.71	8.02	49.66	8.08	54.19	8.07	52.48	8.10	
	Female	51.98	8.19	50.54	8.18	54.35	8.21	52.81	8.23	

**Source:** Researcher own constructs

#### 4. Conclusion and Recommendations

The study concludes that gender roles are particularly critical when addressing food security issues. Considering gender roles is important because they decide the community's capacity to become more resilient to food insecurity. Important gender roles investigated include cooking, food selection, collection, allocation, distribution, preparation, and storage. Others are taking care of children and sick people, addressing seasonal variations, and controlling financial goods in the household. Gender roles increase capacity that ensures stressors and shocks of food insecurity do not have long-lasting adverse consequences to their household members. Thus, gender roles predominantly those assigned to women need hypersensitive considerations when addressing resilience to food insecurity not only in Dodoma region, Tanzania but in developing countries especially in Africa where gender norms are still mounting. Considerations of gender roles to knock out patriarchal systems rooted in cultural norms are of utmost importance for the achievement of a stable and free community from food insecurity. Thus, different interventions to address resilience to food insecurity have to focus on gender roles.

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