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Contribution of access to income generating activities by self-help groups on food security of pastoralists in Marsabit county

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Abstract

Food security is a concept that originated in early 1970s during the global food crisis. It is situation that exists when all people at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Self-Help Groups (SHGs) has defined as mutually organized groups of individuals that undertake collective action with the main aim of improving ones. The main objective of this paper was to determine contribution of access to Income Generation Activities by SHG on food security of pastoralists in Marsabit County. The study adopted descriptive survey research design. The target population was 100 registered and active SHGs consisting of 3,840 members. The sample size for the study was 349. Primary data was collected using questionnaires and interview schedules. Data obtained was analyzed using SPSS version 28 and excel software and results presented in graphs, tables and charts. Significance level of 0.005 was used to test the relationships between variables. The study results indicated that there was high and significant correlation between access to income generating activities (IGAs) and food security of pastoralists in Marsabit County ($r=0.611$; $p<0.05$). This study concludes that IGAs are very important in promoting food security for residents of Marsabit County. The study further concludes that access to resources is a significant variable in the improvement of food security of pastoralists in Marsabit County. The study recommends that there is need to develop procedures/modalities of establishing a vibrant seed multiplication and distribution network for the ASALs involving partnerships with private sector and communities Intensify and expand multiplication, packaging and distribution of appropriate dry-land seeds and their agronomic packages. Furthermore, there is need of validation and dissemination of technologies to enhance dry-land farming (water management, soil fertility management and irrigation models) with key focus to pastoralists. The study will contribute greatly towards understanding of food security and self-help group, which will be used by non-governmental organizations, national government, county government in implementation of projects, and formulation of policies benefitting ASAL and pastoralist communities.

Keywords: access, food security, income generating activities, marsabit county pastoralism, self-help groups

Introduction

Background of the study

Food security emerged as a concept during the 1970s food security crisis. Attempts to define the concept in policy and research work has been made (Berry, 2019) [2]. Food security, according to the FAO (2018) [7], is a condition in which all people have physical, social, and economic access to sufficient, safe, and nutritious food that fits their dietary needs and preferences for an active and healthy life at all times. The fourth-dimension food stability was added during the 2009 world summit on food security. It was to measure food systems' ability to with stand shocks; it is a short-term indicator (FAO, 2009) [10].

Food security, according to the FAO, is comprised of four elements (Rafael Perez-Escamilla, 2017) [44]. This encompasses food availability, whether produced locally or imported, as well as accessibility, which emphasizes how customers may obtain food as well as have the financial means to acquire it. Food usage is the third component of food security, and it refers to people's ability to eat food in sufficient quantities and quality to live a full and healthy life (Lawrence & Rotich, 2021) [24]. The last domain is stability; this involves ability to withstand shocks caused by natural or manmade disasters (FAO, 2008) [9]. Berry et.al, 2018 add that sustainability is also an important aspect of food security thus may be considered the fifth dimension of food security. Those affected by moderate to severe food insecurity are 2 billion people; majority of whom are women this is because of the increasing gender gaps in accessing food (Lawrence & Obushe, 2022). This situation has been worsened by Covid-19 pandemic (FAO, 2020) [13].

With huge changes in agriculture and ecological systems, the Pacific and Asia area continues to undergo massive structural economic and social transformations. Despite the region's economic boom, it continues to be home to the world's most undernourished people, with more than 900 million people living on less than $1.25 per day. Structural transformation in Asia's economic development contributed to the decline in the share of agricultural GDP, if this problem is not tackled, food-insecurity could be a recurrent concern for the region, thus affecting Asia's efforts to sustain growth and eradicate poverty (ADB, 2012; Lawrence et. al, 2021) [24]. Malnutrition is another challenge related to food security in the region.

Food security in the Caribbean and Latin America region mainly affects rural and urban poor portions of the

population. The prevalence of hunger in this region had fallen to 5.5% in 2016 as compared to 14.7% in 1990-1992, this is because the region embraced the challenge of MDGs of reducing the percentage of the population that are food insecure by half (Lawrence & Obushe,2022). For example, South America countries recorded the highest number undernourished people despite having achieved both MDG and WFS goals. This is because 65.9% of the total regional population live in South America. Therefore, leading to the success of the region through its contribution in reduced prevalence and number of undernourished people (FAO, 2015) [11]

There has been a significant increase in the number of food insecure populations in Africa with 35% of the population being malnourished (Lawrence & Rotich, 2021) [24]. The root cause of food insecurity in the region has been identified as poverty as it affects people's ability to access food. Poverty alleviation in Africa especially Sub-Saharan African continues to lag behind despite other regions making significant progress, studies state that this trend is set to increase unless preventative measures are applied (Fawole, 2015) [14]. Angela, 2006 states that although Africa as a whole experience's food insecurity, it varies by region.

Undernourishment in Africa is on the rise, more than 20% of the population, the highest rate of any area. The growing tendency is less prominent in Northern Africa, with 8.5 percent prevalence; however, the higher trend continues in Sub-Saharan Africa, with 23 percent of the population undernourished (FAO, 2015) [11]. The rising trend is especially noticeable in Western and Central Africa, which have the highest rates of malnutrition. Despite rapid population increase and recurrent droughts in the region, Western Africa is making great progress, with a reduction of 63 percent of the population suffering from hunger (FAO, 2015) [11]. Eastern and Southern Africa experienced increase in the number of undernourished people at 20% and 2% respectively (Lawrence & Obushe, 2021).

In Kenya, more than 14.3 million people live below the poverty line (Kungu et.al, 2023) [20]. Further, 52.3 % of rural population and 34.8% of urban population are poor. Moreover, 34.8% and 7.6% in rural and urban areas respectively live in extreme poverty (Lawrence & Rotich, 2021) [24]. There has been a significant increase in the number of food insecure people between from 1.3 million in 2007 to 2.2 million in 2017 (Global Report on Food Crises, 2017) [16]. This has been attributed to the deteriorating performance in the agricultural sector. Kenyan economy is anchored on agriculture with the sector accounting for 75 % of raw materials for the industrial sector, 45 % of government revenue, 70 % of the labor force, 25 % of the country GDP and 60 % of export earnings.

Although agriculture sector in Kenya is liberalized, agriculture production and productivity remain inadequate and has not made significant contribution towards food security (Gitu, 2006) [15]. Ministry of agriculture state that Kenya is food insecure has it is increasingly reliant on emergency food supplies and commercial food imports for a significant portion of the country's domestic food requirements (Ministry of Agriculture, 2017) [31]. These numbers double especially during shocks and stress such as drought (Korir, Rizov, & Ruto, 2020) [18]. Increased food insecurity in Kenya is attributed to frequent disasters, climate change, high food prices and use of low agricultural technologies.

The 2011 drought in northern Kenya was severe; the period was characterized by recurrent prolonged drought period since 2009 thus making plant regrowth impossible. During this time nomadic herders had to go several kilometers in search of water and pasture. There was record number of animal losses due to starvation and herders were forced to sell of their animals at very low prices (Asige & Obushe). In Wajir, for example the staple food of the local population (rice) rose from 60 to 80shillings/ kg in 3 months. The drought had brought greatly lowered people's purchasing power (Ministry of Agriculture, 2017) [31]

Statement of the problem

Pastoralists and small-scale agriculturalist in ASALs are more vulnerable to food insecurity due to widespread drought in the region (UNDP, 2005) [50]. This is because of the limited time the communities have to recover from drought related shocks before the next occurs. Due to the drought, more households in ASALs lose their ability to participate economically as well as be self-food sufficient as they rely majorly on rain-fed agriculture (Mugalavai, 2010) [32]. Social protection mechanism such as cash transfers and relief food from the government or NGOs has become a coping mechanism for many (Wayua, 2017) [51].

Marsabit County is ranked position 44 in Kenya in terms of poverty (Marsabit CIDP., 2017) [27]. With 83.2% poverty rate, the county is among the semi-arid areas in Kenya characterized by conflict over scarce water, pasture and cross border clashes. Nomadic pastoralists' communities inhabit the county where the women bear the sole responsibility of feeding their families. Due to the nature of their main source of income i.e. nomadic pastoralism, households rely heavily on external markets to access key important foods such as rice, cooking fat, sugar, fruits and vegetables (Munene, 2019) [35]. As an alternative to traditional micro financing, Self-Help Groups (SHGs) have emerged to provide poor rural populations with alternative source of financial services. Many development partners to help communities address food security, livelihood shocks and strengthen social capital have used this approach hence the need for this study.

Objectives of the study

1 General objective of the study

1.1 To determine contribution of access to income generating activities by self-help groups on food security of pastoralists in Marsabit County

Research question for the study

1. What contribution does access to income generating activities by self-help groups have on food security of pastoralists in Marsabit County?

Justification of the study

1. Non-governmental organizations, government and donor agencies

Non-governmental organizations, government and donor agencies implementing programs on food security in ASAL areas especially working with nomadic pastoralists will greatly benefit from this study and the variables measured in this study. This will help them implement appropriate interventions and programs that fit within the context of the target populations.

2. Researchers and scholars

Researchers and scholars who want to study contribution of self-help groups on food security of pastoralists in Marsabit County-Kenya will find value from the data and information that will be processed from this study. The different variables used in this study will lead identification of research gaps that maybe further expounded on.

Literature review

1. Theoretical framework

1.1 Sustainable livelihood approach

Sustainable livelihood approach is attributed to the works of Robert Chambers and Conway in 1992. SLA defines livelihood as consisting of capabilities, assets and activities required to make a living. According to Chamber and Conway, ability maintain opportunity for future generations while recovering from stress and maintaining capabilities is what sustainable livelihood is all about. The approach notes that diversification of elements comprising livelihood is a key element in increasing and maintaining resilience to stress and shocks (Stephen Morse, 2009) [49]. SLA refers to a multiple capital approach where sustainability is looked at in terms of available capital and the vulnerability context in which assets exist.

Access to income generating activities and food security

Africa's growing poor and middle class are forced to trade how they spend their income due to reduced purchasing power, increased unemployment rates, income falls and price inflation. Reduced expenditure on non-essential items is one of the consequences of the tradeoff for vulnerable families (Lawrence & Letuya, 2020) [21]. Further, families may also result to selling or borrowing liquid assets in place of food. Therefore, social protection mechanisms are increasingly widespread although on a small-scale to mediate this situation in several African (Food and Agriculture Organization of the United Nations, 2019).

Savings and increased access to credit are the expected main outcome of member participation in SHGS. This leads to increase in the measure of asset accumulation because of improved access to financial services. The changes experienced among SHG members is correlated with the length of membership i.e. the longer the membership the greater changes for change (Asige & Obushe,2022) [1]. Multiple sources of income allow communities and households to respond better to shocks such as drought and fluctuation in commodity prices. An investment on return of 30-40% was achieved among SHGs in Mali, similar results was noted among SHGs in Zanzibar where groups reported 53% return on investment.

Enioluwa (2018) [5] gathered data across four districts in South Africa and analyzed using descriptive and inferential statistics. The paper on empirical analysis of food security status of agricultural households in the Platinum province of South Africa, showed that the majority of respondents (44.9%) received an annual income ranging from ZAR 40,000 to ZAR 80,000 The study further agrees, with the statement from D'Haese *et al*. (2011) [4] that families with financial resources escape extreme poverty and chronic hunger. FAO (2003) [6] also supports the finding of the study as it states that households' income is an important determinant of food security secure (Ijatuyi, 2018) [17].

Abu and Soom (2016) [48] in their study "Analysis of factors affecting food security in rural and urban Farming Households of Benue State, Nigeria" noted that income of household head determined food security. The study notes that as long as the household head is engaged in gainful employment, there will be an increase in income and this will consequently lead to increase in household food security. The income is expected to increase household's food production and access to more quantity and quality food. The expected effect of this variable on food security is positive (Soom, 2016) [48].

Research methodology

The study adopted a descriptive survey research design. Neuman (2000) [38], describes this type of survey as that which involves large number of persons. The design assisted in collecting data that was helpful in ascertaining contribution IGAs by self-help groups on food security of pastoralists in Marsabit County. The target population for the study consisted of 100 registered and active SHGs in Marsabit County, with membership totaling to 3,840 individuals (Marsabit CIDP, 2018-2022) [28]. The target population was as presented in table 3.1.

Table 1: Target population

Place	Number of Self-help groups	Target Population
Saku	67	1340
Moyale	57	1140
North Horr	48	960
Laisamis	20	400
Total	192	3840

Source: Marsabit CIDP 2018-2022

Sampling frame consists of a list population from which a sample will be drawn (Leary, 2001; Särndal et.al, 2003) [26, 46]. Sampling frame for this study was drawn from a list of active and registered self-help groups in Marsabit County, which was acquired from the social services offices. Osuala (2007) [39], defines sampling as selecting any portion of a population as representative of that population. The study adopted Mugenda and Mugenda 2012 [33] formulae, which suggests the formula shown below for a population of less than 10,000 respondents. This was as presented in table 3.2 below.

Table 2: Sample size

Place	Target Population	Sample
Saku	1340	122
Moyale	1140	104
North Horr	960	87
Laisamis	400	36
Total	3840	349

The study employed stratified sampling technique (places where SHGs exist); this technique involves using a heterogeneous population is divided into homogeneous sub-populations, called a stratum. The study adopted researcher administered structured questionnaire. Mwanzia (2014) [36] describes questionnaire as a research tool that contains prompts with the aim of gathering information from a given population. Descriptive statistics of frequencies, means and percentages as well as statistical package for social sciences (SPSS) version 28 and excel software was used in analyzing the data. Results from the analysis was presented in charts, tables and charts.

Data analysis and presentation

1. Introduction

2. Findings of the study

The findings of the study were presented in this section after data analysis for the purpose of tabulation and interpretation. The findings of the study are presented as follows;

2.1 Response rate of the study

The study distributed 349 questionnaires and only 280 were returned and used for analysis. Table 4.1 shows the response rate.

Table 3: Response rate

Response	Distributed	Returned	Non-Response
Number of questionnaires	349	280	69
Percentage %	100%	80.23%	19.77%

Table 3 shows an 80.23% response rate, which was considered appropriate for the study. According to Marton (2006) [29], a response rate of above 70% is considered appropriate for a descriptive study. The interviews were conducted and all the targeted SHG officials interviewed successfully.

Demographic data for the Study

For this study, the demographic variables considered were; gender of the respondents, number of years that the group has been in existence, location of SHGs and the organizations that give support to SHGs. With regards to the gender of respondents, the study sought to analyze the distribution of male and female respondents who participated in the study. Gender has an influence on participation in SHGs in any country because males have a different perspective on SHGs in relation to women and that women benefit more from groups such as SHGs than men do.

This is in tandem with the study of Lawrence and Letuya (2020) [22] who noted that women are key players on aspects related to household welfare. Household welfare entails increased resources under control of women, which in return have great impact on family welfare, especially in improvement of food adequacy, children access to education, access to better health care for family, self-esteem for household members, protection of children from harmful cultural practices, food security, improved nutrition, increased family assets and increased family self-reliance (Kungu et.al, 2023) [20].

This is not usually the case especially in male dominated societies where when men control these resources, the trickle-down effect is usually minimal unlike when women are in control. The response of the study is presented in figure 4.1 as shown below.

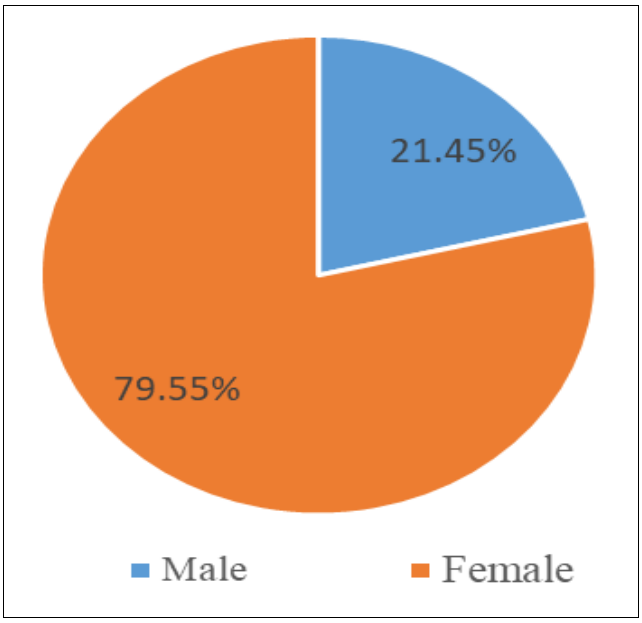

Fig 1: Gender respondents of the study

The results presented have indicated that there were more female (79.55%) respondents compared to 21.45 % male. This implies that most SHG members are women. This is because these groups offer an avenue to contribute directly towards the welfare of their families without compromising their primary role as caregivers. The study also sought to analyze the number of years that self-help groups have existed in Marsabit County. The results are presented in the table below. This is important because it enables researchers to get historical information about the group and how it has been performing overtime including the successes and challenges throughout the group existence. Results are presented in figure 4.2 below.

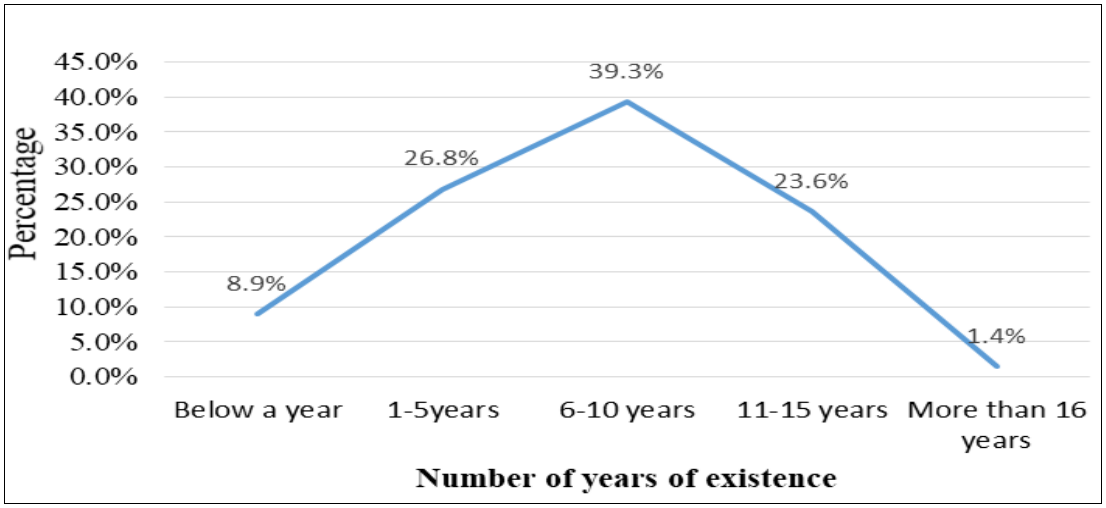

Fig 2: Years of existence of SHGs

From the figure above, results indicate that 39% of SHGs have been in existence between 6 to 10 years. Further analysis revealed that some of the SHGs have been in existence between 1 to 5 years while 23.6% of the respondents revealed that some of the SHGs had been in existence for more than 11 years. Also, results show that 8.9% and 1.4% of SHGs had been in existence for less than a year and more than 16 years respectively. This indicates that majority of the SHGs have been in existence for a good number of years which makes them ideal and preferable for this study.

The study also sought to analyze the age of respondents who participated in the study. Age is a very important dimension because it helps analyze how well individuals are able to be productive or not to promote their wellbeing. In this regard therefore, the study established that 45% of the respondents were between the ages of 31-40 years while 23% of the respondents were between the ages of 41-50 years. Further analysis revealed that 11% and 5% of the respondents were between ages 20 to 30 years and 51-60 years respectively. This indicates that majority of respondents are within the productive ages and therefore they are able to contribute towards SHG activities and objectives. The results of the study are presented in table 4.2 below;

Table 4: Age of the respondents in years

Age of respondents in years	Number of respondents	Percentage
20-30	45	16
31-40	125	45
41-50	65	23
51-60	30	11
Above 60	15	5
Total	280	100%

The study also sought to analyze the location of SHGs. The study results established that most of the SHGs are found in Saku (42.9%) while the 22.9% of SHGs are found in Moyale. Further analysis revealed that 20% of the results are found in North Horr while other of the respondents noted that 14.2% of the SHGs are found in Laisamis. However, during data collection, it was established that many of the SHGs are found in rural settings due to homogeneity and familiarity of members with each other unlike in urban centers where there is rampant migration from time to time. This was as shown in figure 4.3 below.

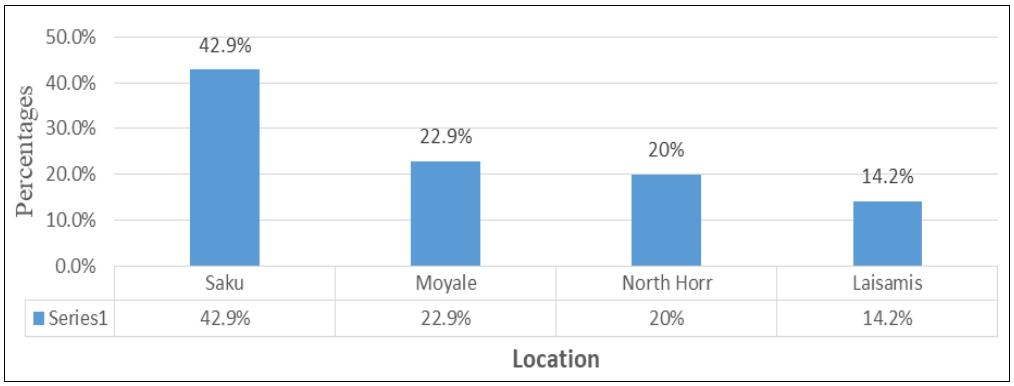

Fig 3: Location of SHGs

The study also sought to analyze the providers of support of the SHGs in the study area. Results indicated that most SHGs receive support from NGOs and CBOs at 75%. Further analysis revealed that other bodies like the County, National Government and other stakeholders usually provide support to SHGs by 13%, 8% and 4% respectively. This indicates that most SHGs are supported by NGOs/CBOs. However, due to the current state of drought, many SHGs operations have been hampered by famines, food insecurity, reduced savings amongst other factors. This has greatly hampered the operations of many SHGs in the study area. The results are presented in figure 4.4 below.

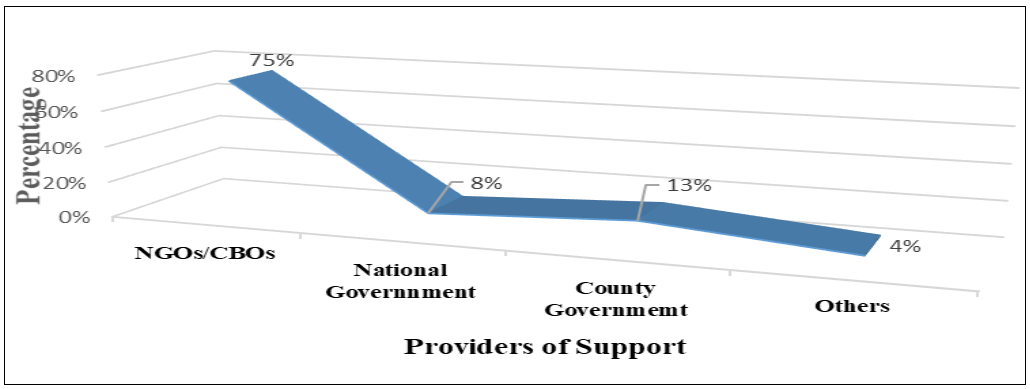

Fig 4: Providers of support to SHGs

Analysis of descriptive statistics for the study

This section presents the descriptive analysis of the results where the mean, percentages, standard deviation are discussed. In this section SD stood for 1=Strongly Disagree; 2= D -Disagree, 3=NS- Not Sure; 4=A -Agree; 5=SA-Strongly Agree, and S.D. – Standar d Deviation.

1. Access to IGAs and food security for pastoralists in Marsabit County

The second objective of the study sought to determine the extent to which access to IGAs has an influence on food security in Marsabit County. On a scale of 1-5 as shown below, the respondents were asked to indicate their opinion on the statement provided by showing the extent to which they agree with the following statement: Where, 1= Strongly Disagree, 2=Disagree, 3= Not Sure, 4 = Agree, 5= Strongly Agree. The results are indicated in table 4.3 below.

Table 5: Access to IGAs and Food security for Pastoralists in Marsabit County

Statement	SD	D	NS	A	SA	M	S. D
Vegetable gardening has enabled you to produce food for your family consumption	10.4%	8.0%	12.7%	13.0%	55.9%	3.96	1.395
Engagement in livestock trading has enable you to purchase food for your household	9.7%	11.4%	12.1%	27.1%	39.7%	3.76	1.228
Engagement in business has enable you to have access to a variety of food	10.7%	19.4%	16.4%	20.7%	32.8%	3.45	1.393
Engagement in vegetable gardening has enabled you to have access to a variety of food	8.0%	4.0%	9.0%	32.1%	46.8%	4.06	1.201
Engagement in business has enabled you to purchase food for your family	8.0%	1.7%	23.1%	47.5%	19.7%	3.69	1.061

The second objective of the study sought to determine the extent to which access to IGAs has an influence on food security in Marsabit County. The study noted that 55.9% and 13% of the respondents noted that vegetable gardening had enabled them to produce food for their family consumption. Further analysis revealed that 12.7% of the respondents were not sure as to whether vegetable gardening had enabled them to produce food for their family consumption.

Also, results indicated that 10.4% and 8% of the respondents strongly disagreed and disagreed respectively with the statement that vegetable gardening had enabled them to produce food for their family consumption. From the analysis of the findings, it is clear that majority of the residents of Marsabit County, especially in rural areas do practice vegetable gardening, which has enabled them to produce food for their family consumption at the household level. On whether the engagement in livestock trading has enabled families to purchase food for their household, the study noted that, the study results established that 39.7% and 27.1% of the respondents strongly agreed and agreed with the statement above. Analysis further revealed that 12% of the members were not sure as to whether livestock trading has enabled families to purchase food for your household. However, 11.4% and 9.7% of the responds disagreed and disagreed with the statement above.

From the interviews, majority of the key informants reiterated that;

"Time and again, pastoral homes never used to trade easily with their animals because of the cultural connotations that they tie to it. This was further worsened by lack of control over household resources in many pastoralist households. Today, times have changed and there is need to diversify sources of livelihoods and income. Through SHGs, women especially are able to have access to livestock through group savings hence are able to engage in livestock trading".

The study further sought to analyze whether engagement in businesses has enabled residents of Marsabit County to have access to a variety of foods they needed at the household level. The study revealed that 32.8% and 20.7% of the respondents noted that indeed those who engage in businesses have an upper hand in having access to a variety of foods they needed at the household level in the study area. Further analysis revealed that 19.4% of the respondents disagreed with the statement that engagement in businesses has enabled residents of Marsabit County to have access to a variety of foods they needed at the household level. However, 16.4% of the respondents were not sure whether engagement in businesses had enabled residents of Marsabit County to have access to a variety of foods they needed at the household level.

The study sought to analyze whether engagement in vegetable gardening had enabled residents of Marsabit County to have access to a variety of foods they required at the household level. The study results revealed that 46.8% and 32.1% of the respondents agreed with the statement above. This was a clear indication that majority of the respondents were of the opinion that engagement in vegetable gardening had enabled residents of Marsabit County to have access to a variety of foods they required at the household level especially through kitchen gardening. The study further established that 9% of the residents were not sure as to whether engagement in vegetable gardening has enabled residents of Marsabit County to have access to a variety of foods they required at the household level.

This is because of the ravaging drought and famine in the study area. The study further showed that 12% of the members disagreed with the statement that engagement in vegetable gardening had enabled residents of Marsabit County to have access to a variety of foods they required at the household level. Analysis of data from key informants revealed that;

"Indeed, vegetable farming has become a game changer for some of the residents of Marsabit County especially pastoral household who used to feed on relief food the time. It has not only been used as food at household level but also trading so as to get other commodities from elsewhere. At household level vegetables has improved food composition for the farming households as they have reduced malnourishment in children by nearly 40% according to KHIBS of 2022. However, due to prolonged drought access to water is limited hindering many households from engaging in kitchen gardening.

Lastly, the study sought to analyze whether engagement in business has enabled people of Marsabit County to purchase food for their families. The study noted that 47.5% and 19.7% of the respondents were of the opinion that engagement in business has enabled people of Marsabit County to purchase food for their families. However, a considerable number of respondents (23.1%) were not sure as to whether engagement in business has enabled people of Marsabit County to purchase food for their families.

Additionally, 8% and 17% of the respondents strongly disagreed and agreed respectively with the statement that engagement in business has enabled people of Marsabit County to purchase food for their families.

From the key informants, the study further revealed the following;

Engagement in businesses has truly improved the living standards of many people who are involved in it. Many people are able to get loans from SHGs and invest them in IGAs that in the end generate more income at the household level. However, this is not automatic for all households. Households who are under the control of women have tended to benefit more unlike those controlled by men. When men are at the center of controlling of resources at the household level, the trickle-down effect is usually minimal.

2. Opinion on indicators of food security of pastoralists in Marsabit county

The study sought to determine the extent to which pastoralists have been able to cope with food security in Marsabit County, Kenya. On a scale of 1-5 as shown below, the respondents were asked to indicate their opinion on the statement provided by showing the extent to which they agree with the following statement: Where, 1= Strongly Disagree, 2=Disagree, 3= Not Sure, 4 = Agree, 5= Strongly Agree. The results are presented in table 4.4 below.

Table 6: Indicators of Food Security of Pastoralist in Marsabit County

Statement	SD	D	NS	A	SA	M	S. D
Food availability has determined food security at household level in Marsabit County	1.7%	32.3%	7.7%	14.7%	43.6%	3.06	1.082
Food security at house hold level in Marsabit County has been promoted because the available food is being utilized by Pastoralists	0	52.7%	1.0%	23.1%	23.2%	3.37	1.409
Food security is determined by food access at household level in Marsabit County	5.7%	4.0%	17.1%	13.4%	59.9%	4.18	1.189
Households have access to food whenever they need it in Marsabit County due to the availability of IGAs	46.4%	12.7%	2.0%	11.0%	27.9%	3.21	1.519
Food is utilized by household to meet their dietary needs at household level in Marsabit County	0	46.4%	7.0%	23.7%	22.9%	4.43	.877

The study sought to analyze whether food availability has determined food security at household level in Marsabit County. Results show that 43.6% and 14.7% of the respondents strongly agreed and disagreed that food availability has determined food security at household level in Marsabit County. According to the respondents, food availability makes people to make decisions on what food to buy and what not to buy. However, 7.7%, 32.3% and 1.7% of respondents were not sure, disagreed and strongly disagreed as to whether food availability has determined food security at household level in Marsabit County. From the results, it was established that availability of food depended on what the government and other stakeholders were able to provide due to the ongoing drought and famine. The respondents who disagreed noted that residents of Marsabit County depended on the availability of resources like finances for them to make decisions on the food that is available for them to buy. Many of the respondents noted that drought and famine have really exacerbated hunger in Marsabit County. Many of them would go for a long time without food. Some of the respondents noted that they would feed on legumes in the form of beans provided by the government as animals have perished as a result of the prolonged drought. However, even during times of plenty, the rate at which they accessed these products was sparring at times due to cultural ties attached to the number of animals an individual has. They further noted that majority of the residents were extremely poor even to access any meal daily.

The study sought to examine whether food security at household level in Marsabit County has been promoted because the available food is utilized. The study results revealed that 23.2% and 23.1 % of respondents strongly agreed and agreed with the. Further analysis revealed that 52.7% of respondents disagreed with the statement above. However, a paltry 1% were not sure as to whether food security at household level in Marsabit County has been promoted because the available food is being utilized by Pastoralists. They noted that many pastoralist homes fed on legumes like beans which are provided by the government in form of relief.

The study sought to further determine whether food security is determined by food access at household level in Marsabit County. The study results revealed that 59.9% and 13.4% of respondents strongly agreed and agreed respectively that food security is determined by food access at household level in Marsabit County. Further analysis revealed that 17.1% of the respondents were not sure as to whether food security is determined by food access at household level in Marsabit County. Further analysis revealed that 5.7% and 4% of the respondents strongly disagreed and disagreed with the statement. This indicates that majority of respondents were of the opinion that food security is promoted by food access meaning that food may be available but it may not be accessible by the people. However, in the County, many of the residents have affected by drought and famine, which has made them not to get enough food at the household level.

In addition to that, study results, 27.9% and 11% strongly agreed and agreed with the statement that households have access to food whenever they need it in Marsabit County due to the availability of IGAs. Further analysis revealed that 12.7% of the respondents disagreed that households have access to food whenever they need it in Marsabit County due to the availability of IGAs. 46.4% and 2% of respondents strongly disagreed and were not sure respectively as to whether households have access to food whenever they need it in Marsabit County due to the availability of IGAs. This indicated that the study had mixed results due droughts and famines even if there is the availability of IGAs. IGAs have a tendency of generating more revenue that can be used for settling household needs at the household level including food. However, the number of IGAs are not stable to promote food security in the study area.

On whether food is utilized by households to meet their dietary needs at household level in Marsabit County, the study results indicated that 22.9% and 23.7% of respondents strongly agreed and agreed with the statement. Further analysis revealed that 7% of the respondents were not sure as to whether food is utilized by farmers to meet their dietary needs at household level in Marsabit County. In addition to that 46.4% of the respondents disagreed with the statement above. The above results, clearly shows that most of respondents agree that food is utilized by pastoralists to meet their dietary needs at household level in Marsabit County because they have access to the food, they get from the Government in the form of food relief. However, further analysis revealed that indeed food insecurity was the order of the day in the county with more than three-quarters of the residents depending on the government for relief food.

Analysis of inferential statistics

1. Correlation analysis

The nature of the relationship between SHGs characteristics, access to IGAs and access to resources and food security of pastoralists in Marsabit County was determined by testing the correlation between the variables. According to Cohen, West and Aiken (2013) [3], the nature of a relationship between variables under test is established using correlation analysis. This study used Pearson correlation (r) to test whether the relationship between the variables was significant or not at 95% level of confidence. The results are presented in Table 4.5 below;

Table 5: Correlation between variables

Variables		Food Security
Access to IGAs	Pearson Correlation	.611*
	Sig. (2-tailed)	.000

From table 4.7, the results indicated that there was high and significant correlation between access to income generating activities (IGAs) and food security of pastoralists in Marsabit County ($r=0.611$; $p<0.05$). This shows that access to IGAs has a very high influence on food security of pastoralists in Marsabit County, which depicted a significant relationship between variables under study. This indicates that, when residents of Marsabit County have alternative sources of income, there is a high likelihood that food security will improve. The study tested regression analysis and summarized it as shown in table 4.6 below:

Table 6: Simple linear regression model summary

Independent Variables	R	R-Square	Adjusted r square	standard error	P-value
Access to IGAs	.611[a]	.372	.341	.365	.000

Dependent variable: Food security

Further analysis revealed that there was a strong and significant correlation between access to IGAs and food security of pastoralists in Marsabit County, Kenya ($R=0.611$; $p = 0.000$). Further analysis sought to determine the regression analysis of the study.

Summary, conclusions and recommendations

1 Summary of the findings

1.1 Demographic variables

The study sought to analyze how a number of demographic variables contribute towards household food security of pastoralists in Marsabit County. In addition to response rate, the study sought to analyze the following demographic variables; gender of respondents, number of years that SHGs have been in existence, age of the respondents, the providers of support in the self-help groups. The study established that the response rate was 80.23% and that meant that it was adequate for a descriptive survey. According to Merton (2006), a response rate of more than 70% was adequate for a descriptive survey. The study further sought to analyze the gender of respondents in the study. The study established that majority of respondents were female as compared to males. According to the study results, over 60% of the respondents were females, a clear indication that many SHGs in the study area have accommodated more females than males. In regards to age of the respondents, the study established that more than 60% of respondents were in their productive age and therefore they were in a position to run SHGs and achieve their mandate in specified time. This means that most of the respondents were between ages 20 and 50 years.

On whether the number of years that the SHGs have been in existence mattered when it came to operations of the group, it was established that a considerable number of self-help groups had been in existence for the past 5 years. The study results revealed that more than 70% of SHGs have been in existence for a period of less than 10 years. This indicated that majority of SHGs were still adopting to solving problems that have been faced by residents of Marsabit County, Kenya. However, the study results revealed that a good number of respondents noted that some SHGs had served for more than 10 years.

Access to IGAs and food security for pastoralists in Marsabit County

The second objective of the study sought to determine the extent to which access to IGAs has an influence on food security in Marsabit County. The study noted that majority of the respondents noted that vegetable gardening had enabled them to produce food for their family consumption. From the analysis of the findings, it is clear that majority of the households in Marsabit County, especially in rural areas do practice vegetable gardening, which has enabled them to produce food for their family consumption at the household level. Interviews from key informants further validated these results by noting that indeed food security of households has improved through vegetable farming, thus diversifying their sources of food. However, one of the biggest challenges that they faced was drought and famine, especially in the recent years, which has affected their operations in the recent past.

On whether the engagement in livestock trading has enabled families to purchase food for your household, the study noted that, the study results established that majority of the respondents concurred with the statement. They however noted that beyond food security, there were other important aspects like shelter, clothing, medication and fees that could not equally be foregone. The majority of the respondents who agreed with the statement noted that due to drought and famine, food was the major concern for many people and

therefore majority of them would rush to buy it once they get returns from the sales they get from their livestock.

The study further sought to analyze whether engagement in businesses has enabled residents of Marsabit County to have access to a variety of foods they needed at the household level. The study revealed that indeed those who engage in businesses have an upper hand in having access to a variety of foods they needed at the household level in the study area. This was corroborated, by the sentiments from key informants who noted that businesses were good in promoting the well-being of households in Marsabit. However, food security was just one of the avenues within which entrepreneurship could improve.

Conclusions of the study

The objective of the study sought to determine the extent to which access to IGAs has an influence on food security in Marsabit County. The study concluded that access to IGAs has facilitated improved welfare of households including food security. The study concludes that engagement in IGA has not only improved food security but also promoted access to a variety of food requirements. The study further concludes that livestock trading had an impact on improving food security in the study area only that majority of respondents were not keeping livestock for trading.

Further, the study concludes that as a result of the formation of IGAs, many families have improved their social welfare.

Recommendations of the study

The study recommends the following strategies for strengthening food security of pastoralists and generally the residents of ASAL counties with key focus to Marsabit County. The recommendations can be summed up into policy and theoretical recommendations as follows;

There is need to develop procedures/modalities of establishing a vibrant seed multiplication and distribution network for the ASALs involving partnerships with private sector and communities

There is need to further promote capacity building of partners and pastoral communities in crop production, utilization and value addition so as to ensure sustainable food production strategies have been enhanced and adopted

Both national and county governments should team up to promote strategic and alternative approaches to food and nutrition security for households' members left after animals die during drought (poultry, milking camels, minor irrigation, fodder production)

Areas for further studies

From the study and related conclusions, the researcher recommends the following areas for further studies;

Further studies should be done on the same variables in other counties to compare the findings. This will help to promote universalizability of research findings across the board

Also, research should focus on a multi stakeholder perspective that includes farmers, county extension workers, seed distributors and private agricultural extension workers, NGOs in the field of Agriculture in order to establish how ASAL areas food security can be promoted

Lastly, the concept of self-help groups should be further studied so as to analyze how it can be explored in order to promote sustainable development in areas like food security

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