



Challenges and Constraints Limited the Contributions of Female Farmers to Household Food Security

—A Study of Female Farmers in Northern Kordofan

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Abstract

The study examined the challenges and constraints faced by female farmers in Northern Kordofan to contribute to household food security in 2017. The random sampling technique was applied to collect data from 309 rural households through face-to-face interview. Results demonstrate that women play a major role in producing and providing food for their households, while men are more likely to migrate seasonally and even permanently. 69.2% of female farmers interviewed depended mainly on farming activities and animal husbandry production to secure food for their household while 30.8 practiced extra non-farm activities to generate income to buy food to supplement the farming production. The study indicated food shortage did not occur for 16.2% of households of female farmers interviewed 67.6% of them food shortage occurred for their households on a seasonal basis and food shortage occurred annually for the 32.3% of the households of female farmers. Female farmers interviewed challenged by constraints to have effective contribution to household food security 74.1% of female farmers have no access to credit facilities and 88% had no access to extension 37.2% got problems of agricultural labours 98.4% of female farmers consider the small size of land is constraint to secure food for the households. 50.8% of female farmers faced difficulties obtaining inputs (seeds and fertilizers). The study concluded that the main challenge women face as food producers and providers a lack of access to the full package of improved production methods. The study recommended Breaking down gender-specific barriers Agriculture ministries should target gender-based barriers that restrict women's access to key farm inputs.

Subject Areas

Sociology

Keywords

Household Food Security, Female Farms, Access to Productive Inputs

1. Introduction

Food insecurity as a global issue has caused millions of deaths. There is yet to be a single solution on how to adequately feed the growing world's population, although many solutions have been suggested, none answers the question of how does they ensure to ensure food security in a sustainable way [1]. In the rural areas where most of the world's hungry people live, women produce most of the food consumed locally. Their contribution could be much greater if they had equal access to essential resources and services, such as land, credit and training [2]. Eliminating the obstacles that impede women could be the key to reaching household food and nutritional security [3]. Women are farmers in most regions of the developing world, playing major roles in the production of major food, they produce both food and cash crops and they have multiple and diverse roles, they work on their own plots as unpaid workers and others as paid workers [4]. Sudanese women have an effective role in food security. According to Mohamed Ahamed Osman Ibnouf and Fatma Osman Ibnouf 2016, data on women's contributions to agricultural production is increasing; however, there is still a lack of sex-disaggregated data on women's contribution to household food security in Sudan has recently experienced changes in the livelihood of Northern Kordofan, affecting the role of women as farmers and food producers. As much as 59 percent of these households are in the moderate food insecure category. The food security situation gradually improves as we move towards the south, where households have better consumption indicators. This is because the northern region faces drier conditions that limit the livelihood options of the people residing there [5]. Past data and statistics show that a small proportion of the current food-secure population will become food insecure during limited periods of the year. This chronic pattern remains unchanged year after year this was reported by the Ministry of Agriculture in 2010. Migration of male counterparts looking for better livelihood, leaving women behind as primary breadwinners and taking on the responsibilities of farming and animal husbandry, thereby increasing their roles as food producers [6]. Adam Elhag Ahmed¹, Nawal Abdalla Imam² and Khalid H. A. Siddig³ 2012, mentioned that the profile of female farmers has changed. So, new role in food security emerged with limited access to services and productive assets. This study explores the challenges and constraints encountered by female farmers in Northern Kordofan, impacting household food security [7].

2. Specific Objectives

To examine:

- Socio-demographics characteristics of Female farmers.

- Understanding of Food Security by Female Farmers.
- Provision of food by female farmers.
- Factors that constrained the effective contribution of female farmers to food security.
- Food shortage.
- Female farmers coping with food shortage.

3. Methodology

The study is explanatory and descriptive in nature it provides a numerical description of some part of the population and explains events using a comprehensive questionnaire directed to households of female farmers. The study was conducted in five villages in Sheikan locality North Kordofan. Traditionally, North Kordofan is an agro-pastoral community, and the main source of livelihood is a combination of rain-fed cultivation and livestock keeping. The majority of the population (79%) relies on the traditional farming agricultural system, it's considered as one of the most important components of the agricultural sector in the Sudan, and their activities contribute to the households' food security and rural development [8]. 309 female farmers were selected as samples from female farmers in the Sheikan locality by the use of multistage stratified random sampling. The female farmers selected were 6% of the total population of women in five villages, and the Selection of households was purposively from each one of the five villages. In this study reliability of data was tested by using the pilot test method on the questionnaire. A pilot study comprising five households that were not included in the initial sample was selected randomly from the accessible population and used to carry out the pilot study of the questionnaire before the questionnaire was administered. The data was collected by face-to-face interview by the use of a structured questionnaire designed by the researcher. Data was then analyzed by descriptive statistics. Frequency distributions and percentages were used. The SPSS computer software (Version 21) aided the analysis. The results of the survey were presented using tables.

4. Results

4.1. Socio-Demographic Characteristics of Female Farmers

The study targeted females of different age groups as a majority (79%) were less than 45 years of age and, the age group 46 - 55 had the least percentage of female farmers (6.1%). While most of the respondents (59%) were married, there were 22% single 4% divorced, 11.3% widowed and 6.8% separated 0.6%. 33.7% had primary education and only 20.7% of the respondents had secondary school education, a majority 43.4% were illiterate. 20.7 of female farmers were headed their households. 56.3 of female had 6 - 10 members, 36.6% had between 11 - 15 members and 7.1% had more than 15. Farming was the sole source of income for 37.9of female farmers while 62.1 in addition to farming had other sources of liv-

ing (see **Table 1**).

4.2. Understanding of Food Security by Female Farmers

The female farmers who were interviewed were the primary producers of food in subsistence agriculture and providers of day-to-day family subsistence. They were asked about their understanding of the concept of food security. 83.8% of them understood food security as the availability of food from their agricultural production while 14.2% considered food security to be about the provision of good quality food. Additionally, 1.9% referred to food security as the sustainable provision of food throughout. (See **Figure 1**)

Table 1. Socio-demographics characteristics of Female farmers.

Demographic Characteristics	Frequency	Percent
Age		
less than 5	244	79
10-Jun	19	6.1
15-Nov	46	14.9
Total	309	100
Educational level		
Illiterate	134	43.4
Primary	104	33.7
Secondary	64	20.7
University	7	2.3
Total	309	100
Number of members of the households		
10-Jun	174	56.3
15-Nov	113	36.6
More than 15	22	7.1
Total	309	100
Female headed household		
Headed	64	20.7
Household member	254	79.3
Total	309	100
Main source of livelihood		
Farmers	117	37.9
Farm/other activities	192	62.1
Total	309	100

4.3. Provision of Food by Female Farmers

69.2% of female farmers interviewed depended mainly on the farming and animal husbandry production to secure food for their household while 30.8 practiced extra non-farm activities to generate income to buy food to supplement the farming production. (See **Table 2**)

4.5. Food Shortage

The study indicated food shortage did not occur for 16.2% of households of female farmers interviewed 67.6% of them food shortage occurred for their household on a seasonal basis and food shortage occurred annually for the 32.3% of the households of female farmers (see **Table 3**).

4.6. Female Farmers Coping with Food Shortage

All female farmers who faced food shortage developed some strategies to cope

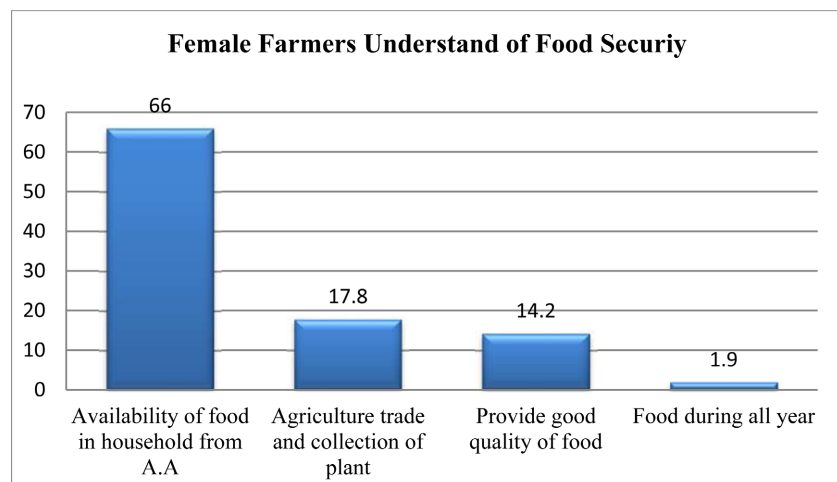


Figure 1. Female farmers understand food security situation.

Table 2. Food provision.

Female farmers views	Frequency	Percent
provision of food from agricultural activities only	214	69.2
Farm production in addition to non-farm activities to increase income to buy food	95	30.8
Total	309	100

Table 3. Food shortage.

Periods	Frequency	Percent
Tend to occur annually	100	32.4
on seasonal basis	159	51.4
Not occur	50	16.2
Total	309	100

59% of people collected wild plants and other income to buy food items by working as laborers and selling their animals. (see **Table 4**)

4.7. Factors that Constrained the Effective Contribution of Female Farmers to Food Security

This part reviews the interrelated constraints and challenges female farmers faced to secure food for their households. Some socio-economic characteristics of female farmers challenged their contribution to food security their poverty and low literacy rate excluded them from agricultural services and inputs. The land's small size led to low productivity. Migration of male relatives left them behind with the responsibility of securing food for their households, leading to numerous challenges as depicted in the following graphs. (See **Figure 2**)

4.7.1. Access to Inputs (Seeds and Fertilizers)

50.8% of female farmers faced difficulties obtaining inputs (seeds and fertilizers) to increase agricultural productivity to secure food for their households.

Table 4. Female farmers coping with food shortage.

Measures	Frequency	Percent
Worked as labours to generate income to buy food	56	21.6
Collected wild plants	153	59
Sold animals	50	19.4
Total	259	100

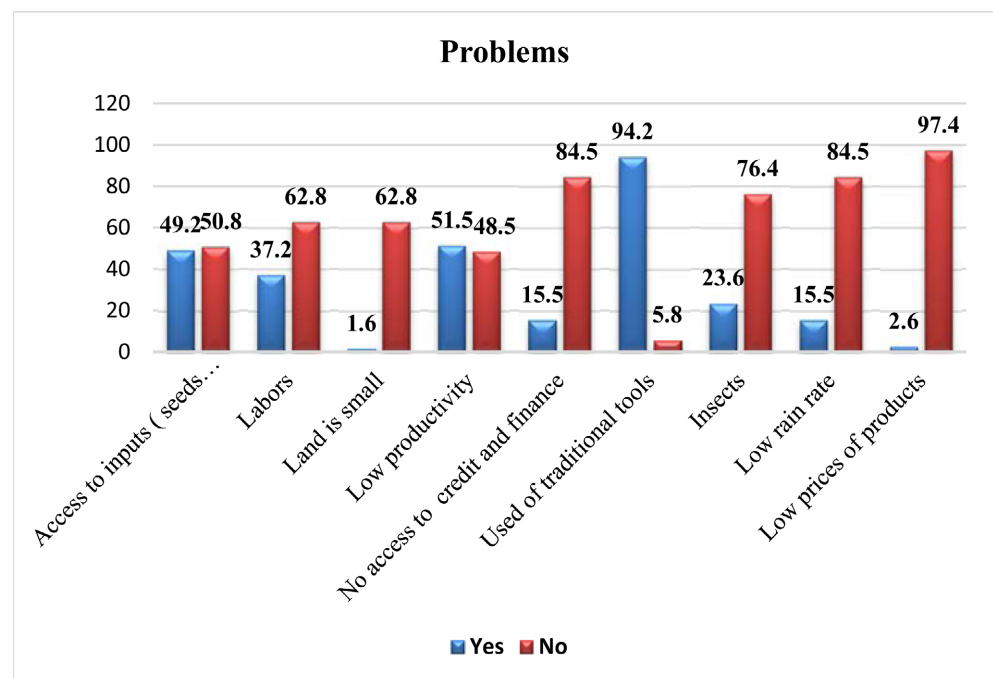


Figure 2. Female farmers as smallholder farmers were extremely vulnerable to weather shocks.

4.7.2. Shortage of Laborers

Only 37.2% of female farmers have problems of agricultural labors this was due to migration of young males making it difficult for them to afford labor for certain agricultural operations.

4.7.3. Land is Small

94.2% of female farmers see traditional tools as a constraint in securing food for the household, particularly tools used in land preparation and harvesting.

4.7.4. Low Productivity

51.5% of female farmers faced problems of low productivity this problem is interrelated with other problems as lack of inputs and small size of land lack of labours.

4.7.5. Used of Traditional Tools

94.2% of female farmers considered the use of traditional tools as a constraint to secure food for the household especially the tools used in land preparations and harvesting.

5. Access to Credit

The livelihood of the study area is based on farming system activities. According to the respondent, accessing credit from microcredit institutions is one of the major challenges for rural women owing to the absence of strong microfinance institutions in the study area.

According to **Table 5**, only 25.9% of the respondents indicated that it was created in the last five years using a loan from microfinance institutions while the remaining 74.1% indicated that there was no access to credit facilities see **Table 5**. The poor microfinance system in the surveyed area considerably affected the activities of women. A number of households stressed that the forms of bank

Table 5. Loan in last 5 years.

Answer	Frequency	Percent
No	233	74.1
Yes	80	25.9
Total	309	100.0

Table 6. Constraints hinder access to credit.

Constraints	Frequency	Percent
Access	146	47.2
Avoid loan	69	22.3
Our culture	2	.6
Insurance	9	2.9
No need	4	1.3

financing are difficult and biased toward rich farmers and not to the benefit of their young people. They believe that they are being treated unfairly, especially in the field of agricultural machinery and techniques. Agricultural finance is very weak in local municipalities. There is no interest in small and traditional holdings, Limitations on the adoption of suitable land and farm technologies restrict agricultural mechanization, primarily in tractors, while it includes the mechanisms of preparation, preparation, cultivation and harvesting. This situation exacerbates poverty and worsens.

6. Extension Training To Rural Women in Agricultural Production

Only 12% of female farmers reported that they received extension services, which were improved seeds available to certain groups during the agricultural season (they were poor and widows) lack of access was the main reason (88.4%), ensured their interest for extension services to improve their agricultural situation and increase income. while 10% found no need for extension (see **Table 7**).

7. Discussion

Female farmers as principal food producers indicated their understand of food security as availability of food from their agricultural productions. Female farmers in the study play major roles in their households" food security from production to consumption. In the study area rural women are usually less mobile, and as a consequence, women's role may become more important as producers of subsistence for families. However, work of rural women remains mainly within the subsistence and informal economy, they continue to lack recognition and assistance. Women's contribution to food security is an unaccounted women contribution

Table 7. Contact with agriculture extension.

Contact	Frequency	Percent
No	272	88.0
Yes	37	12.0
Total	309	100.0
Reasons of no contact		
No access	239	77.3
No need	33	10.7
Type of service		
Improved seeds	35	11.3
Awareness	2	.6
For how long		
Season	37	12.0

to food security include activities such as home gardening (known locally jubraka), animals rearing, and post-harvest activities of agriculture and animal products (processing and preservation). Data on women's contributions to agricultural production is increasing; however, there is still a lack of sex-disaggregated data on women's contribution to household food security in Sudan [9] [10]. Approximately one-third of female farmers faced the problem of food shortages in a period of three months to a year, due to the two main reasons were the lack of rain and weak agricultural production. The results of the survey indicated that female farmers coped with food shortages by regularly utilizing a variety of processed and preserved foods during seasonal shortages. Indigenous fermented and dried products are the base ingredients to a variety of sauces and stews eaten with Ascida or kisra. Kisra (traditional flatbread) and Ascida (stiff porridge) are prepared from fermented sorghum. This result goes with the survey conducted by [11], on Household food insecurity and coping strategies in a poor rural community in Malaysia. Some socioeconomic characteristics of female farmers challenged their contribution to food security their poverty and low literacy rate excluded them from agricultural services and inputs. The small size of the farmland resulted in their low productivity. Migration of male counterparts left them behind with high numbers of members of household to secure food for them.

The study found female farmers faced difficulties in acquiring inputs (seeds and fertilizers) to increase agricultural productivity to secure food for their households, a study by [9] in Western Sudan indicated that the main challenge women face as food producers and providers are a lack of access to the full package of improved production methods (improved seeds, fertilizers, modern farming methods, credit services, pesticides, appropriate technologies, and marketing facilities). According to [12], Access to resources is essential to improving agricultural productivity of both men and women farmers. Because women play crucial roles in agricultural production, improving productivity will depend to a great extent on ensuring that women farmers, as well as men farmers, have sufficient access to production inputs and support services Female farmers in the study do not have the power to resolve the problem of food insecurity, and this is mainly due to low productivity because of the small size of land and lack of access to input services. This result supported by [13] shows that there are differences in yield between male and female farmers, not because the female farmers are less skilled than their male counterpart but because they are constrained by lack of access to agricultural inputs and resources. In 2009, the World Bank observed that the majority of smallholder farmers are women. Despite the critical role they play in food production and natural resource management, they only have access to 1 percent of the land. This lack of access and control over land has intensified women's difficulties, affecting their access to credit, technical assistance, and participation in agriculture [14]. FAO empirical evidence from many different countries shows that female farmers are just as efficient as their male counterparts, but they have less land and use fewer inputs, so they produce less. The study found majority of female farmers in study area

had no access to agricultural extension the way that agricultural services are staffed, managed, and designed limited their access to women [12].

Accessing credit from microcredit institutions is one of the major challenges for rural women owing to the absence of strong microfinance institutions in the study area. Existing research suggests that the type of credit and lending source (formal or informal) have differing effects on agricultural outputs and food security [15].

The study by Fatima Osman Ibnouf indicated the main problems faced by female farmers in Kordofan, as food producers and providers are a lack of access to the full package of improved production methods (improved seeds, fertilizers, modern farming methods, credit services, pesticides, appropriate technologies, and marketing facilities), in addition to gender disparities and gender-biased traditions [10].

8. Conclusions

Female farmers in the study area played a main role in ensuring their households' food security from production to consumption. Moreover, their contribution increased due to the migration of their male counterparts. It can be said that their contribution is immeasurable due to the subsistence nature of their work, which is considered an invisible form of family production.

Results demonstrate that women play a major role in producing and providing food for their households in this high-risk climate and conflict area, while men are more likely to migrate seasonally and even permanently. In addition, women are responsible for food preparation, processing, and food preservation and are wholly responsible for attending to household garden plots. They therefore contribute more to household food security than men, though this contribution is not recognized in official statistics.

It can be concluded that the primary issue women face as food producers and providers is a lack of access to the full package of improved production methods (improved seeds, fertilizers, modern farming methods, credit services, pesticides, appropriate technologies).

Certainly, It can be concluded the lack of access to productive assets, inputs and services remains a major constraint for female farmers to contribute effectively to securing household food.

9. Recommendations

- Improving women's access to land, agricultural inputs, credit, and other resources can help boost food security by integrating gender considerations into policies using evidence-based advocacy.
- Thus, rural development interventions in Sudan that aim to increase agricultural productivity and, by extension, improve food security and reduce poverty could achieve greater impact by integrating women's empowerment into existing and future projects.

- Governments should support women farmers by Allocating resources specifically to women farmers Rather than assuming that resources trickle down to women, budgeting for agriculture and climate change adaptation should incorporate specific line items to support women farmers.
- Direct agricultural education and training for women farmers with a focus on agricultural trainers and trainers.
- Breaking down gender-specific barriers Agriculture ministries should target gender-based barriers that restrict women's access to key farm inputs.
- Gender equality is essential for food security and nutrition, both now and for future generations. The empowerment and empowerment of rural women is reflected in improving the overall well-being of children, families and communities, which in turn contributes to long-term social and economic growth.

Conflicts of Interest

The authors declare no conflicts of interest.

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