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Review of Challenges Experienced by Women in Subsistence Crop Production

Sejabaledi Agnes Rankoana
[1]Department of Sociology and Anthropology, University of Limpopo, South Africa
Corresponding Author: Sejabaledi A. Rankoana; Email: sejabaledi.rankoana@ul.ac.za

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ABSTRACT

Men and women are assigned roles and obligations that they must fulfill to sustain the welfare of their households. These are adhered to despite the challenges encountered by women, essential food producers within households, to guarantee sustainable food security. This review described the challenges faced by female subsistence crop farmers in securing household food security. The primary research technique adopted is a literature analysis of subsistence production, climate change, its effects, mitigation strategies, and adaptation methods. The review findings indicate that women play a crucial role as subsistence producers of rain-fed crops, notwithstanding the numerous constraints encountered in production systems. The primary challenges include erratic rainfall and sub-optimal crop yield. These obstacles hinder women's ability to fulfill their household food supplier roles. These challenges could be addressed to empower women farmers, augment crop productivity, alleviate rural poverty, enhance food security and nutrition, and encourage women's involvement in food security and climate change mitigation and adaptation. These will facilitate the attainment of several Sustainable Development Goals, namely SDG1 (End Poverty), SDG2 (Zero Hunger), SDG3 (Good Health and Wellbeing), SDG5 (Gender Equality), and SDG13 (Combat Climate Change).

INTRODUCTION

This review analyses the challenges experienced by women who practice subsistence crop production to ensure household food security. This review presents data analyses from previous studies conducted in the Limpopo Province regarding subsistence production in ensuring household food security. Current literature offers substantial evidence regarding the continuity and reliance on subsistence production. The thrust of this review is evidence of the challenges experienced by women in subsistence crop production. Subsistence food production is an excellent food security option that can complement broader development goals. Improving its viability may alleviate rural poverty, improve food security and nutrition, and encourage women's participation in food security, climate change mitigation, and adaptation, thereby contributing to the achievement of several Sustainable Development Goals, such as SDG1 (End Poverty), SDG2 (Zero Hunger), SDG3 (Good Health and Wellbeing), SDG5 (Gender Equity), and SDG13 (Combat Climate Change). Research conducted in the Limpopo Province,

South Africa, shows that initiatives to increase food output through subsistence farming are critical for achieving food security, relieving poverty, empowering women, improving health and well-being, and adapting to climate change (Nesamvuni et al., 2016; Nyahunda et al., 2018; Oluwatayo, 2019). In this context, analyzing women's cultural roles in food security and their challenges is critical. The background for this review is Limpopo Province, South Africa, where subsistence crop farming remains important for affordable food security, with women taking full responsibility for production. Prior research on women's roles in agricultural production and the challenges they face has primarily focused on access to resources, land, transaction costs, technology, education and training, credit, and institutional and social support, all of which are affected by gender disparities (Khumalo, nd; Ofoegbu et al., 2017; Mbatha & Masuku, 2018; Omotayo, 2018; Sebola, 2018; Quang, 2021; Mbatha et al., 2021; Mpanza &

Mbatha, 2021; Dibakoane et al). This review discusses the challenges given by the natural environment as well as the restrictions that farmers face. This review tries to outline elements, other than socio-cultural effects, that hamper the sustainability of subsistence crop production.

Subsistence crop farming represents a time-honored and resilient method for safeguarding food security among rural populations. Throughout history, women in rural areas have played a crucial role in agriculture, engaging in agricultural labor, crop cultivation, livestock management, and food preparation (FAO, 2020; Samuels et al., 2022). Acevedo et al. (2020) recognize that in various cultures, women are the primary cultivators of staple crops, livestock caretakers, and traditional agricultural knowledge custodians. Despite their significant contributions, women farmers often face systemic barriers to land ownership, resource access, and participation in decision-making processes (Nesamvuni et al., 2016; Ugwu, 2019; Lakhia, 2025).

According to the Food and Agriculture Organization (2018a), women in Africa play an important role in subsistence agriculture, planting, and preparing food products that are necessary for family food security. Tirivangasi (2018) proposes that women in rural areas engage in agricultural production to ensure food availability and accessibility, hence boosting household livelihoods. The women ensure sustenance for direct household use and contribute to food security, poverty reduction, and hunger alleviation (Abdullah et al., 2019). Elum et al. (2017) discovered that in various regions, women play a crucial role in the cultivation, gathering, and processing of a significant portion of the global food supply, particularly within subsistence farming systems.

In Ghana, Yiridomah et al. (2020) observed that women participate in subsistence food production to guarantee sustainable food security for their households. The traditional view of agriculture as a male-dominated field is challenged by the increasing acknowledgment of women's contributions to global food security, rural development, and sustainable agriculture. The women subsistence smallholder farmers significantly contribute to food security; however, they remain a vulnerable population (Hazell, 2020; Omerkhil et al., 2020). They engage in subsistence farming and frequently encounter cultural, social, and economic obstacles due to climate variability, which restricts their productivity and hinders their full participation in agricultural development (Danso-Abbeam et al., 2021). This review examines the diverse roles of women in subsistence crop production and the challenges they face in this domain.

MATERIALS AND METHODS

The study used a comprehensive literature review to examine and analyze data about subsistence food production, views of climate change, its implications, and measures for mitigation and adaptation. This study utilized databases like Semantic Scholar, Elsevier, Google Scholar, ResearchGate, Taylor & Francis, Sage, and Wiley online libraries. The literature sources were selected and used irrespective of their publication dates. The primary points in the literature on the challenges encountered by women in subsistence crop production are socio-economic and cultural, such as household size, the prevalence of female-headed households, the educational attainment and employment status of the household head, access to property and financial resources, as well as the diverse cultural roles and duties of women. This review outlines women's roles in subsistence crop production and the challenges encountered in rain-fed subsistence agriculture within home gardens.

RESULTS AND DISCUSSION

Women as Subsistence Farmers

The cultural role of women in food security pertains to the three pillars of sustainable development as outlined in the Sustainable Development Goals: economic, social, and environmental, with the objectives of eradicating hunger, achieving food security and improved nutrition, and promoting sustainable agriculture. Nevertheless, the principal responsibility for household food provision primarily lies with women. Household food security is not merely dependent on women's social and economic status; rather, it is perceived as a cultural duty assigned to women. Subsistence food production by home gardening is an indigenous practice documented in ethnographic literature about local communities in Limpopo Province, South Africa (Nesamvuni et al., 2016). This Indigenous livelihood model ensures

food availability, access, and utilization to avert poverty and malnutrition under favorable climatic conditions (Mpanzi & Mbatha, 2021). The women perform all agricultural activities, encompassing planting, sowing, weeding, harvesting, and storing for domestic consumption (Nesamvuni et al., 2016). Quang (2021) asserts that women's principal function in agricultural productivity is to provide household food security. The women maintain the health and welfare of their households by guaranteeing food availability, accessibility, and utilization, which are essential elements of food security (Ncube et al., 2016).

For Dibakoane et al. (2022), women play a significant part in subsistence food production, crop farming, animal husbandry, and agroforestry practices. Kabanda and Nenwiini (2016) found that women contribute to food security through home-gardening crop output, regardless of household size and economic circumstances. Mpanzi and Mbatha (2021) found that most women involved in subsistence crop production come from female-headed households who are compelled to grow subsistence crops to ensure food security. Nesamvuni et al. (2016) and Elum et al. (2017) validate these findings by demonstrating that the proportion of women involved in agricultural activities in the Limpopo Province surpasses that of men despite adverse environmental conditions (Mpanzi & Mbatha, 2021). Women farmers undertake the predominant agricultural tasks, encompassing plowing, weeding, crop surveillance, and date harvesting (Galiè et al. 2017). The women are responsible for guaranteeing household food security and obtaining water and fuel for daily living (Elum et al., 2017; Myeni et al., 2019).

The primary role of household food provision rests with women, who engage in subsistence farming by producing and processing agricultural products to ensure household food security (FAO, 2018a). This observation corroborates Udo's (2022) assertion that women serve as the principal carers and food providers for their households, thereby assuring food security and nutrition. Women have a vital role in preserving cultural history and promoting nutritional diversity through their expertise in local food systems and culinary traditions. Ziervogel et al. (2022) contend that women's participation as food producers can enhance the efficiency of smallholder agriculture, hence reinforcing household food security. Lakhia's (2025) perspective underscores the significant contribution of women to agricultural production, a fact that has been insufficiently recognized.

Smallholder farming is the predominant gendered livelihood activity for rural households and is crucial for household food security (FAO, 2020). Women significantly contribute to food security amid economic changes by engaging in subsistence crop production within home gardens (Kabanda & Nenwiini, 2021), an activity primarily assigned to males as part of their cultural roles and responsibilities dictated by patriarchal and patrilineal kinship systems (FAO, 2020). Ugwu (2019) concedes that women constitute 80% of the workforce in home crop production and are responsible for food processing and preparation. These approaches protect the environment, improve long-term well-being, address food security, support sustainable agriculture, and empower local communities. Women, as essential providers of food, fuel, and water for their families, are interested in environmental preservation and reducing environmental degradation.

The multiple roles of women as carers and providers are crucial for maintaining food security and nutrition in households. Their contributions are vital for preserving cultural heritage and promoting dietary diversity, drawing on their understanding of local food systems and culinary traditions (Acevedo et al., 2020). The FAO (2020) asserts that subsistence farming is consistent with sustainability principles through its focus on organic and natural cultivation methods, the promotion of crop diversity, and the implementation of conservation practices.

Challenges in Subsistence Production

Masipa (2017) observes that the primary factor leading to reduced agricultural yields for farmers dependent on home gardens is identified in Limpopo Province. Rain-fed subsistence agriculture serves as the principal source of livelihood for rural communities; however, inconsistent and variable rainfall, marked by low quantities, intermittent drought, and considerable fluctuations both intra- and inter-seasonally, constrain agricultural productivity (Mpanza & Mbatha, 2021). Insufficient precipitation leads to reduced agricultural output, failing to meet food security needs at both household and national levels

(Kabanda & Nenwiini, 2021), threatening women's participation in subsistence agriculture. Mbatha and Masuku (2018) indicate that droughts induced by climate change have significantly reduced subsistence crop yields across much of South Africa (Thibane et al., 2023). Rain-fed agriculture relies heavily on precipitation, making crop yields particularly vulnerable to climate change (Moroda et al., 2018). Davis et al. (2017) argue that women primarily experience the adverse effects of high temperatures and insufficient rainfall because they rely on subsistence agriculture and natural water sources for household needs. Drought and increasing temperatures are expected to intensify climate change, negatively impacting food and water security for marginalized communities, especially women and girls reliant on rain-fed agriculture (Ubisi et al., 2017).

These observations are corroborated by studies conducted beyond Limpopo Province. For example, FAO (2020) acknowledges that climate change, alongside socio-cultural impacts, adversely affects food security objectives in Africa, exacerbating hunger and malnutrition. Improving subsistence food production is crucial for ensuring food security in impoverished communities, particularly given the significant concern of delayed rainfall due to seasonal fluctuations (FAO, 2020). Workalemahu and Dawid (2021) suggest that climate change is expected to exacerbate conditions, substantially impacting crop production and the livelihoods of rural populations. Climate change and variability pose significant challenges to agricultural productivity for smallholder farmers reliant on rain-fed agriculture, jeopardizing food security in many rural regions (FAO, 2020). Workalemahu and Dawid (2021) add that women are disproportionately vulnerable to climate change due to inequalities in economic opportunities and access to productive resources. This vulnerability results from women's comparative poverty, lower educational levels, and reduced involvement in political, community, and family decision-making processes that impact their livelihoods, as opposed to men (FAO, 2020). Climate change leads to increased temperatures, intensified droughts and floods, desertification, variations in precipitation, and changes in specific disease vectors, all of which contribute to the broader regional and temporal dissemination of infectious diseases (Akbari et al., 2022). These events disrupt growing seasons, degrade arable land and water resources, and reduce agricultural productivity (FAO, 2020). Climate change and weather fluctuations are environmental factors that profoundly affect food security, including physical and economic access, stability and adaptability of food systems, and dietary habits and utilization (Akbari et al., 2022). Dhillon and Moncur (2023) note that climate change poses challenges to the sustainability of agricultural practices among smallholder farmers, as extreme weather events and changes in weather patterns negatively impact land and create unpredictable harvesting conditions.

Poor Production

Climatic extremes, including delayed onset and reduced precipitation, adversely affect agricultural yield. This effect presents a significant difficulty for most subsistence farmers in Limpopo Province, as their crop output relies exclusively on rainfall (Masipa, 2017). Materechera and Scholes (2022) report the adverse impacts of climate change and variability in Limpopo Province, where most households predominantly rely on rain-fed subsistence agriculture. Variations in rainfall and an increasing frequency of dry seasons result in severe droughts, thereby diminishing agricultural yields and exacerbating hunger among smallholder farmers (Materechera & Scholes, 2022). The reduced agricultural productivity of small-scale farmers is due to crop failure, threatening household food security (Ncube et al., 2016). The observations support the findings of Ngumbela et al. (2020), which indicated that erratic, low rainfall patterns and rising temperatures have significantly reduced crop yields and income for female farmers. These issues have intensified the vulnerability of female farmers to the effects of climate change (Chandra et al., 2017). Climate variability primarily causes reduced agricultural yields, resulting in food insecurity (Dibakoane et al., 2022). This is consistent with the findings of Shayegh and Dasgupta (2022), which highlighted that the primary effects of climate variability are changes in crop production and food security. Decreased precipitation and elevated temperatures result in diminished crop yields, truncating the growing season and exacerbating losses in crops and seed stocks due to insufficient outputs and postponed planting (Derbile et al., 2022).

Inconsistent rainfall considerably impacts food security and poverty alleviation, especially in rural areas where most smallholder farmers rely on rain-fed agriculture to secure household food requirements (Acevedo et al., 2020). This observation is consistent with the findings of Mbatha and Masuku (2018), which demonstrate that South African smallholder farmers experience food insecurity because of climatic conditions and additional factors. This supports Ndlovu's (2017) view that although subsistence farming can improve sustainable development and livelihoods, climate change, particularly through intermittent drought and increasing temperatures, poses a significant threat to this sector and diminishes its productivity.

Smallholder farmers experience changes in agricultural yields and productivity because of variations in rainfall patterns and increasing temperature levels (Dibakoana et al., 2022). These changes have resulted in flooding, drought, lower water and precipitation levels, reduced agricultural yields, and decreased revenue (Ndlovu, 2017). Climate-related changes have negatively affected the livelihoods of female farmers, resulting in increased food insecurity and reduced crop yields (Nyahunda et al., 2021). Dibakoana et al. (2022) assert that climate unpredictability reduces crop production, inferior yields, and causes food insecurity. Mbatha et al. (2021) argue that climate change represents a significant obstacle that greatly hinders subsistence farming from achieving positive livelihood outcomes for rural communities.

Moon (2024) acknowledges that climate change and variability are factors contributing to food insecurity. This supports the findings of Salima et al. (2017), linking the poor performance of subsistence farming to various constraints, such as insufficient and erratic rainfall and low soil fertility. Climate change poses a significant risk to the economic sustainability of crop production due to changes in rainfall patterns and rising temperatures. The study by Tirivangasi and Tayengwa (2017) demonstrates that climate change is a significant issue for South Africa and other countries, such as Ethiopia, where it threatens household-level agricultural food production. Additional observations indicate that female farmers in Bangladesh and Nigeria are especially vulnerable to complete crop failure during intense rainfall events (Nnadi et al., 2019; Anugwa et al., 2023). Derbile et al. (2021) assert that these impacts are predominantly observed in rural communities, where women continue to bear the responsibility for food provision despite encountering numerous livelihood risks associated with climate change, such as drought, irregular rainfall, and increasing temperatures.

CONCLUSION

Subsistence crop production as a traditional mode of household food security is still prevalent in Limpopo Province. Researchers explored this mode of livelihood, especially the negative impacts of climate change, as the production is mainly rain-fed. It is evident from the literature that women participate in rain-fed subsistence agriculture, which is limited by inadequate and erratic rainfall, leading to reduced crop yields. Inconsistent rainfall and insufficient yields from subsistence crops are the main challenges experienced by women subsistence farmers in the Limpopo Province. The challenges are not socio-cultural but environmental conditions beyond human control. Unpredictable rainfall and intermittent drought impede rain-fed subsistence crop production, leading to poor crop production with less food. Women can use indigenous climate-smart strategies to adapt to changing climate conditions and improve rain-fed agricultural production. Addressing these challenges can empower women farmers, increase crop productivity, reduce rural poverty, improve food security and nutrition, and promote women's participation in food security and climate change mitigation and adaptation, thus aiding the achievement of Sustainable Development Goals (SDG1, SDG2, SDG3, SDG5, and SDG13).

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