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Women's Contribution to Indigenous Knowledge Food Security in the Lokaleng village, North West Province, South Africa

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Abstract

There is an increasing trend of directing food security policies toward empowering women, because, studies have found that indigenous knowledge among women plays a significant role in reducing poverty and food insecurity in

their rural households. Although South Africa is considered food secure, many households still suffer from food insecurity. This study intends to investigate women's contribution to indigenous knowledge of food security. This study employs a qualitative approach and exploratory research design to solve the research objective. Thirty participants took part in the study and data was collected using semi-structured and unstructured interviews. Data analysis was thematic and themes identified were: indigenous knowledge technologies, indigenous food types and contribution to food security. The study found that most women used indigenous technologies, such as animal traction, plough-pull by donkey, kraal manure and cow dung to improve food security. Women also used paraffin, wild onion and "sunlight" bar soap mixture solution to control pests. However, indigenous knowledge of food security might disappear because young people (women) in the community have no interest in indigenous knowledge due to modernisation. Workshops and seminars could be organised to train, empower and educate women on indigenous knowledge and food security.

Keywords: *Food security, Indigenous knowledge, Women's contribution, Indigenous foods*

Introduction

The world is facing severe food insecurity, which hampers socio-economic development. Recent estimates show that global hunger had increased to 9.9 per cent in 2018, despite alternative technologies to improve food production (Food and Agricultural Organisation, 2018). Over 900 million people worldwide remain food insecure (FAO *et al.,* 2019). FAO's (2018) report shows that meeting global food security challenges will become increasingly difficult in the future as the world's population reaches 9 billion by 2050. Ending hunger and achieving food security is goal number 2 out of 17 of the Sustainable Development Goals. It remains of great worry that malnutrition and severe food insecurity seem to be increasing in nearly all sub-regions of Africa (FAO *et al*., 2019). In Africa, for more than two decades, the continent has been battling food insecurity, undernourishment and hunger that results in malnutrition (FAO, 2018). The continent has the highest number of child stunting, undernourishment and child mortality than other regions of the world. The undernourishment rate increased from 19.6 per cent in 2014 to 2016 and 21.8 per cent from 2018 to 2020 (Damman, Eide and Kuhnlein, 2010; FAO, 2017; FAO, 2021). Food insecurity is when the

entire country's population has limited or uncertain access to enough, safe and nutritious food to maintain an active life (FAO *et al,* 2018). Some causes of food insecurity include lack of resources such as financial and human resources; lack of access to nutritious food at affordable prices, and lack of access to food due to geographical isolation (FAO, 2017).

South Africa is one of the few food secure countries in Africa, however, the country experiences food insecurity at the household level. Household food insecurity in South Africa suggests that the country has a predominance of food shortages in some homes or lack of access to food, and household members live in hunger or fear of starvation (Anderson, 1990, Radimer *et al.*, 1990, Labadarios *et al.,* 2009). Hochfeld *et al.* (2016) corroborates that the majority of South African households continue to live in, food poverty resulting in undernourishment (Masekoameng and Molotja, 2019). The deteriorating food security in South Africa is driven by high food prices, drought, economic decline as well as the Corona Virus pandemic. From January to March 2021, approximately 12 million people (20 per cent) of the population were in a food crisis (Van der Berg*et al.,* 2021). The worsening situation of food insecurity necessitated South Africa to aim at achieving food security at national and household levels.

Studies have shown that indigenous knowledge (IK) among women represents a valuable source of local solutions to food insecurity, particularly, during food shortages or major stress periods such as droughts (FAO, 2016; Garutsa and Nekhwevha, 2018). Women are the main subsistence farmers, providing the basis of household and community sustainable livelihood. Most women, predominantly in rural areas, depend on their local community-based agricultural knowledge and innovation systems to prevent rising temperatures that hinder food production (Kotane, 2009 and Ncube, 2009). Indigenous Knowledge refers to a complete body of knowledge, know-how and practices conserved and improved by people, generally, in rural areas which have extended histories of interaction with the natural environment (Boven and Morohashi, 2002). To facilitate women's role in indigenous food security, the South African government has ratified policies and legal frameworks, both at the national and provincial level. These include the following: Section 27, 1(b) of the Bill of Rights (Department of Agriculture, Forestry and Fisheries, 2013). Section 27, 1(b) states that "every citizen has a right to access to sufficient food and water, and the

state must take reasonable legislative and other measures within its available resources to achieve the realisation of this right.

The Fertilizer and Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947) was introduced to regulate the registration of fertilisers, stock feeds, agricultural remedies, stock remedies, sterilising plants and pest control operators. The Act also provides the platform to manage and control the sale, disposal, acquisition and use of fertilizers (South Africa Yearbook, 2013). *The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)* provides the podium to control the use of natural agricultural resources and promote water sources, vegetation and soil conservation. In addition, the Act is to combat weeds and invader plants that affect small-scale farmers (South Africa Year Book, 2013). *The Comprehensive Agricultural Support Programme (CASP) of 2005:* was an initiative that involved government departments and incorporated the Household Food Production Programme, which targeted households that failed to access surplus food (Department of Agriculture, 2002). *The Provincial Growth and Development Strategy of the North West Province (2004)* was a collective effort by the government and its social partners to address, the challenges of growth and development in the province and to help improve the quality of people's lives through agricultural development.

Hence, this paper attempts to investigate women's contribution to IK food security particularly in Lokaleng village. Arguably, women's contribution to food security through IK remains vital amidst the global rising food prices caused by the Russia-Ukraine war and the recent Corona Virus pandemic. Understanding how women use IK can be the basis of food security adaptation policies that address challenges and local needs. The study was guided by the following objectives: to identify women's role in promoting indigenous food security and to find out the types of indigenous foods produced in Lokaleng village.

Problem statement

Despite adopting legislative and policy frameworks to encourage women's contribution to IK in food security, in the country as a whole and Lokaleng village in particular as discussed in the preceding paragraph, challenges such as no land ownership, lack of finance and theft of crops still exist, thereby, compromising food security. In addition, poor water supply, pest infection of plants, no farming

equipment, absence of proper farm training and drought continue to hinder food productivity thereby increasing poverty incidence and food poverty in the area. Women are the dominant IK food security producers and nutrition providers in South Africa (Ncube, 2009; FAO *et al.,* 2019). However, women's contributions to IK and food security remain marginalised in their communities causing food inflation (Ncube, 2009). Besides, little information is available on women's contribution to IK food security, especially when using improved technologies such as irrigation is considered in food production. Also, IK has not been given the rightful position in development initiatives in South Africa, most especially, in the North West province (Sichona, 2009; Tlhompho, 2014). Therefore, there is a need to explore the vital contribution women make through IK food security.

Literature review

Indigenous knowledge has been a steadily growing interest in academic, both within the social and natural sciences (Awuor, 2013; Kamwendo and Kamwendo, 2014). IK is seen to contrast with the knowledge generated within the international system of universities, research institutions and private firms; while communities in developing countries use IK as a base for decision making, especially regarding food security, education and natural resource management (Masekoameng and Molotja, 2019). Policymakers and Scientists are becoming aware of IK's contribution to advancing food security ultimately in sustainable development (Kilongozi, *et al.,* 2005). In Africa, IK is central to development in all ramifications, especially, in rural communities. Africans, most importantly, women are gifted with special knowledge in indigenous food security, which enhances human development (Ugboma, 2014; Adebobola, 2015). For instance, women can identify different types of safe to eat wild fruits, vegetables and roots, they know when and how to plant, when and how to harvest and process the food, and how to preserve the food to ensure food security (Masekoameng and Molotja, 2019). Studies have shown that women have vast IK in food processing, preservation, and other important survival skills that help in food security (Ibnouf, 2011 and FAO, 2017). Women possess a wealth of food knowledge, such as knowledge of the quality and relationship among crops, soil texture, climate change, pest control and water management among others that improve food security (Smelser and

Baltes, 2001). Indigenous women farmers generate indigenous crops through knowledge of environmental conditions and seasonal changes without access to external inputs, capital, and modern scientific knowledge (Maroyi, 2012). Women perform 70 per cent of the work related to farming in Cameroon. They are responsible for seeds selection, hoeing and weeding the fields, and gathering, processing, and selling surplus products (FAO, 2016).

In Nigeria, women in rural areas are endowed with IK of food security, land management and use, seeds preservation, breeding of food crop species, and the domestication and use of wild safe-to-eat plants (Olatokun and Ayanbode, 2009). Women's important role in socio-economic development in rural communities is evident in their contributions to the family and society at large, as wives and mothers. They engage in marketing and production of foodstuff to enhance the local economy. Women in Burkina Faso are gifted with the IK in collecting fruits, leaves and roots of native plants like the baobab tree (*Adansoniadigitata*), red sorrel leaves (*Hibiscus Saddarifa*), kapok leaves (Ceibapentandra) and tiger nut tubers (cyperusesculentus) for use in the diet of their families and supplementing the agricultural grain (Easton and Ronald, 2000). In Ethiopia, women's indigenous knowledge is important for managing disaster risks and climate change adaptation that promote indigenous food security in rural areas. They are also responsible for crop diversification and preserving indigenous crop varieties, which support adaptation to climate change and provide nutritional benefits (DFID, 2017).

Statistics South Africa (2019) underscores that in South Africa, women constitute more than 50 per cent of the population in agriculture for food security at household and community level. Their roles and potential contribution to food security through IK put them at the centre of controllable, cost-effective, sustainable development and livelihood. A study conducted in Limpopo revealed that women have IK of threshing and seed preparation that improves food security. Women used this knowledge to plant and harvest on their food plots planting to harvesting. For instance, women used their IK to harvest crops such as spinach in less than two months. Also, crops such as carrots, cabbages and onions were cultivated during mild temperatures using their indigenous knowledge (Tlhompho, 2014). Sichona (2009) found that in the arid and semi-arid farming areas of Northern Cape Province, women farmers had a multidimensional role in household and community food

security. They preserved biodiversity, using their specialised knowledge of traditional food-plant species for nutritional food security. They also showed a wide knowledge and skill in using IK related to animal husbandry, owing to being responsible for collecting fodder for the animals and milking the cattle.

In South Africa, food security studies mostly analysis at the macro level (national) and concentrates on analysing food availability. Few micro-level studies analyse household-level food consumption, and hardly any of those have been designed to investigate women's contribution. However, such studies concentrate on either calorie consumption measures which interrelate with poverty line definitions (Rathnayake and Weerahewa, 2003) or on anthropometry measures. Although similar studies by Masekoameng and Molotja(2019)and Kalansooriya and Chandrakumara (2014) have been carried out, they did not give insight into indigenous perspectives about food security in South Africa, and where it did, it was not about women's contribution through IK. Consequently, this study attempts to answer the question of whether women contribute significantly to guaranteeing IK food security in South Africa, most specifically in the rural context.

Methodology

Study site

Lokaleng is in the Mahikeng Local Municipality in the North West Province of South Africa and it lies at latitude of 25:47. South and longitude of 25:32. East. Lokaleng's population is estimated at approximately 2,661 (76.66 per km^2) (Statistics, South Africa, 2016). Most economic activities in the area are based on the communal, social and personal services sector and agricultural activities. Most women in the Lokaleng village depend on the government's social grants for a living, many of them are poor and unemployed (Statistics South Africa, 2016). The study area was selected because the community mostly uses African indigenous food security strategies to determine agricultural seasons, tracking time and natural disasters. It was also selected because women are the major subsistence farmers providing the basis of household and community sustainable livelihoods. In addition, most of them depend on their IK and innovation systems for agricultural production (Tlhompho, 2014; Statistics South Africa, 2016).

Research approach

The qualitative research approach was employed to collect data necessary to answer the research objectives and eventually address the research problem. Qualitative methods are an umbrella phrase that refers to the collection, analysis and interpretation of the interview, participant observation, and document data to understand and describe meanings, relationships, and patterns (Creswell, 2015). A qualitative approach was adopted because it offers more than a snapshot of the phenomenon, interprets the participant's viewpoint and can explain and illuminate data. In other words, adopting a qualitative approach augments a proper explanation and description of women's experiences in IK food security.

Research design

Due to the lack of information regarding women's role in IK food security, an exploratory design was adopted. The exploratory study provides a good ground for a thorough examination of social issues to generate the information necessary to contextualise the situation under investigation. Particularly, issues related to women's role and indigenous food security can be understood better through evaluative and exploratory studies. Adopting the exploratory design helps in obtaining information from knowledgeable individuals, such as in the key informants' case (Baxter and Jack, 2008).

Sample size and sampling

A sample size of thirty (30) participants was selected for the study. They were drawn from the women population in the Lokaleng community. The sample size was also drawn from the officials of the Department of Agriculture and the traditional leader. Twenty-seven (27) participants were chosen from the women in Lokaleng who were involved in farming. Two (2) key informants were chosen from the Department of Agriculture and one (1) traditional leader was also selected for the study. Key informants were part of the study because they know women's role in indigenous food security in the community. A purposive sampling and snowball technique were employed to recruit participants for the study. A snowball technique was adopted to identify those women with IK on food security in the community. Emphasis was placed on women

participants because they play a primary role in ensuring food security for households and the community through IK.

Data collection and analysis

Regarding data collection, semi-structured and unstructured interview guides form the data collection instruments used in this study. This made it possible for the interviewer to pose probing questions for the participants to clarify certain issues related to the role women played in indigenous food security. Semi-structured interviews were utilised to collect data from women in the Lokaleng community while unstructured interviews were employed to obtain information from the key informants. Key informants include the traditional leader and officials from the Department of Agriculture. Covid-19 guidelines such as wearing masks, sanitising and physical distancing were observed during data collection. In addition, secondary data were obtained from legislation, books, the internet, as well as unpublished and published articles about women's role in indigenous food security. Such information was collected from the Department of Agriculture, Statistics South Africa and the North West Provincial Government. Regarding data analysis, information collected from the women and key informants was analysed using a content analysis technique of summarising themes and sub themes.

Findings and discussion

Twenty-seven women and three officials took part in the study. Four themes were identified and these include indigenous knowledge technologies, indigenous food types, the contribution to food security and challenges women faced in IK food security. The key findings were discussed in line with the themes.

Theme 1: Indigenous knowledge technologies

The first theme that emerged during data analysis was IK food technologies. Several responses were provided by the participants:

> We use indigenous technologies since it ensures quality and continuous supply of food which is an important aspect of food security.

> We use Plough-pull by the donkey or cattle and hand hoes or both as important food production technologies to produce various types of food.
>
> Some of us employ kraal manure to develop soil fertility in some farming households. Plant products such as fallen tree leaves are also used to maintain soil fertility. When the tree leaves fall from the tree, the leaves are taken and dumped in the garden to create manure that helps maintain soil fertility. This enhances continuous food supply in the area hence, food security.

In addition, one official had this to say:

> Also, cow dung also known as Motsotelo was used by women as fertilizer to improve soil fertility that helps in the production of a variety of foods. On the other hand, ash (molora) was used as pesticide to kill pests.

Another official reported:

> Mixed cropping was also practised by some women to ensure that the balance in soil nutrients was maintained and thus keeping the soil forever fertile, thereby enhancing regular food supply in households.

According to these participants, indigenous technologies such as Plough-pull by the donkey enabled women to produce various foods which reduce food poverty and hence help ensure food security in the Lokaleng community. These types of food produced provide them with the carbohydrates needed for energy, the protein needed for bodybuilding, repair and vitamins needed for maintaining good health. In addition, the kraal manure increases soil fertility which allows them to cultivate crops such as cowpeas, cabbages, spinach, watermelon, sorghum and potatoes. Using mixed cropping also ensures balance in soil nutrients and maintains soil fertility to cultivate more than one type of crop. The finding is consistent with Masekoameng and Molotja (2019) research which state that the indigenous methods used in farming become vital to ensure food availability for rural households.

In addition, participants have vast indigenous know-how on the use of manure, composting and mulching which played a crucial role in soil fertility management and food security, as explained by officials:

> We use manure in our fields and gardens to increase soil fertility depletion. In addition, this manure is safer and does not cause emissions. It also enables us to save money instead of buying synthetic manure. Soil infertility has been identified as a fundamental reason for decreasing food production in the area. Women are the major subsistence farmers providing the basis of livelihood and community sustainable livelihood. Food production done using women's indigenous knowledge is less expensive, resulting in more crop production and consequently, the more supply of food.

> We prepare farmyard manure that improves soil quality. Pine needles and oak leaves are gathered from the forests for animal bedding. These materials, when mixed with dung and household organic refuse, serve as excellent manure.

According to the above participants, women utilised manure to reduce soil infertility which allowed them to improve food security and the households' well-being. It also enabled them to save money instead of buying synthetic fertilizers, and it is safer and does not cause emissions. Women make certain that their land has enough nutrients through manure and compositing to cultivate household food production. Manure improves the soil structure and is used as a natural fertilizer in food production, hence food security. An increase in food production can boost incomes for poor households in the Lokaleng community and feed more people. It increases the soil's capacity to hold more water and nutrients. The participants noted that pine needles and oak leaves are gathered from the forest when mixed with dung serve as excellent manure. This practice contributes to waste management and recycling, and provides macro-nutrients and micro-nutrients that provide the opportunities to cultivate various crops. The finding is in line with Olatokun and Ayanbode (2009) and Garutsa and Nekhwevha (2018), which found that women in Nigeria use homemade manure to enhance soil fertility, thereby increasing food production through knowledge which has been passed down from one generation to another.

However, one official reported that the government has encouraged using fertilizers and pesticides by providing them to farmers in the area at highly subsidised rates. Nonetheless, women believe that artificial fertilizers cannot substitute the moisture retaining capacities of dung and humus, and using artificial fertilizer alone is harmful to the soil.

Furthermore, participants, including the official from the Department of Agriculture confirmed that some women utilised IK technologies such as paraffin and hand hoe to control pests and weeds, despite minimal support from the government.

> We use paraffin, wild onion and "sunlight" bar soap mixture solution, aloe and salt solution to control pests invading their fields and gardens. We use bar soap mixture solution to get rid of pests such as red ants, rootworms, stalk borer, maize weevil, cutworm, moles and butterflies. Anything with a sharp smell, and not poisonous, can repel and/or kill pests. This attests that women have mastered a key factor for pest control over time.

> Weed management plays a crucial part in the production of food, as weeds reduce crop yields via blocking sunlight, thereby, reducing nutrients. Women use a wide range of indigenous and conventional weed control methods such as hand-hoe, animal traction and manure processing methods to control weeds.

As explained by these participants, women utilised wild onion and sunlight bar soap solution to control pests such as red ants that invade crops. Women used hand-hoe, animal traction and manure processing to control weeds. Pest and weed management enable women to be effective in addressing food insecurity challenges. Pest and weed management are important elements of crop production because they can be detrimental to food production operations by affecting the quantity, quality and ultimately, food security.

Theme 2: Indigenous food types

Women revealed that they produced several types of food in the area. One of the women had this to say:

> Due to our vast IK of using kraal manure, we can cultivate food such as beans (dikgobe), maize (bopijwammopo), citron, potatoes, spinach, cowpeas, millet, cabbages, tomatoes, sorghum, pumpkins, maize, sweet reed, watermelons, green pepper, onions and cabbages on our land. Some of us used the backyard space to produce several types of foods so that we can feed our households. Some of us also gather foods from the wild such aswild sour plum which has never been domesticated. These are trees that they cannot plant; they are good to eat, healthy and

> very tasty. We also gather wild carrot (bosethwane, magaba, serowa) believing that it makes one be a real man, and if eaten you do not experience impotency.

Another participant indicated:

> The vast IK of using cow dung allows us to produce a wide variety of foods such as maize, bean and potatoes, although not exhaustive in terms of variety, however, it provides us the opportunity to improve our nutritional needs.

As explained by these participants, IK of using kraal manure and cow dung enabled them to cultivate food such as beans (dikgobe), citron, cow peas, millet, cabbages, tomatoes, sorghum, pumpkins, maize, sweet reed and watermelons cabbages. Producing a variety of foods provides a range of different nutrients to the body which promotes good health and can help reduce the risk of diseases, and keep diet the interesting with different flavours and textures. In addition, they earn additional income from selling foods produced. The participants revealed that they also gathered food from the wild due to their gifted IK of food collection, which helps them determine non-poisonous foods. The foods gathered from the wild are very good to prevent impotency. These indigenous foods and vegetables provide important nutrients such as vitamins A and C needed for growth and skin repairs. The views of the participants are in line with Masekoameng and Molotja (2019) study, which states that women used indigenous knowledge to produce various foods such as cowpeas, millet, cabbages and tomatoes which increases food security.

Some of the women further confirmed that these foods can be eaten at different times and are very medicinal.

> The different types of food produced such as white sorghum and red sorghum are eaten during winter and red maize is eaten during drought.

> Indigenous food is very valuable, and when eaten appropriately, many of them have medicinal properties or can prevent certain health problems.

> Diseases that can be prevented by eating these foods include cholesterol, constipation, fatigue and deterioration of the immune system.

According to these participants, the foods produced can be eaten at different times. These foods eaten have medicinal properties that prevent health problems such as fatigue and constipation. The views of the participants are consistent with Ugboma's (2014) and Adebobola's (2015) research which acknowledges that health and nutrition were the reason for producing indigenous foods by women.

In addition, the older generation of women added that they cultivated indigenous foods because they are of higher quality, particularly, in how they are produced.

> I cultivate watermelons and maize because they are sources of roughage that prevent constipation.

> When you eat boiled maize, it prevents cholesterol. It also removes excess fat from the body during excretion. Participants further said that most of these crops are produced in the garden at homes, mostly in the backyards.

According to the participants above, watermelon and maize produced prevent constipation because they are a source of roughage. Roughage foods help in digestion, weight loss, and control of blood sugar. The participants also added that boiled maize removes excess fat from the body and also prevents cholesterol.

Theme 3: Contribution to food security

Women play a significant role in IK food security in the Lokaleng community. Women reported they use their IK to cultivate, harvest, process, preserve and prepare foods, which contribute to food security. Participants provided the following extracts:

> We are endowed with vast amounts of IK about food processing, production, breeding of food crop species, and the domestication and use of wild edible plants that increase food security. Farming starts with the ploughing season known as "letsema" and was done communally. This knowledge is passed on from one generation to the next. Using indigenous knowledge is a viable livelihood strategy for poor rural households.

> Threshing platforms (seboya) were used by us for food processing made by the rural women through the indigenous knowledge and skills that were passed on from one generation to the next.
>
> Some of us use wooden threshing sticks to thresh beans, millet and sorghum, after which, they would use winnowing baskets to get rid of any impurities from the beans, millet and sorghum. The processed foods were stored in empty maize meal bags, metal or plastic tanks and basins.

In addition, one official reported:

> Women used their IK on vegetables to harvest, wash and cook indigenous leafy vegetables (morogo). Women used their hands to macerate and shape the indigenous leafy vegetables into small bits and placed them on a corrugated iron roof sheet, and then sun-dried. Indigenous leafy vegetables, such as wild spinach leaves, were harvested, broken into smaller pieces, and then washed and dry them, especially, in the kitchen over the fire. These dried indigenous leafy vegetables (morogo) were used as a delight that was served and eaten with porridge. For that reason, households were provided food long after the harvesting period, making, certain food availability.

As explained by the above participants, women are endowed with IK in food processing and production that ensure continuous food security in the area. Food processed was stored in metal or plastic tanks. Processing makes food more edible, palatable and safe and preserved so it can be eaten beyond the harvest season, hence food security. Food processing is also a tool that offers greater variety in foods and increases the consumer's choice and the well-being of the households. They further add that women use the threshing platform to process food that assisted households during planting season. Indigenous leafy vegetables were harvested, washed, macerated and sun-dried then placed on a corrugated iron roof sheet by women. According to the participants, this knowledge is passed on from one generation to another. According to Tabuti (2012) and Masekoameng and Molotja (2019), women's indigenous knowledge of processing, production and preserving has improved agricultural productivity and ensured food security for centuries in Tanzania.

Participants also play a critical role in seed preparation, collection and storage of food. Seed preparation, collection and storage have been an intrinsic part of the women's traditional lifestyle in the area. Like other indigenous practices, women in the area have outstanding know-how of the unique traditional methods that have evolved over the years to collect, prepare and store seeds, which contributes to food security.

> Seeds for planting are either stored in hollowed gourd shells or wooden boxes to protect them from insects, seeds are usually mixed with cow dung, ash or walnut leaves or even smeared with oil to ward off insects and pests. The seeds of most of the crops are prepared at home by us.

> Watermelon or pumpkin seeds are removed and washed and sun-dried and stored in a sealed bottle coated with paraffin. Glass bottles allow a cool temperature while protecting seeds from pests. If dried and sealed in a bottle, the chances for pest intrusions are low. Potatoes seeds are kept in a plastic container. The seeds are stored in a plastic or container with soil and dead grass inside, and this is done to initiate germination. Grass and closed plastic or container speed the potatoes germination process.

According to the participants, seeds for planting are stored either in wooden boxes or hallowed gourd shells to protect them from insects. The participants add that pumpkin and watermelon seeds are removed and washed and sun dried and stored in a sealed bottle coated with paraffin. Storing seeds enables them to be in good physical and physiological condition from the time they are harvested until the time they are planted. According to Kotane (2009) and Ncube (2009), seeds dried and stored in glass bottles protect them from pests' invasion.

Women's contribution to food production is higher than men's, both concerning the tasks performed and time spent cultivating millets, potato, peas, onion, watermelon, beet-root and cabbages.

> During the peak season when agricultural work is in full swing most particularly planting, weeding, harvesting and land levelling (September-October), woman's workday exceeds 15 hours a day more than men.

It is worth noting that the participant believes that women perform tasks more than men during peak seasons in agricultural work. Women perform tasks such as land levelling, harvesting, planting and weeding

which is crucial in improving food security in the Lokaleng and surrounding communities. Maroyi (2012) corroborates the finding and states that except for ploughing, which is mainly male activity, and sowing, women's labour dominates in land levelling, manuring, planting, weeding, harvesting and post-harvesting activities such as sun-drying the stalks, winnowing, pounding, separating the husks from grains. Some of the operations such as manuring, weeding, harvesting, and transplanting are quite difficult and different from those carried out in the plains, such as the land levelling exercise. Even in male-dominated operations, women perform a supportive role. The findings of this study are consistent with Kalansooriya and Chandrakumara (2014) and the Food and Agriculture Organisation (2017) which confirm that men are migrating from rural areas to cities in search of paid employment thereby leaving their families to be headed by women. This has resulted in women taking on more responsibilities in agriculture, such as cattle rearing to cater for family responsibilities, including food security. Hence, more women in Lokaleng can feed and educate their families through the sale of farm produce, amidst the Russia-Ukraine war and Corona Virus pandemic which have led to food price hikes globally and in South Africa.

The official from the Department of Agriculture further revealed that inter-household co-operation constitutes an important element of on and off-field activities.

> Women have a broad knowledge about the community and have established good social networks within the community. These networks play an important role in managing resources for food security. Inter-household reciprocal knowledge and labour exchange carried out mostly by women, is a traditional support mechanism that exists in the area helps to improve food production.

> Knowledge of social network by women did not only provide an opportunity for us to socialise and share concerns and experiences, but also promotes community participation in food production.

According to these participants, women have good knowledge of social networks in the community. They have used this knowledge of social networking to improve food security through community participation. Social networks enabled some women to obtain technical information through interaction. The social network provides information, reduce

risks, and make up for defects in the formal system. According to Ugboma (2014) and Adebobola (2015), broad community knowledge of social networks plays a significant role in improving food production among women.

More so, participants and the traditional leader reported that women played a traditional role in integrating agriculture with livestock production.

> Women have learned to maintain livestock through the use of IK, such as the use of supplementary feed for livestock; and reserving pasture use by the young; sick and lactating animals in case of drought under changing climatic conditions. Using indigenous techniques to control diseases in livestock so that they can survive climate extremes is another useful tool held by women farmers.

> Some of us understand the traditional methods of preparing highly energetic coarse millets and vegetables used to feed animals, which enhance milk yield. It also provides energy to animals, particularly, during hard activities such as ploughing and sowing.

> Some women were predominantly responsible for processing animal products due to their husbands' absence, another area of indigenous expertise. Where women are involved in milk processing and marketing, they had a thorough knowledge of the fermentation process, including the effects of temperature and acidity.

As explained by the above participants, women possess indigenous techniques to control diseases in livestock so that they can survive climate extremes. Women also understand the traditional methods of preparing highly energetic coarse millets and vegetables use to feed animals, which enhance milk yield for farmers. Livestock helps with food supply, family income, agricultural diversification and asset savings. It also helps with soil productivity, transport, agricultural traction and sustainable agricultural production. Livestock production forms part of household food production since it's a source of protein.

Theme 4: Challenges women faced in IK food security

Although most women noted that IK has made them become food secure, however, some women stressed they are faced with challenges

that reduce indigenous food availability, thereby, increasing food insecurity in the area.

> Income generated from selling their produce was too small to have significantly affected their households. To them, it was only enough to enhance their survival. Consequently, the continuous increase in food poverty in the areas.

> The absence of water supply, good food, inadequate treatment and equipment, lack of education or employment and discrimination against women are some of the numerous challenges that hindered the indigenous food security in the area.

According to these participants, low income generated from the sale of produce affected them negatively. Lack of education, the absence of water and discrimination against women are also challenges facing them. These challenges result in low crop yield, inadequate food storage, hunger and malnutrition in the area.

> Young people (women) in the community have no interest in the IK systems due to modernisation. Young women are increasingly moving away from the usage of IK and techniques for food production and food security. Many households prefer to use modern Western technologies. The invasion of modernisation brought about changes in the use of community-based knowledge systems in areas of food security. These changes came with new systems of education in agriculture, which introduced new ways of farming such as the use of tractors.

As explained by the participant, young people, most particularly women are shying away from IK and food production. Most households prefer using western technologies to produce food rather than IK. Neglecting IK might hinder livelihood improvements, sustainability of indigenous food and food shortage eradication. Ndwandwe and Mudhara (2014), corroborate the dialogue on the use of IK agriculture as an alternative to colonial policies, which emphasised economic maximisation developing strategies, whereby the latter led to scientific tools being promoted while IK practices were seen as backward and of low productivity.

Christianity was also raised as another challenge affecting IK and food security in the area, as one participant reported:

> The widespread adoption of Christianity, indigenous belief and practice systems associated with the production of food, protection of the environment and preservation of biodiversity are now seen as superstitions and taboos.

Indigenous beliefs and practices such as traditional rites and sacrifice to gods of rain and water, which were done by the ancestors and passed down from generation to generation, are now perceived as evil or witchcraft as it goes against Christian beliefs. This belief limits some women's knowledge of IK on food security because they do not perform those rituals and have no access to modern technologies such as machines and fertilizers. Even though indigenous communities had values and norms that prescribed the conduct of every member of society, there are no specific laws and regulations governing food. Yet, the chief and the traditional councils were directly responsible for enforcing legal and legislative frameworks and protecting farming in the Lokaleng community.

Conclusion and recommendations

This study shows that indigenous foods are still consumed and that women's IK is still of precious benefit to food security in indigenous or rural households. Women's use of IK is very important in the production of food that improves livelihoods. The utilisation of IK technologies such as Plough pulls donkey, kraal manure and cow dung help women to produce foods such as sorghum (bogobejwamabele), maize (bopijwammopo), potatoes, millet, dikgobe (beans), tomatoes, watermelon, cabbages and spinach. Women also have vast indigenous know-how on weed management such as using hand hoes to control weeds which helps in improving food security. IK thus provides women with skills on how to use natural resources such as dish wash serving as pesticides and managing drought seasons to provide food for their families. Women also play a vital role in using IK related to rear cattle as they mostly collected fodder for cattle, milked and used cow dung for various purposes, including as an energy source. The income generated from selling their products helps them afford good health care, nutritious food, good education and proper sanitation and hygiene products for their families. This knowledge ensures food stability, accessibility, affordability and availability, in many indigenous households in the

Lokaleng community. Nevertheless, the findings also revealed that women's contribution to IK food security is hampered by many challenges that include lack of education, Christian beliefs and discrimination against women. The literacy level of women, through adult education programmes to document IK should be encouraged. Stakeholders should support and encourage women to confidently use their IK and integrate IK into policymaking and extension practice. The Department of Agriculture and other stakeholders involved should make efforts to capture, store, and disseminate IK through the use of information technology. Relevant workshops and seminars should be organised by the Department of Agriculture and other stakeholders to train and empower women involved in IK and food security. Also, it is highly proposed that IK is documented and incorporated with modern bodies of knowledge so that the two work together in contributing to household food security in Lokaleng in particular, and South Africa as a whole.

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References

Adebobola, N. (2009). Indigenous knowledge of rural women in sustainable ecology, agricultural productivity and environmental conservation in southwestern Nigeria. URL:http://www.jsdafrica.com/Jsda/Fall2004/Indigenous%20Knowledge%20of%20Rural%20Womepdf. Accessed on the 11/01/2021.

Awuor, P. (2013). Integrating Indigenous Knowledge for Food Security: Perspectives from Millennium Village Project at Bar-Sauri in Nyanza Province in Kenya. *Paper presented to the African Research and Resource Forum (ARRF) held in Kampala, Uganda, on 16–17 November 2011.*

Boven, K. &Morohashi, J. (2002). *Best practices using indigenous knowledge*. The Hague: Nuffic

Cresswell, J, W. (2015). Research Design: Qualitative, quantitative and Mixed Methods Approaches. London: SAGE Publications Inc.

Damman, S. Eide, W. B &Kuhnlein, H.V., (2010). Indigenous peoples' nutrition transition in a right to food perspective, *Foodpolicy*, 33(2), 135–155.

Department of Agriculture, Forestry & Fisheries. (2013). The Constitution of the Republic of South Africa. Pretoria: Government Printers.

Easton, P. & Ronald, M. (2000). Seeds of life: Women and agricultural biodiversity in Africa. Washington DC: World Bank.URL: https://openknowledge.worldbank.org/handle/10986/10815.Accessed on the 07/08/2021.

Food and Agricultural Organization. (2013). The Food Security Learning Framework. Rome: FAO.

Food and Agricultural Organization. (2015). Food Security Information and Guidelines: an introduction to the basic concepts of food security. Rome: FAO.

Food and Agricultural Organization. (2016). Second International Conference on Nutrition: Better Nutrition-better lives. Rome: FAO.

Food and Agricultural Organization. (2018). The State Food Insecurity in the World. Rome: FAO.

Food Agricultural Organization. IFAD, UNICEF, WFP & WHO. (2019). The state of food security and nutrition in the world 2018. Rome: FAO.

Food and Agricultural Organization. (2021). The state of food insecurity in the World. Rome: FAO.

Garutsa, T.C & Nekhwevha, F.H. (2018). Indigenous Knowledge, Food Production and Food Security in Rural Khambashe in the Eastern Cape, South Africa. *South African Review of Sociology,* 49(3), 16-31.

Hammond, R. A & Dube, L. (2011). A Systems Science Perspective and Tran disciplinary Models for Food and Nutrition Security.Center on social dynamics and policy. Washington DC: The Brookings institution.

Hochfeld, T., Graham, L., Patel, L., Moodley, J. & Ross, E. (2016). Does school breakfast make a difference? An evaluation of an in-school breakfast programme in South Africa, *International Journal of Educational Development,* 5(1): 1-9.

Ibnouf, O. F. (2011). The value of women's indigenous knowledge in food processing and preservation for achieving household food security in rural Sudan. *Journal of Food Research,* 1(1), 238-239.

Ingram Irving, S. J. (2011). From Food Production to Food Security: Developing Interdisciplinary, Regional Level Research. Wageningen: Wageningen University. (PhD Thesis)

Kalansooriya, C. W. Chandrakumara, D.P.S. (2014). Women's Role in Household Food Security in Rural Sri Lanka. *International Journal in Multidisciplinary Studies*, 6(I), 45-67.

Kamwendo, G. & Kamwendo, J. (2014). Indigenous knowledge systems and food security: Some examples from Malawi. *Journal of Human Ecology*, 48(1), 97-101.

Kilongozi, N. Kengera, Z. & Leshongo, S. (2005). *The Utilization of Indigenous Knowledge in Range Management and Forage Plants for Improving Livestock Productivity and Food Security in the Masai and Barbaig Communities.* Nairobi: FAO.

Kotane, A. (2009). The Role of Rural Women in Household Food Security and Nutrition in Limpopo Province. Limpopo: University of Venda. (Masters Dissertation)

Maroyi, A. (2012). Enhancing food security through cultivation of traditional food crops in Nhema communal area, Midlands Province, Zimbabwe.*African Journal of Agricultural Research,* 7(4), 5412-5420.

Masekoameng, M.R. & Molotja, M.C. (2019). The role of indigenous foods and indigenous knowledge systems for rural households' food security in Sekhukhune district, Limpopo Province, South Africa. *Journal of Consumer Sciences, Special Edition Food and nutrition challenges in Southern Africa*, 4(3), 102-118.

Maxwell. S. (2001). Household Food Security: A post-modern perspective. A conceptual Review. *Food Policy,* 21(2), 155-170.

Ncube, C. V. (2009). *The Economic and Social Context of Rural Women in Agriculture in South Africa.* Mahikeng: University of the North-West, South Africa. (Masters Mini-Dissertation)

Ndwandwe, S. & Mudhara, M. (2014). Contribution of indigenous knowledge practices to household food security: a case study of rural households in KwaZulu-Natal. *Indilinga African Journal of Indigenous Knowledge Systems* 13(2),271-282.

Olatokun, W. M. & Ayanbode, O. (2009). Use of indigenous knowledge by women in a Nigerian rural community. *Indian Journal of Traditional Knowledge*, 8(2), 287-295. URL: http://nopr.niscair.res.in/bitstream/123456789/3968/1/IJTK%208%282%29%20287 295.pdf. Accessed on the 12/08/2021.

Rathnayaka, I., &Weerahewa, J. (2003). Intra household allocation of calories among low income households in Sri Lanka: Impact of female source of income, progress report of the project titled "Globalization and Distribution in Sri Lanka" Funded by MIMAR, IDRC.

Sichona, A. (2009). *Women in Subsistence Agriculture in South Africa: Comparative Cases from Eastern and Northern Cape*. Kimberly: University of the Northern Cape. (MA Thesis)

Smelser, N. &Baltes, P. (2001). *International encyclopedia of the social and behavioral sciences*. London: Cambridge University Press.

Statistic South Africa. (2012). Report on the survey of large- and small-scale agriculture. Pretoria: Government Printers.

Statistics South Africa. (2019). Gross Domestic Product, Third Quarter 2019, Statistical Release P0441. Pretoria: Government Printers.

Tlhompho. G. (2014). African indigenous food security strategies and climate change adaptation in South Africa. Durban: University of KwaZulu- Natal.

Ugboma, M. U. (2014). Availability and use of indigenous knowledge amongst rural women in Nigeria. Chinese Librarianship. URL:http://www.iclc.us/cliej/cl38ugboma.pdf. Accessed on the 21/09/2021.

Van der Berg, S., Patel, L. & Bridgman, G. (2021). Food insecurity in South Africa: Evidence from NIDS-CRAM Wave 5. Pretoria: National Income Dynamics Study.