

**THE UTILISATION OF INDIGENOUS FOODS IN ENHANCING HOUSEHOLD FOOD
SECURITY IN THE RURAL AREA OF EMAPHEPHETHENI, KWAZULU-NATAL**

By

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DECLARATION

I, Anele Sthabile Bhengu declare that this dissertation represents my own work, both in conception and in execution. All sources that have been used or cited have been indicated and acknowledged by means of complete references.

A.S. Bhengu

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Philippians 4:13.

ABSTRACT

Food insecurity is predominant in rural communities. In South Africa rural households experience food and nutritional insecurity. The potential of eradicating food Insecurity through indigenous foods is enormous. The study focuses on how indigenous foods could be used to improve household food security. This study was mainly qualitative, where semi-structured and focus group discussions were used to collect data. Therefore, this study was framed under Afrocentrism theory for a theoretical explanation that African issues must be addressed from an Afrocentric rather than Eurocentric perspective. Hence, Afrocentricity befits a fundamental theoretical perspective in the study of indigenous foods. If people can reconnect with their cultural identities, the acceptance of indigenous foods could improve. Cultural continuity is related to their ability to eat indigenous foods and continue their traditional practices. It was discovered that indigenous foods were predominant source of food for the rural communities, especially to the elderly people who appreciated these foods. However, change of lifestyle was highlighted as a reason why people do not consume indigenous food more often. Limited availability and accessibility of indigenous foods was also reported. The study indicated challenges that farmers face, while community members shed light on issues such as infertile soil, lack of water, and animal trespassing. It is recommended that the idea of the value of indigenous foods needs to be reintroduced and promoted amongst the South African population. The young generation should be educated about indigenous foods. Rural households should be provided with farming inputs which could improve their agricultural productivity as most households depend on farming for extra income to sustain their families. Also, there should be promotional education via media platforms to create awareness on the importance and health benefits of consuming indigenous foods. Households should be encouraged and educated about nutritious eating throughout life.

Key words: Food security, Household, Indigenous Foods, Indigenous Knowledge

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CHAPTER ONE

ORIENTATION OF THE STUDY

1.1. INTRODUCTION

This study stems from the simple fact that food security is an aspect that ultimately filters down to not only the well-being of the country and its citizens but also society and the economy. Mbeyane (2016) asserts that rural communities are rich in indigenous crops which could enhance food security and avert malnutrition. Many rural communities in South Africa have access to indigenous crops that are rich in micronutrients and which are likely to serve as a long-term strategy to eliminate food insecurity at household level. Furthermore, most food crops are produced using indigenous and community- based indigenous knowledge systems. Goldberg and Magsumbol (2015) identify a wide diversity of indigenous foods available for consumption from the natural environment of Oraon tribes (Canada), many of which were rich sources of micronutrients. South Africa possesses an enormous diversity of indigenous crops (Department of Agriculture, Forestry and Fisheries, 2013), but there has been a continuous decline in the utilisation of indigenous foods mainly because of dietary changes due to nutrition transition. Today, indigenous foods are largely only used by small- scale farmers and communities who are perceived as being poor. The use of indigenous foods has slowly lessened, yet these foods provide adequate nutrition (Vilakati, 2016).

Uncomfortable statistics reveal that about 13 million South Africans go to bed hungry every day, with the hungriest people found in KwaZulu-Natal (87%), which is dominated by rural areas (Kundal, 2015), and the largest percentage of participants who experience food insecurity are found in rural areas (37.0%) (Mbeyane, 2016). Therefore, the study was conducted in Emaphephetheni, a rural area of KwaZulu- Natal, where food insecurity is still remarkably high (Hendriks and Shisanya, 2011). The Food and Agriculture Organization of the United Nations (FAO, 2014) emphasised that Indigenous people in rural areas often possess and consume food resources that are not completely understood by mainstream agriculture and health sectors. Many of these foods are extremely nutritious and offer tremendous opportunities to boost food security and nutrition as well as rural livelihoods (Durst and Bayasgalanbat, 2014).

1.2. BACKGROUND OF THE STUDY

Gordon *et al.*, (2018) state that over the year's indigenous people have long relied on indigenous foods, as they are nutritionally, culturally, and economically important to individuals and communities (Steiner, 2019). In rural areas, people used to produce their own food based on the wisdom they inherited from their ancestors and there was no hunger as indigenous people hunted their own food (Cherofsky, 2013). However, the introduction of western diets has led indigenous foods to be less predominant in the diets of indigenous people and knowledge on indigenous food has been eroded (Dweba, *et al.*, 2004; Okeke *et al.*, 2009; Traoré *et al.*, 2017). Hence, the importance of indigenous foods has been lost, even though indigenous foods can play a significant role in food security and poverty alleviation for most rural households (Mbhenyane, 2017; Ssremba *et al.*, 2017). However, a current report indicates that in South Africa 13, 7 million people are food insecure (Mpofu, 2019). The situation regarding household food insecurity in South Africa is that the country has a predominance of food availability but that some households have inadequate access to nutritious foods (Labadarios *et al.*, 2009; Haese *et al.*, 2013). Food insecurity on the African continent could be mitigated and even sustainably reversed using indigenous knowledge, because in the past, indigenous communities have used their knowledge to ensure food and livelihood security (Hart and Vorster, 2006; Kuhnlein, 2014; Iloka 2017; Barker, 2017). Therefore, this means that people should reconnect with their cultural identities, as this could increase the acceptance of indigenous foods (Cidro *et al.*, 2014). Promotion of indigenous foods not only assists indigenous people in gaining greater independence and self-determination, but also promotes their health (Kuhnlein, 2007). Indigenous people's overall health, well-being and cultural continuity are directly related to their ability to eat indigenous foods and continue their traditional practices (Woodley *et al.*, 2009). This means that people should consume food that they are familiar and comfortable with, but another issue here is availability of familiar foods, bearing in mind that food differs from region to region) Food Forward Organisation, (2017). Hendriks and McIntyre (2016) assert that people are not getting the nutrients they need, which eventually leads to micronutrient deficiencies. Poor rural South Africans have a basic diet that lacks fruit and vegetables, items which play a huge role in nutrition.

1.3. STATEMENT OF THE PROBLEM

Food insecurity is a major issue in developing countries including South Africa which leads to hunger, malnutrition, negative effects on health and a decreased quality of life, particularly at household level. Rural communities have been often regarded as food insecure, yet many indigenous communities are known to be rich in indigenous foods which could principally play a functional role in alleviating home food insecurity, but the issue is whether communities see the importance of indigenous food and its potential role in nutrition as there is a negative attitude towards indigenous foods which are often regarded as “foods for the poor”. Many studies, such as Mpala *et al.*, (2015); Cloete, Van der Merwe, Van der Hoeven (2016); Kasimba *et al.*, (2017); Mbheyane, (2017) have concluded that indigenous foods may have the potential to improve food security. It has also been discovered by Woodman, (2014) that dieticians support and encourage indigenous food. The study intended to contribute to the valuing of the importance of utilising indigenous foods as a means to improve food security. This study will make a meaningful contribution to the existing literature and could be used as a point of reference when developing interventions related to food security programmes at household level, particularly in rural areas.

1.4. AIM OF THE STUDY

The aim of the study was to analyse the utilisation of indigenous foods to the enhancement of food security at household level.

1.5. THE SPECIFIC OBJECTIVES

The Study objectives were as follows:

- 1.5.1. To identify indigenous foods available in the study area
- 1.5.2. To analyse the accessibility of indigenous foods in the study area
- 1.5.3. To analyse the utilisation of indigenous foods at household level
- 1.5.4. To determine whether indigenous foods improve food security

1.6. RESEARCH QUESTIONS

1.6.1. Primary Question

How are indigenous foods utilised in the study area?

1.6.2. Secondary Questions

- Are indigenous foods available in the study area?
- How are the indigenous foods accessed in the study area?
- Are the available indigenous foods utilised at household level?
- How do the indigenous foods improve food security?

1.7. SIGNIFICANCE OF THE STUDY

Food insecurity is known to be more prominent in rural areas. It is recognised that indigenous foods play a crucial role in enhancing food security in rural communities, something which has been discussed in numerous other bodies of knowledge. Therefore, this research intended to analyse the utilisation of indigenous foods in enhancing food security. Through this research, the foundation for a greater understanding of indigenous foods has been laid and the drive for food security to be achieved through this route has been highlighted. Indigenous food plays a huge role in sustaining the well-being and health of indigenous people, yet it is unnoticed and the level of consumption of these foods has declined (Remi *et al.*, 2005; Traoré *et al.*, 2017). This study could potentially encourage community members to continue consuming indigenous foods. Also, the study could serve as valuable information to encourage the youth in consuming indigenous food and to recognise the significant role of indigenous foods in well- balanced diets. Hence, including these indigenous foods in their daily diets would not only add on to the nutritional value of the diet but also serve as functional foods (Matenge *et al.*, 2017). The study would help policy makers, government and relevant stakeholders to play a sustainable and significant role in ensuring food security in rural households. The study contributes to the existing body of knowledge in the field of the study for further research on the contribution of indigenous food to alleviating food insecurity in rural households.

1.8. RESEARCH METHODOLOGY

The study employed a qualitative approach. A qualitative approach was appropriate for this study because the researcher focused mainly on participants' perspective on indigenous foods, Leedy (2000) supports this by asserting that the aim of qualitative research is to understand indigenous foods from participants' point of view. The rationale for using this method was to explore and describe life experiences and capture opinions of indigenous knowledge holders and community members regarding indigenous foods and food security. The researcher used purposive sampling, whereby participants were elected by virtue of their knowledge and experience, to determine the kind of information needed for the study. Data was collected by means of semi-structured interviews with key informants (indigenous knowledge holders), and focus group discussions (community members) were held to provide detailed information on indigenous food consumption in the community. Data was analysed through thematic analysis. In-depth information on research methodology and data analysis are given in chapters three and four.

1.9. OPERATIONAL CONCEPTS

The conceptual definitions provides an understanding of common concepts as they are used in this study.

Indigenous foods: Indigenous foods are cultural foods consumed by a particular group of native people. These foods are commonly from the natural environment and are foods that cannot be found in imported and processed foods. They provide food that is appropriate for the human body. With their perfect design, they provide fuel that enhances our body's tremendous capacity to nurture, heal and regenerate (Kuhnlein and Turner, 1996). In the context of this study, indigenous foods are linked with indigenous knowledge, a term which refers to the cultural tradition of sharing food, skills, techniques and cultural beliefs which are carried from generation to generation through the cooking techniques used. Indigenous food knowledge can be a means of asserting cultural identity, and transmitting this knowledge may contribute to personal skills that relate to food security, nutrition and enhanced community capacity (Kwik, 2008; Yohannes, 2009).

Food security: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". (World Food Summit, 1996). For the purpose of this study,

Averbeke and Khosa (2007) state that household food security means adequate access by all household members at all times to safe and nutritious food for a healthy and productive life.

Food insecurity: Food insecurity occurs when people have insufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life (FAO, 2009). In this study food insecurity refers to lack of access to enough good, healthy, and culturally appropriate food. Culturally appropriate food means that people have food that they are familiar and comfortable with. It is also about knowing how to shop for it or select it, and prepare and cook it (Food Forward Organisation, 2017).

1.10 ORGANISATION OF THE DISSERTATION

The structure of the dissertation is discussed in this section. This study was organised into five chapters.

Chapter 1 presents the context of the study by highlighting the background, research problem, the aim of the study, objectives, the research questions that the study focused on, brief overview of methods adopted, operational definitions and selection of the study area. **Chapter 2** gives a comprehensive review of related literature, and synthesises literature relevant to the study in order to establish the gaps in the study. This chapter also discusses the framework of the study and how it relates to the central issue of the study. **Chapter 3** highlights the methods used and the techniques employed in data collection and analysis. It explains the research design, and sampling procedure. An overview of the paradigm is also presented. **Chapter 4** presents the research results of the data gathered. The results of this study are based on interviews and focus group discussions conducted in the study area. **Chapter 5** presents the conclusion and recommendations on how to enhance food security through the promotion of indigenous foods.

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

This chapter explores the existing literature which critically discusses how indigenous foods can improve a household food security. Through this chapter, a greater understanding of indigenous foods is fostered and the drive for food security through indigenous foods as the strategy to household food security is highlighted. This chapter provides a deeper insight into the value behind the indigenous knowledge held within rural communities. Indigenous knowledge has been utilised in numerous ways by the local people and it has worked for them whether in areas of agriculture, health, food storage, processing, or preservation systems. As, in rural areas, farming is still predominant farming is much impacted by the indigenous knowledge the rural people practise. Over the years, indigenous communities have used their indigenous knowledge to ensure food and livelihood security in sometimes harsh and fragile ecosystems (Kuhnlein, 2014). This chapter further discusses Afrocentric theory in relation to indigenous ways of addressing African issues. This theory advocates replacing Eurocentric ways of thinking with our own cultural experiences, because people in rural communities hold enormous indigenous knowledge that could be of solution in tackling food insecurity in rural households.

2.2 DESCRIPTION OF INDIGENOUS FOODS

The Food and Agriculture Organization (2015) describes indigenous food as cultural foods from a particular group of people, which originate from the natural environment. Indigenous food systems include all types of food that are available to a specific cultural group from its local natural resources and the customary forms for their use within that culture. This includes the sociocultural meanings of these foods, their acquisition, processing, and use within that culture (Elliott *et al.*, 2012). The food systems of indigenous people often include “indigenous foods”, that is, those that are not purchased but obtained locally from the natural environment. They are chiefly procured either through farming or wild harvesting and utilised based on traditional wisdom and knowledge (Ghosh-Jeratha *et al.*, 2016).

Over the centuries, indigenous people have often relied on locally produced and gathered food, something which connected communities with their diverse backgrounds. In addition, traditional food systems have supported the cultural knowledge, identities and institutions among and between individual tribes. People in rural areas shifted from hunting and gathering to planting, meaning that agriculture became a backbone of food systems (Hueston and McLeod, 2012). As a result, indigenous foods and food systems are closely linked with indigenous knowledge (Kuhnlein, 2009; Vazquez, 2011). Food systems are embedded in historical legacy and unique cultural knowledge (Kuhnlein *et al.*, 2018) and there is high potential for food systems to sustain diets. Kuhnlein, (1996) further elaborates that food systems contain micronutrients that have been poorly labelled. Indigenous people are disadvantaged people, yet their indigenous knowledge can enhance their own micronutrient status. Indigenous food systems should be given sufficient attention for their valuable knowledge. Worldwide, indigenous food systems can improve sustainable food systems and develop more sustainable diet globally (Kuhnlein *et al.*, 2018).

2.3 INDIGENOUS FOODS AND FOOD SECURITY AT THE GLOBAL LEVEL

In the United States, Canada and Australia studies cite colonialism, barriers to accessing indigenous foods, dietary transition, diet and health, food and livelihood change and the costs of commercial or market based foods as the major causes of food insecurity (Lambden *et al.*, 2006; Socha *et al.*, 2012; Skinner *et al.*, 2013; Pal *et al.*, 2013; Skinner *et al.*, 2014). Canadian scholars, including Lambden, Receveur and Kuhnlein (2008), Skinner *et al.*, (2013), Gordon *et al.*, (2018) maintain that Indigenous foods are vital to the health and culture of the Aboriginal peoples of Canada and are widely recognised as contributing to physical, social and spiritual well-being. Tribal communities in India are a good example of indigenous populations with a vast diversity in their cultures, traditions, and environments. The numerous indigenous foods that exist in the Indian tribal environment reflect the rich biodiversity of India that can be potentially used to promote food security, nutrition, and health (International Fund for Agricultural Development 2003; Singh *et al.*, 2006). Some of these indigenous foods (Jondra/desi makka- maize, puthi-fish, bada ghangra-beans) have been analysed and documented from different regions across India (Ghosh-Jeratha *et al.*, 2016). However, their nutritive value should be examined and indigenous foods are still to evolve in the nationwide database (Ghosh-Jeratha *et al.*, 2016). Furthermore, Ravishankar *et al.*,

(2011) note that in some parts of the country, there is little documentation regarding the use of indigenous foods. Ravishankar *et al.*, (2011) posit that the recognition of indigenous foods could improve the dietary status of the populace, particularly at household level, and provide opportunities to enhance their livelihoods. In rural areas, some indigenous people produce indigenous foods for family consumption while others produce to sell (Periare, Drimmie, 2016).

2.4 INDIGENOUS FOOD IN THE AFRICAN CONTEXT

Africa is rich in various types of food produce and possesses diverse indigenous knowledge systems for their preservation and storage. Therefore, the use of indigenous knowledge in solving food insecurity remains a powerful means of sustaining household food security. The African continent has a great amount of arable land to feed its growing population and beyond, yet the continent remains the most impoverished in food security (Asogwa *et al.*, 2017). However, Chivenge *et al.*, (2015) argues that South Africa has underutilised land in rural tribal areas, which could be used productively for agriculture to enhance food security. Supporting this, Nzimande (2014) states that there is land that can be used for communal gardens and homestead farming but rural people still face food insecurity.

African indigenous vegetable species originated in Africa (Kamga *et al.*, 2016; Syfert *et al.*, 2016) and they are referred to as “traditional African vegetables”. They are either indigenous (originated from the continent) or from outside Africa (Von Grebmer *et al.*, 2015). Indigenous foods (Mbhenyane, 2017; Ssremba *et al.*, 2017) can play a significant role in addressing household food insecurity through utilisation and income generation for most households. However, the persisting challenge is that African indigenous vegetables are regarded as being a biodiversity loss attributable mainly to human activity, bush fires and prolonged drought (Alexandratos and Brumsma, 2012). Their decline in diversity compromises their contribution to food security and livelihoods in rural areas.

Stone *et al.*, (2011); Agoreyo *et al.* (2012); Ayaz *et al.*, (2015) state that most of the species found in Uganda were indigenous rather than introduced vegetable species, based on survey results which indicated that African indigenous vegetable species (AIVS) are becoming increasingly more important in Uganda than their introduced vegetable species (Ssremba, *et al.*, 2017). This shows interest in indigenous vegetables and that people still consume indigenous food regardless of the availability of introduced vegetables. It has been reported that African indigenous vegetables species have higher levels of micronutrients and essential minerals, as well as protein, than introduced vegetable species (Bisamaza and Banadda, 2017; Ojiewo *et al.*, 2013; Pincus, 2015). In Africa, there has been commercial interest of farmers in indigenous species (FAO, 2013; Ebert, 2014; Onyango, 2014; Pincus, 2015).

2.5 INDIGENOUS FOODS IN THE SOUTH AFRICAN CONTEXT

In South Africa, more than 100 species of plants are used as indigenous vegetables (Sseremba *et al.*, 2017). Various studies Cocks and Wiersum, 2003; Afolayan and Flyman, 2006; Afolayan and Jimoh, 2009 have been conducted in South Africa on indigenous vegetables, some of which have focused on the availability and extent of utilisation of wild vegetables in northern KwaZulu-Natal (Lewu and Mavengahama, 2011).

Nengovhela *et al.*, (2018) note that rural households in South Africa experience food and nutritional insecurity. In rural areas, a great many people are food insecure and chronically hungry. They are affected by malnutrition, and lacking micronutrients can affect the productive capacity of a person (UNICEF, 2004; FAO, 2014). Lack of micronutrients include fruits and indigenous vegetables, but Smith and Longvah (2008) contend that disadvantaged people cannot afford these vegetables. On the other hand, Modi (2006) stresses that Indigenous leafy vegetables (ILVs) in food security has not been given sufficient attention in South Africa. There are inadequate interventions that seek to encourage people to produce and use indigenous foods as a source of essential nutrients for people who are food insecure in rural communities. Though, Jansen van Rensburg *et al.*, (2004) show the value of indigenous leafy vegetables, a study conducted at Coffee

Bay revealed that most people in the area utilise indigenous foods, especially poor people who highly depend on them as their source of food (Mayekiso *et al.*, 2017).

Numerous studies Kalaba (2009); Legwaila *et al.*, (2011); Mafongoya and Ajayi (2017) advocate that people living in rural areas highly depend on indigenous vegetables for cash income to sustain their families. Therefore, rural communities sell their surplus production to gain income (Nzimande, 2014). Furthermore, Cidro *et al.*, (2018) observe that the importance of indigenous foods has been unnoticed, yet food security mainly focuses on issues around ‘access and availability’ of food. As a result, the inaccessibility of African indigenous vegetables has led to a decrease in consumption as most households opt for cheaper and more readily available foods (Musotsi *et al.*, 2017).

2.6 INDIGENOUS KNOWLEDGE SYSTEMS AND INDIGENOUS FOODS

Warren (1991); Semali and Kincheloe (1999) describe indigenous knowledge as a body of knowledge attained by indigenous people through the accumulation of experiences and understanding of their environment. Maurial, (1999) and Reynar (1999) state that indigenous knowledge is holistic and not written down, but rather passed down from generation to generation in verbal form. Warren (1991) and Mkabela (2006) understand indigenous knowledge as the traditional knowledge that is implanted in people’s culture which is part of their everyday lives, sustaining their livelihoods as a populace. A study conducted in Uganda by Agea *et al.*, (2008) is an exceptional example of rural people still using their indigenous practices in sustaining their livelihoods and household food security.

Indigenous knowledge represents a valuable source of local solutions to household food insecurity (Ibnouf, 2012). The elders in rural communities hold enormous wisdom which is both ecological and social knowledge to offer solutions to common societal problems (Awuor, 2013). Therefore, previous studies on food security and indigenous knowledge advocates that food insecurity can be alleviated and sustainably reversed through the use of indigenous knowledge in farming (Oniang’O *et al.*, 2004; Thamaga-Chitja *et al.*, 2004; Vorster and Van Rensburg, 2005; Hart and

Vorster, 2006; Modi *et al.*, 2006; Vorster *et al.*, 2008; Hart, 2011). Over the centuries, people in rural areas have been accessing food through farming and wild food harvesting (FMARD, 2015) using their cultural indigenous knowledge. In this regard indigenous farming has contributed immensely to food security (FAO, 2015). Hence, people in rural communities farmed indigenous vegetables such as horchorus capsularis and Moringa lleifera. Moreover, to attain food security in households indigenous farming techniques should be innovative (Oloko, 2016).

2.7 INDINGENOUS KNOWLEDGE IN RURAL COMMUNITIES

Food insecurity is prevalent in rural communities; it is associated with not knowing if you will have enough to eat, and the consequences of not being able to put enough food on the table (Leroux *et al.*, 2018). African societies are regarded as poor and are exposed to hunger, poverty and malnutrition, and more solutions are required to enable each household to feed for themselves. It is within this perspective that food insecure rural households should be encouraged to utilise indigenous African food crops (Masekoameng, 2007). Indigenous knowledge is now measured as one of the cornerstones that can assure survival of rural communities with regard to food and nutrition security (Awuor, 2013). Rural communities depend on indigenous knowledge, particularly in subsistence agriculture and in solving food insecurity. Hence, people in rural communities use their own knowledge of indigenous foods (Morrison and Ostry, 2008; Ibnouf, 2008 and 2012). Indigenous people possess extensive knowledge about food production, processing and preserving. Studies (Ali, 1997; Elsiddig, 2006; Ibnouf, 2008) have also revealed that traditional knowledge has played a vital role in coping with periods of food scarcity and famine in rural communities.

2.8 TYPES OF SOUTH AFRICAN INDIGENOUS FOODS

Indigenous food dishes are known to have nutritional value. Modi (2006) has emphasised that wild vegetables are comparable to or better than conventional vegetables with regard to some nutrients. (Department: Agriculture, Forestry and Fisheries, 2013). In South Africa, the main growing areas of traditional vegetables are in Kwazulu-Natal, Limpopo, Mpumalanga, and North West. These

fast-growing vegetables could contribute even more vitally to nutrition, food security and rural prosperity.

The vegetables which have the largest source of nutrients are amaranthus, *amadumbe*, *moringa*, and Cowpea. Amaranthus, *imifino* (Traditional edible leafy vegetables) and *morogo* - are arguably the most consumed boiled greens throughout Africa and are harvested in the wild; their leaves provide vitamin C and readily accumulate dietary minerals (Goweke *et al.*, 2019). These traditional leafy vegetables have become a reality for most rural people and hold an important place in well balanced diets (Yang and Keding, 2009; Kamble and Jadhav, 2013). Consuming amaranthus can contribute in alleviating a lack of micronutrients and malnutrition and can prevent diseases such as cancer because of the cell protective effects of its relatively high antioxidant content (WRC and DAFF, 2012). The most popular leafy vegetable is *imbuya* (*Amaranthus hybridus*), also called rough pigweed, found in the Eastern Cape and KwaZulu- Natal), it is rich in carbohydrate and protein and its leaves are often used as a spinach substitute (Hollins, 2015).

Moringa is produced well in marginal growing conditions and is a reliable source of greens in seasons (National Research Council, 2006) as it provides all essential amino acids, vitamins A, B, and C and minerals. However, most people are not aware of the nutritional benefits *moringa* has (Reyes *et al.*, 2006 and Owusu *et al.*, 2008). It can enhance nutrition, rural development and food security. Studies conducted by Fuglie (1999); Dhakar *et al.*, (2011); Srikanth *et al.*, (2014) have shown that *moringa* can treat both protein and energy malnutrition and feed undernourished infants in countries where the *Moringa* tree is available (Sujatha, 2017). Food products such as yoghurt, soups, biscuits, bread, and cake including *moringa* have been developed and have emerged in the markets (World Health Organization, 2012; Daba, 2016).

Taro, also known in the rural areas of KwaZulu-Natal as *amadumbe*, can alleviate food insecurity and is grown as staple food (Mare and Modi, 2012). In rural households *amadumbe* are consumed in different ways including boiled, mashed, and roasted. Sometimes the leaves are eaten as spinach and provide a supplement to maize (Hollins, 2015). In Southern and Eastern Africa and

other parts of Africa cowpea leaves are enjoyed and utilised as vegetables, like the other leafy vegetables mentioned cowpea can promote human health (Igbatim *et al.*, 2014; Amadioha, Enyiukwu and Ononuju, 2018). It is inexpensive, easily available and contains protein, minerals and microelements that enrich the nutritional status of rural people (Okonya and Maas, 2014). Cowpea is a remedy for various illnesses such as diabetes, high blood pressure, heart failure, cancer, depression, dementia and osteoporosis (Amadioha, Enyiukwu and Ononuju, 2018).

Moreover, wild vegetables are easy to cook and have a very good taste without the addition of any spices, cooking oil, or food additives (Kamble and Jadhav, 2013; Kasimba *et al.*, 2017), which makes these vegetables healthy and nutritious. Studies reiterate (Croft, 2016; Mwema *et al.*, 2018) that African leafy vegetables play a significant role in food security. The (USAID, 1992) argues that food security can only be improved when African leafy vegetables are available, accessible, and used at a scale that meets the needs of the population.

2.9 BENEFITS OF INDIGENOUS FOOD CONSUMPTION

Conveying knowledge about the benefits of indigenous foods can create awareness of the importance of these foods, which could encourage the consumption of indigenous foods (Bruin, 2018). As wild vegetables provide a source of livelihood in rural communities, their domestication can contribute to solving problems of nutritional deficiencies in South Africa and other developing countries (Dovie *et al.*, 2007 and Mhlonto *et al.*, 2007).

2.9.1 NUTRITIONAL VALUE OF INDIGENOUS FOODS

In developing countries, many people do not have access nutritious food to meet their daily requirements. Additionally, the majority of people are deficient in one or more micronutrients (FAO, 2012). The comprehensive definition of food security indicates that for an active and healthy life people at all times should have physical and economic access to sufficient, safe, nutritious foods to meet their dietary needs and food preferences (FAO, 1996). This definition compliments the nutritional value of food, so it is vital that people consume food that is healthy and nutritious. Ineke *et al.*, (2007) indicate that local communities in South Africa grow traditional

vegetables as sources of food security and important micronutrients such as iron, vitamins A and C, zinc, folate, dietary fibre, proteins and other minerals that are essential for the prevention and treatment of various infections. Therefore, inclusion of these vegetables in the daily diet will not only add on to the nutritional value of the diet but also serve as functional foods (Matenge *et al.*, 2017).

Many studies have specified that indigenous leafy vegetables in Africa contain a high level of micronutrients (Steyn *et al.*, 2001; Odhav *et al.*, 2007; Makobo *et al.*, 2010). Indigenous foods are very healthy and are of high quality in terms of freshness, and it is that naturalness in them that makes them remarkably healthy and nutritious (Matenge *et al.*, 2012). Indigenous foods compared to commercial foods have benefits of nourishing the body and spirit, and being an anchor to culture and personal well-being, and is a vital agent in promoting holistic health (Willows *et al.*, 2011). Many studies have revealed that indigenous foods contain high amounts of nutrients, less fat and sodium, and fewer carbohydrates than market foods (Sabry and Evers, 1991; Kuhnlein, Soueida and Receveur, 1996; Wein, 1996; Receveur, Boulay and Kuhnlein, 1997; Simoneau and Receveur, 2000; Egeland *et al.*, 2004; Downs *et al.*, 2009). Therefore, traditional foods are major contributors of protein, vitamin D, iron, and zinc (Chan *et al.*, 2011). In addition, fruit and vegetables are vital in improving the nutritional quality of diets in rural communities (Brimblecombe, Ferguson, Liberato, O'Dea, 2013). The promotion of healthy living and chronic disease prevention is based on the ability of individuals and communities to make healthy choices (Fieldhouse and Thompson, 2012). People in rural communities are characterised by a poor-quality diet, contributing to the burden of disease, but this ought to be addressed by health education (Ferguson *et al.*, 2016). Blacks *et al.*, (2008); Hendriks *et al.*, (2016) state that poor rural South Africans have a largely starch based diet- maize and bread that lacks fruit and vegetable. An estimated 47%–53% of black South Africans are affected by poverty, with the largest proportion of poor households being found in KwaZulu-Natal (KZN). Such poor households are often at a high risk of malnutrition as they cannot afford a balanced diet (NIDS, 2016; Wenhold, 2012).

2.9.2 INDIGENOUS FOODS AS TRADITIONAL MEDICINE

Indigenous leafy vegetables are the most functional food for reducing the risk of conditions such as hypertension, obesity, and cardiovascular diseases (Laird *et al.*, 2017 and Aworh, 2018). The incidence of these diseases in Africa has been attributed to changing dietary practices and food consumption patterns in which African traditional diets are replaced with western alternatives (Legwegoh and Horvoka, 2016). Hence, in Africa the consumption of convenience foods is allied to westernisation food patterns. In addition, traditional vegetables are used as traditional medicine (Adebooye and Opabode, 2004). A study conducted by Lephole (2004) revealed that that most people use traditional vegetables to treat hypertension and diabetes. Singh *et al.*, (2012) elaborated that *Ongin* are leaves used as vegetables to cure diabetes and *apatare* are leaves used to treat hypertension. There are various indigenous plants and vegetables considered nutritionally and medicinally rich.

2.10 YOUTH AND INDIGENOUS FOODS

Indigenous foods may appear less attractive to people who have no experience of or are not accustomed to them as foods. As a result, indigenous food may be excluded from their diet (Modi, 2009). Dissimilarities in perceptions of food are seen in different locations and among different age groups (Lambden *et al.*, 2007). Younger generations, especially Africans, do not consume indigenous leafy vegetables because of their unfamiliar taste or ignorance on how to prepare them (Orech *et al.*, 2005). In Western Sumatra indigenous cuisine is very popular among local people, including young people (David, 2014). There is a perception that young people are not interested in farming and that it is mostly preserved for older people. In the Oneida nation of Wisconsin Vazquez, (2011) states that young people have taken the initiative in learning more about gardening. They visit elders' homes and build traditional raised bed gardens while, in return, the elders share some of their knowledge and stories of indigenous foods.

On the other hand, in India Singh *et al.*, (2012) argue that due to cultural erosion, younger generations do not have the opportunity or the interest to interact with elders for learning about the local foods. This is because young people have their own preferences in appetite and style and they

have their own opinion regarding indigenous food (David and Darwin, 2014). Therefore, they prefer market foods, which means that food culture is changing. But Egeland *et al.*, (2009 and 2013) speculate that the present generation may appreciate indigenous foods in future when they are older.

2.11 ELDERS AND INDIGENOUS FOODS

Cloete and Idsard (2013) found that indigenous foods are also perceived to be “old fashioned” food. It is assumed that older people prepare and consume these specific foods because they have the knowledge, skills and time to prepare it. To alleviate food insecurity in households, the older generation have started home grown produce to increase the availability of nutrient rich indigenous foods, thereby contributing to self-reliance and indigenous knowledge (Matenge *et al.*, 2012).

Elders in (Canada) Nuxalk community are passionate and knowledgeable about these plants, especially wild spinach, and their importance in good nutrition (Kuhnlein *et al.*, 2013). In contrast, another study by Kansiime *et al.*, (2018) found that although indigenous traditional plants were perceived to be nutritious because they had been consumed by previous generations, there is little awareness of the importance of these plants. Nonetheless, elders have reported generational loss of traditional knowledge and young people often have not acquired a taste for traditional foods, preferring instead to consume less nutritious market foods (Kuhnlein and Receveur, 1996; Chan *et al.*, 2006). The knowledge of wild leafy vegetables may be lost in the near future, unless efforts are made to educate younger generations about their importance (Kamble and Jadhav, 2013).

2.12 AVAILABILITY OF INDIGENOUS FOODS IN HOUSEHOLDS

Indigenous foods are healthy, but not always available (Socha *et al.*, 2011). The availability of indigenous foods can be compromised if they grow among planted crops, as the farmers who are less knowledgeable may regard them as ‘weeds’ and hence destroy them with herbicides (Van der Hoeven *et al.*, 2013). In addition, the edible leafy indigenous plants and fruits are mostly found in the bushes, on farms and in fields and areas where water is widely available, hence droughts affects their availability. Although, some indigenous foods are available at certain times of the year and

it is during those periods that the indigenous plants are mostly used. Therefore, seasonal availability of indigenous foods affects the regularity of consumption of these foods in North West Province, South Africa (Van der Hoeven *et al.*, 2013).

Furthermore, in Canada Elliott *et al.*, (2012) advocate that indigenous foods should not be a privilege (for the wealthy); it should be available for all individuals. However, healthy foods are expensive and not always available, which emphasises the necessity for home grown foods when others are not available (Willem *et al.*, 2007; Mkhawani *et al.*, 2016).

2.13 UTILISATION OF INDIGENOUS FOOD

Indigenous knowledge helps communities to cope with periodic food shortages by utilising traditional knowledge in preserving food and increasing food production, which then ensures food security (Mhache, 2017).

2.13.1 UTILISATION OF INDIGENOUS FOODS IN RURAL AREAS

Rural households are at risk of food insecurity, since there is scarcity of adequate resources which includes land and low income (Lemke and Delomier, 2017). Due to South African high food prices 21.3% of the people in rural households have limited access to food (Statistics South Africa, 2018). These rural households are constrained by purchasing power and therefore struggle to endure high food prices (Alexander and Dudley, 2017). In South Africa, indigenous plants are harvested in the wild or grow in household gardens. Rural communities rely on native plants of Africa and others that originate globally (Hart, Vorster, 2006). In rural areas, indigenous people produce indigenous foods for their family consumption however, some indigenous people produce indigenous foods in order to sell them (Periare, Drimie, 2016). Through their hungry season, rural people grow traditional food plants near their homes. Many of these crops are drought-resistant and can be grown without expensive inputs (Katz and Weaver, 2003).

In urban areas indigenous food security is becoming a huge concern (Skinner *et al.*, 2016). Access to indigenous foods in urban areas may be problematic, because in some communities these foods

are not available, even for purchasing (Foley, 2005 and Cidro *et al.*, 2015). It is also the loss of required skills to process traditional foods. Therefore, loss of indigenous knowledge causes low utilisation (Modi, 2006; Elliott *et al.*, 2012). In urban areas there is no cultivation of indigenous crops (Matenge *et al.*, 2011). Consequently, indigenous people in urban settings have more access to market foods rather than indigenous foods, and there are barriers in accessing indigenous foods in the cities (Subnath, 2017). However, Kerpan *et al.*, (2015) contend that not everyone in urban areas can afford food in supermarkets, therefore there is limited access to affordable and healthy foods. As a result, the change in dietary food patterns embraces unhealthy processed foods and reduced intake of nutrients (Willows, 2005 and Chan *et al.*, 2006). Moreover, Hurtig and Loiske (2009) convenience foods are gradually replacing indigenous foods, but it has to be said that these foods fit in with the hectic life of urban areas. With the influence of globalisation, urban diets often include readymade meals and processed food, which are usually low in vitamins, minerals and fibre. Unbalanced diets lead to malnutrition and nutrition-related chronic diseases (FAO, 2008).

2.13.2 UNDERUTILISED INDIGENOUS VEGETABLES

Underutilised foods refers to foods which are less available, less utilised or rarely used by a specific region (Haq and William, 2002). Underutilised indigenous crops are often characterised by limited development relative to their potential (Mabhaudhi *et al.*, 2018). Indigenous vegetables have been a part of traditional diets in communities worldwide but many of these crops are underutilised and their nutritional value is unfamiliar (Keatinge, 2012). The introduction of exotic vegetables into markets has meant that indigenous vegetables have been neglected by consumers. Therefore, the level of consumption of these vegetables has declined and lack of knowledge regarding these vegetables has been highlighted as reasons for their low use (Remi *et al.*, 2005 and Traoré *et al.*, 2017). These underutilised vegetables are a good source of protein, carbohydrates, micronutrients and vitamins, which are relevant to food security (Ashraf *et al.*, 2018). Even though it has been found that native plants are rich in nutrients, easily adapt to boundary conditions and therefore, are a source of sustainable and nutritious food (Chivenge *et al.*, 2015), indigenous vegetables still remain underutilised and perceived as weed. Even extension personnel usually encourage farmers not to keep the ‘weed’, thus labelling this important food as not worthy of the space it occupies (Willem *et al.*, 2007).

On the other hand, Ashraf *et al.*, (2018) clarify that the purchasing power of disadvantaged people is constrained by expensive vegetables and fruits. However, to fight hunger the solution lies in filling the gap with underutilised vegetables and fruit. Moreover, vegetables species that have potential to contribute to energy, proteins, vitamins and minerals and maintain the livelihood of people in rural communities are available but not commercially planted (Ashraf *et al.*, 2018). Disputing this, Ebert (2014) states that not all underutilised indigenous crops can be easily commercialised. Yet food security can be sustained with the use of neglected crops (Kahane *et al.*, 2013). Nevertheless, the World Health Organisation (WHO) has made strides in some African countries promoting the utilisation of traditional vegetables for food and nutrition security. South Africa is no different from other African countries as food and nutrition insecurity is still a challenge at household level. Moreover, Mabhaudhi *et al.*, (2018) advocate that underutilised local plants can be an alternative for bridging the gap between nutrition and food security, especially in rural areas. However, Dansi *et al.*, (2012) argue that in most countries indigenous crops that have potential are less utilised. Similarly, various studies Ebert *et al.*, (2014); Noriega, (2014); Chivenge *et al.*, (2015); Akwee *et al.*, (2015); Galluzzi *et al.*, (2015); Mabhaudhi *et al.*, (2016) have also highlighted the potential of underutilised crops. Furthermore, Baa-Poku (2018) state that matters concerning underutilised crops are disregarded, which causes an impact on the food security and well-being of the poor (International Plant Genetic Resources Institute, 2002). Food security can be achieved through underutilised crops (Baa-Poku, 2018).

2. 14 GENDER AND INDIGENOUS FOODS

Gido *et al.*, (2017) state that African indigenous vegetables require knowledge in preparation and cooking. Therefore, men are less likely to have adequate knowledge on these matters, because women are believed to possess more cultural knowledge regarding African indigenous vegetables (Amaza, 2009 and Weinberger *et al.*, 2011). Indigenous knowledge and skills held by women on food security matters often vary from those held by men (Kamwendo and Kamwendo, 2014). Yet, this knowledge is often ignored, regardless of women being the majority of farmers. Hence, in gathering wild vegetables, women are the main custodians (Vorster, 2005). The value of local knowledge in food systems and food preparation that women hold still needs to be understood, interpreted and disseminated (Turner, 2005 and Singh, 2010). In Uganda, men generally act as intermediaries, as they move around to buy indigenous leafy vegetables from producers (mostly

women) and transport them to markets. Therefore, women are economically empowered as they are able to pay school fees for their children and provide food for their households (Dube *et al.*, 2018).

The FAO (2013) reports that, in comparison to men, women do not have the same opportunities of access to productive resources. Moreover, Garcia (2013) postulate that due to lack of resources, women do not have a full potential for ensuring food security. Thus, a requirement for combating hunger and poverty is to promote the empowerment of rural women. Gender constraints decrease the productivity of women in contributing to agricultural production, economic growth and the well-being of their families and communities (FAO, 2010). Today, women are given opportunities in the agricultural sector, and strategies to eradicate the constraints affecting women's productive role have been recognised (Adepoju *et al.*, 2015). Hence, women make essential contributions to the rural economy of all developing country as farmers, labourers and entrepreneurs (FAO, 2011). Women with their vast knowledge in food production and processing have contributed immensely to food security in many nations (World Bank, 2003; Weinberger and Pichop, 2009).

Furthermore, Ibnouf (2012) advocate that the indigenous knowledge of rural women should be recognised and given precedence on the developmental agenda. It has been noted that women play a crucial role in food security, although there are challenges in decision- making within patriarchal societies (Winniefridah and Manuku, 2013). A study conducted by Stein *et al.*, (2018) advocates that women, based on their own knowledge, are leading the way in promoting local solutions to global food issues. To support this, Holt-Giménez and Patel (2012) maintain that women are taking a leadership role in practicing food sovereignty by defining their own food systems through small farms and gardens.

2.15 COMMERCIALISATION OF INDIGENOUS FOODS

The increasing commercial interest in African indigenous vegetables brings hope for full utilisation of these vegetables (Cernansky, 2015; Bisamaza and Banadda, 2017). A study in East Africa conducted by Gogo *et al.*, (2018) found that farmers directly supplied indigenous vegetables

in quantities to supermarkets, hotels, hospitals and schools. Indigenous vegetables are now common in various supermarkets and town/cities, but previously they were found only in secondary markets (Onyango and Imungi, 2007; Chelang'a *et al.*, 2013). Therefore, Indigenous vegetables are crucial sources of both food and income in households (Bruinsma, 2012; FAO, 2013; Ebert and Alexandratos, 2014). Most farmers who produce African indigenous vegetables have no job profession and are unemployed, meaning that indigenous vegetable production is the key source of their household income (Muhanji *et al.*, 2011).

Van Rensburg *et al.*, (2007); Ngugi *et al.*, (2007); Irungu *et al.*, (2008) all report that wealthier people regard indigenous foods as food meant for the poor, but the availability of African indigenous vegetables in modern markets might change negative perceptions among high income earners. The value of indigenous vegetables has grown and their market share has greatly increased (Schippers, 2000; Weinberger and Msuya, 2004; Ngugi *et al.*, 2007). For example, *amadumbe* are found in retail shops (for example, Spar, and Pick 'n Pay) but producers claim that *amadumbe* are charged at high prices in retail shops and customers do not buy, and therefore, the purchasing pace is very low (Tembe, 2008).

Nzimande (2014) states that most people in South Africa highly depend on cash to buy indigenous food from commercial suppliers instead of growing food for themselves. Nzimande (2014) further elaborates that markets do not need to purchase large quantities of indigenous food because they are not popular with customers. For example, *amadumbe* (taro) are not listed but there are other vegetables which are listed below others at the bottom of the list. Perhaps these vegetables could be consumed by people who are up-market in range or by people who belong to a certain culture (International Trade Centre, 2010).

Matenge *et al.*, (2012) advocated that for commercialisation, indigenous foods should be accessible in both formal and informal markets. In this way, people will consume them more frequently. Also, to attract and encourage the youth in consuming indigenous food, it should be advertised in television. However, in South Africa indigenous food is mostly distributed by street

vendors, and is rarely found in supermarkets (Weinberger and Pichop 2009; Manyelo *et al.*, 2014). Therefore, the limited availability of indigenous foods in the markets also explains the disappearance of these foods in diets and their low status among some South African communities (Maseko *et al.*, 2017).

2.16 POLICY IMPLICATIONS FOR INDIGENOUS FOOD

Indigenous knowledge is an underutilised resource in the search for sustainable solutions to food security in South Africa, particularly at a household level (Johnson, 2007). However, indigenous knowledge is scantily incorporated in food policies of Africa and particularly in South Africa (DAFF, 2012). The National Policy on Food and Nutrition Security (2013) states that the neglect of indigenous foods also exacerbates micro nutrient deficiencies; therefore, the promotion of indigenous crops is essential to ensure that households consume more diverse diets. Increased consumption will also induce their production and assist in the creation of markets for these commodities, which will in turn enhance rural economies.

Ibnouf (2012) and Mbenyane (2017) state that food security policies globally have ignored the potential nutritive value of indigenous foods, especially those harvested in impoverished communities, whereas, the new South African Food Based Dietary Guidelines (2013), emphasise the food value of indigenous crops and the promotion of indigenous and traditional food. It has been noted that existing food systems can strengthen underutilised indigenous crops (Mabhaudhi *et al.*, 2017). However, Ebert (2014) contends that due to inadequate information regarding the significance of indigenous vegetables in improving malnutrition and poverty, indigenous foods remain underutilised. As a result, policy resolutions have recognised the importance of indigenous knowledge and the potential of indigenous vegetables in eradicating food and nutrition insecurity. Additionally, the Kwa-Zulu Natal Draft Policy (2017) advocates that neglecting of indigenous food/crops (amaranthus, bambara, amadumbe, cowpeas) exacerbates micro nutrient deficiencies. Therefore, promotion of these crops can enhance households' ability to consume more diverse diets. It has been discovered that the *bambara* pulse can positively contribute to food and nutrition security yet it is underutilised (Halimi *et al.*, 2018).

2.17 FOOD SECURITY, FOOD SOVEREIGNTY AND INDIGENOUS FOOD

Food sovereignty states the right of people to define their own food and agricultural methods through healthy, culturally appropriate food produced by sustainable methods (La Via Campesina, 2016). Supporting the above definition Chaifetz and Jagger (2014) and Kamal *et al.*, (2015) emphasise that food is embedded in the cultural values of people and that, therefore, culture plays a huge in food choices. On the other hand, Indigenous food sovereignty addresses ‘Indigenous’ aspirations for collective well-being and prefers to rectify inequality and acknowledge peoples’ rights to land and cultural integrity (Morrison, 2011). While food security strives to ratify that people have enough food, indigenous food sovereignty argues for vigorous participation in Indigenous food systems so that the mind, body, and spirit are nourished (Martens, 2015).

A number of studies including Skinner *et al.*, (2013) and Cidro *et al.*, (2015) support the contention that community members need to address food insecurity through Indigenous Food Sovereignty. Also, a study conducted by Cidro *et al.*, (2015) advocates that when Indigenous people have the skills to practise Indigenous food sovereignty, then a whole range of positive benefits to their social and economic well-being will unfold. However, these benefits may be hindered by the fact that people do not have secure livelihoods to practise food sovereignty, hence food sovereignty is described as a precondition of food security (Shonhai, 2016). In order to free people from hunger, people should feed themselves by controlling their food systems (Wittman, Desmarais and Wiebe, 2010). On the other hand, it has been noted that the economic value of indigenous vegetables is not recognised as their consumption is still on the decline. This means that the notion that entrepreneurship can be achieved through promotion of indigenous vegetables in the rural areas may not be the way to eradicate poverty (Afoloyan and Bvenura, 2015).

2.18 AFROCENTRIC THEORY

Afrocentric theory is the theory that is commonly used in researching indigenous knowledge. The principal of Afrocentricity is the centrality of the agency of the African people in responding to phenomena through their own cultural and human interest (Asante 1988; 1990; 1993; 1999). It emphasises Africa as a centre for the study of African experiences and interprets research data

from an African perspective (Mkabela, 2005). In the perspective of this study, ‘Afrocentric’ focuses on the cultural practices indigenous people hold and how they can use African indigenous culture to combat issues such as food insecurity. It has been noted that, over the years, indigenous communities have used their indigenous knowledge to ensure food and livelihood (Kunhlein, 2014). Hecht, Jackson, and Ribeau (2002) state that there are ‘competing forces in society that shove individuals towards a variety of identities. Hence, Africans shift from their cultural identities to Eurocentric practices (Jackson, 2002). As a result, culture is significant in relation to the consumption of indigenous vegetables. Hence the consumption of indigenous vegetables forms part of local traditions and cultural heritage (Chambers 2007; Guerrero *et al.*, 2009). However, Asante (1995) contends that Africans have lost their own cultural practices and have adopted Eurocentric ways, which remains a problem. He further explains that losing sight of ourselves as Africans has modified us to the core of European decadence and madness.

2.18.1 INFLUENCE OF WESTERN CULTURE

According to Baloyi and Khumalo (2017), colonisation relied on western knowledge systems and Africa ignored rich local knowledge for many years. In Africa, indigenous knowledge remains hidden by modern scientific discoveries, and present forces of globalisation continue to regard our African rights, our political systems, our economic systems, and our culture and knowledge systems as backward and unrealistic (Tauli-Corpuz, 2002). As a result, Indigenous knowledge remains underutilised and sidelined (Baloyi and Khumalo, 2017).

Many studies conducted by Kikula and Mwalyosi (1994); Toima (1997) and Mhache, 2017) reiterate the effect that colonisation has had on indigenous agricultural practices as they relate to food security. Furthermore, Risiro *et al.*, (2013) postulate that the arrival of colonisers in the country resulted in drastic changes in the methods by which land was utilised. As a result, there was mismanagement of land as well as the loss of farming and husbandry techniques which traditionally assisted in maintaining the land biodiversity (which for the purposes of this study also can be linked to food security). Moreover, Elliott *et al.*, (2012) and Asogwa *et al.*, (2017) assert that the decline of the use of indigenous knowledge as a result of the influence of western culture

and that carriers of this knowledge are dying without documenting this knowledge will certainly undermine developmental efforts to reduce food insecurity in Africa. They further elaborate that the loss of such knowledge will not only lead to increased food insecurity, but also increased conflicts, livelihoods decline and biodiversity loss.

2.18.2 CULTURE, INDIGENOUS FOODS AND FOOD SECURITY

There is a correlation between culture, indigenous foods, food security and nutrition (Giampiccoli, 2015). Hence, in many indigenous communities' indigenous food has been an essential part of food security (Demi, 2014). Also, culture is one of the factors that influence food choice and food access among local communities (Morton and Smith, 2009). Furthermore, Elliott *et al.*, (2012) explain that, from a community perspective, indigenous food systems include all types of food that are available to a specific cultural group from its local natural resources and the customary forms for their use within that culture. Moreover, indigenous food is a key component of cultural food security for Indigenous peoples (Burnett, Pratley and Skinner, 2016). Therefore, the use of traditional foods is important for the food security and health of Indigenous people, and revitalisation of traditional food culture is linked with long-term food security planning (Islam *et al.*, 2017). Also, afrocentric theory in promoting acceptance and practice of cultural practices of indigenous foods for preservation of African culture (Asante, 1999).

Mazama (2001) notes the Afrocentric contest in replacing Eurocentric ways of thinking with our own cultural experience. Asante (1987) contends, "The kind of transformation that we need as Africans lies in our own cultural spaces and viewing the universe. In addition, Asante (2000) is of the view that African issues must be addressed from an Afrocentric rather than Eurocentric perspective. Therefore, 'Afrocentric' is a point of view which regards Africans as being key players rather than victims of aspects of culture, health and economics. As this study focuses on indigenous foods, people should reconnect with their cultural identities, so that the acceptance of indigenous foods can increase. Afrocentricity emerges as an approach that consciously operates within African ways of knowing and existence and results in the implementation of principles, methods, concepts, and ideas that are derived from our own African cultural experiences (Mazama,

2003). In relation to the study, Afrocentric seeks to explore and describe life experiences and capture opinions of indigenous knowledge holders regarding indigenous foods and food insecurity in rural households. Moreover, cultural continuity is related to local people's ability to eat indigenous foods and continue traditional practices (Woodley *et al.*, 2009).

2.19 CONCLUSION

Local people's indigenous knowledge can play a significant role in enhancing food security. African societies are regarded as poor and are exposed to hunger, poverty and malnutrition, so more solutions are required to enable each household to feed themselves. Therefore, insecure rural households should be encouraged to utilise indigenous African food. However, there is negligence in the use of indigenous vegetables. Little attention has been given to these Indigenous leafy vegetables (ILVs) and they are labelled as foods for the poor. Previous studies indicate that indigenous leafy vegetables are of value in most areas, and that underprivileged people, especially, highly rely on them as their source of food. Indigenous foods can also play a significant role in food security and poverty alleviation as indigenous food generates income for most rural households. Yet, African societies are regarded as poor and are exposed to hunger, poverty and malnutrition, and more solutions are required to enable each household to feed themselves. It is within this perspective that food insecure rural households should be encouraged to utilise indigenous African food crops. To accomplish this, indigenous foods should be promoted to enhance food security and nutrition.

The following chapter presents the research methodology employed in this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter elucidates the methods adopted in this research to gather data necessary to achieve study objectives. Research methodology offers a connection between the research problem and the procedure by which this problem can be analysed and attain the objectives of the study. This study used a qualitative research design, including the research methods that were followed in executing the research on the utilisation of indigenous foods towards enhancing food security. This chapter also describes the various stages of the research, including the selection of participants, the data collection process and the process of data analysis.

3.2 THE STUDY AREA

The study was conducted at Emaphephetheni, also known as (*Maphephethe, Imbozamo*) uplands, a rural area of KwaZulu-Natal, under eThekwinini metropolitan, South Africa, approximately 80 kilometers west of Durban in the Valley of a Thousand Hills. The population of the Emaphephetheni uplands has 3, 217 people and 534 households (Census, 2011). Figure 3.1 portray the map of the study area.

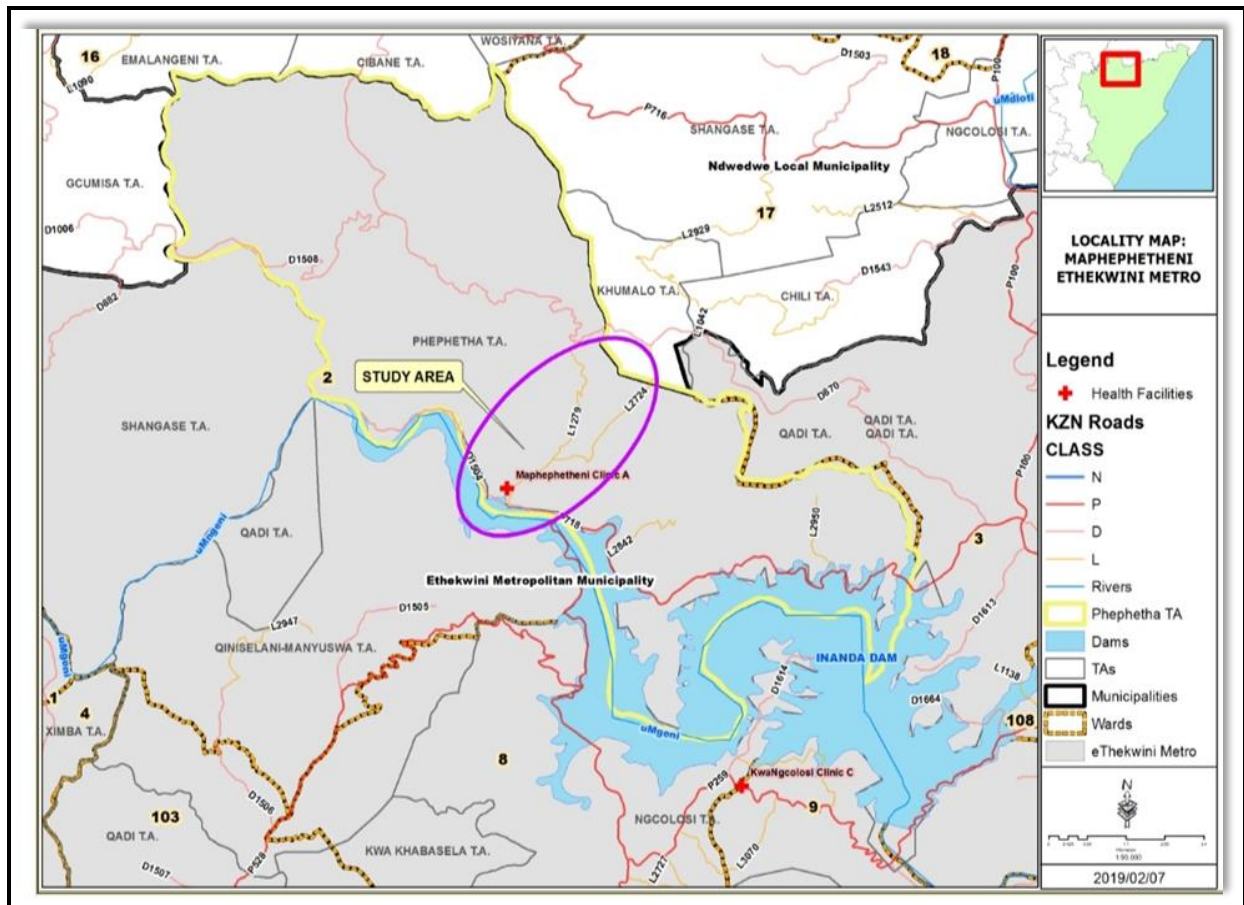


Figure 3.1: Maphephetha Map Source: Author, (2019)

This area is relevant to the study because subsistence agriculture is practised and its people plant vegetables such as *amadumbe*–(taro), beans, beetroot, cabbage, carrots, green pepper, onion, and spinach) in their home gardens (Johnson *et al.*, 2007 and Green *et al.*, 2000). These home gardens enhance livelihoods for their households and improve food nutrition (Baiphethi and Jacobs, 2009). The study area prompted the researcher because the people in the community are still imbedded in their cultural values. Food is rooted in the culture of people; therefore, culture plays a huge role in the choice of the vegetables they produce in their gardens (Chaifetz and Jagger, 2014 and Kamal *et al.*, 2015). Hence, the present study sought to analyse the effect of indigenous food in the community.

3.3 RESEARCH DESIGN

The study proceeded as qualitative research. Qualitative research is multi- method, involving an interpretive, naturalistic approach to its subject matter. The purpose of qualitative research is to study usual surroundings and make sense of, or understand, occurrences in relation to the interpretations people bring to them (Denzin and Lincoln 2005). In this study, qualitative research was used to gather data pertaining to indigenous foods and food security. This method enabled the researcher to acquire more knowledge about indigenous foods from community members and indigenous knowledge holders. The participants were asked to describe and explain their understanding of indigenous foods, in this regard participants shared they different perceptions and experience about indigenous foods. Using interviews which included semi-structured one-to one and focus group discussions.

3.3.1 EXPLORATORY RESEARCH

In this study, the researcher selected the explorative method, which deals with exploring the indigenous foods phenomenon. Therefore, in the present study the researcher strived to gain new insights and more knowledge regarding indigenous foods and food security at household level. The researcher aimed at getting to know and understand better the views of participants on indigenous foods and gain their own interpretations about their experiences. The researcher entered the community with natural inquisitiveness to discover new information regarding the phenomenon in context. Hence, the exploratory nature of this research involved going to the community to find out and learn more about indigenous foods. The researcher adopted two primary data collection methods used in exploratory research, namely, in-depth interviews and focus group discussions.

3.4 RESEARCH PARADIGM

The research was conducted within the interpretive paradigm. The aim of the interpretivism paradigm is to understand the world as it is from thr subjective experiences of individuals. In this regard the researcher focused on people who owned their experiences, who had vital information on the questions that were asked. Interpretivism provides a detailed description of the

characteristics, process and contexts that contribute to the phenomenon or phenomena being studied (Blanche *et al.*, 2006). The goal of the researcher was to seek detailed information regarding indigenous foods with the purpose of uncovering the reality and experiences of rural people in the community of Emaphephetheni. In order to explore the understandings of community members and indigenous knowledge holders, an interpretive paradigm provided context that allowed the researcher to examine what the participants in the study had to say about their experience with consuming indigenous foods. Various perceptions were sought from a number of participants who had their own interpretation of indigenous foods. The data collection techniques adopted in the study, namely interviews and focus groups allowed the researcher to understand in depth the lived experiences of the participants regarding the indigenous food they consumed. Hence, the research looked for rich, detailed information of a qualitative nature through in-depth interviews and focus group discussions.

3.5 SAMPLING PROCEDURE

The study employed purposive sampling to identify elders in the community and indigenous knowledge holders. The sample was chosen because participants were able to provide rich descriptions of their experiences which would challenge and enrich the researcher's understanding regarding indigenous foods (Hutchinson and Wilson, 1991; Kuzel, 1992). In this study, participants were selected using a database UKZN's DST NRF Indigenous knowledge systems Centre. The selection of participants was aided by the coordinator of the Indigenous knowledge systems Centre. This was due to the fact that participants were considered to be knowledgeable about the phenomena under consideration. Initially, a purposive sample of four indigenous knowledge holders and twelve community members was selected, due to their involvement in indigenous foods initiatives within Emaphephetheni rural area. Indigenous knowledge holders and community members were of value in this study because of their substantial knowledge regarding indigenous foods and food security. There is a profound loss of indigenous knowledge especially amongst the younger generation, but the elderly indigenous knowledge holders retain such knowledge. However, it is not documented. Yet, transmitting this enormous knowledge may contribute to food security and nutrition. Therefore, in this study indigenous knowledge holders and community members were selected because of their traditional knowledge.

Inclusion criteria refer to characteristics that potential participants must have in order to participate in the study, whereas, exclusion criteria are those characteristics that disqualify prospective subjects from inclusion in the study (Van Spall and Harriette, 2007; Helfand *et al.*, 2009). In this study the inclusion criteria related to elderly male and female (50 to 70 years of age) who had extensive knowledge on indigenous foods and who reside in Emaphephetheni. Indigenous knowledge holders and community members hold wisdom that there have inherited from their ancestor's, people used to produce their own food based on this knowledge. The exclusion criteria related to the people who reside in Emaphephetheni but had no knowledge or any involvement regarding indigenous foods.

3.6 DATA COLLECTION TECHNIQUES

Data collection begins with the researcher deciding from where and from whom data will be collected (Talbot, 1995). Data was collected from participants who were purposefully selected, in this case indigenous knowledge holders and community members. The study adopted qualitative methods which compromised in-depth interviews and focus groups discussions (Wiid and Diggines, 2009). It was necessary to use qualitative interviews and group discussions to enable the researcher to tap into rich textual meanings of the studied phenomenon.

3.6.1 IN-DEPTH INTERVIEWS

In qualitative research interviews are valuable tools for collecting data (Potter, 1996). In this study, qualitative interviews were the primary method of data collection. Qualitative interviewing was appropriate to use because it is an interaction between the researcher and participants. Interviews were conducted to uncover underlying beliefs, attitudes and feelings on the topic of enquiry, which is indigenous foods. Therefore, the researcher employed this method to gain rich descriptive data which assisted the researcher to understand the participants' knowledge regarding indigenous foods and food security.

The researcher used a database from UKZN's DST-NRF Centre of indigenous knowledge systems to contact participants individually to ask about their willingness to participate. The researcher conducted four (4) interview sessions with indigenous knowledge holders in their homes. The researcher interviewed four (4) elderly women who are knowledgeable in the field of indigenous foods and food security. The researcher informed the participants about the purpose of the study and demonstrated familiarity with the topic. With the participants' approval, the interviews were tape recorded to ensure a complete transcript. Interviews proceeded in IsiZulu. Participants preferred their home language which made it easy for them to express their views on indigenous food and food security, therefore the interview guide was translated from English to IsiZulu.

The interviews lasted approximately 45 minutes for each indigenous knowledge holder. The researcher used semi-structured interviews. The researcher prepared an interview guide that included the set of questions that the participants would be asked. These questions were to ensure that the research study questions and objectives were covered. The semi-structured interviews allowed freedom and flexibility to ask questions in any form, with the researcher jotting down questions for clarifications and elaboration in responses. The researcher also explained questions where it was necessary to avoid confusion for the participants. Semi-structured interviews were applicable in this study to enable the researcher to gather rich textual meanings from the participants' responses.

3.6.2 FOCUS GROUPS DISCUSSIONS

Focus group discussions comprise a group of individuals chosen and assembled by the researcher to discuss and comment on, from personal experiences, the topic that is the subject of the research (Powell and Single, 1996). In this study, focus group discussions were used because the researcher wanted to gain insights into people's shared understandings of indigenous foods and the availability and utilisation of indigenous foods in the community. Focus groups were selected to gather qualitative data on indigenous food and food security. Due to the nature of this study, participants were purposively selected, with the inclusion criterion being community members who were knowledgeable about indigenous foods in the area. Therefore, the researcher used the

database from UKZN's DST-NRF Centre of indigenous knowledge systems. Prospective participants were contacted individually to ask if they were willing to participate. Arrangements were then made with those willing to take part in the study.

The researcher conducted two focus group discussions involving older women and men; the first group was conducted in the community boardroom and the second group took place in the field. Semi-structured questioning was used in order to ensure accuracy. These questions focused mainly on in-depth information about availability, utilisation and consumption of indigenous foods in the study area. The focus group technique allowed interaction between the participants and made it easy for participants to add and comment on other people's responses. All the group discussions were tape recorded and later transcribed and translated. The focus groups proceeded in the local language, IsiZulu. Each focus group interview lasted approximately 1 hour.

3.7 THEMATIC ANALYSIS

The most common method of analysing qualitative data is thematic analysis (Cohen, Manion and Morrison, 2011). This method provides in-depth study of the research problem with semi-structured questions, and allows the researcher to probe participants further in attempts to obtain valid and in-depth data (Creswell, 2014). Semi-structured interview data were transcribed and themes were generated from the thematic analysis of the transcriptions. Constant comparisons were made with codes emerging from the data, with no predetermined theory, framework or structure. This content analysis method was preferred for its depth and ability to create a detailed description from data – something which is a fundamental characteristic of qualitative research. The identified themes are presented in table 3.1 below.

Table 3.1: Research Questions and Themes 1

<i>Research Questions</i>	<i>Data Source</i>	<i>Themes</i>
Are indigenous foods available in the study area?	Community members	Importance of indigenous foods
	Indigenous knowledge holders	
How do you access the indigenous foods in the study area?	Community members	Challenges that hinder the production of indigenous foods
	Indigenous knowledge holders	
Are the available indigenous foods utilised at household level?	Community members	Marketing of indigenous foods
	Indigenous knowledge holders	Promotion of indigenous foods
How do the indigenous foods improve food security?	Indigenous knowledge holders	Use of indigenous knowledge and experience to ensure food security
What are the strategies to effectively and efficiently increase food security in rural areas?	Community members	Strategies to strengthen community's food security
	Indigenous knowledge holders	

Throughout the data analysis process, the tape-recorded interview data were first transcribed verbatim and then coded after being grouped into small significant and similar parts in order to build themes. The verbatim statements and phrases were collected as evidence of participants' responses. Themes formulated from the text were interpreted to provide explanations and original justifications. The process led to the identification of twelve major themes. The identified themes were selected to match with the objectives of the study.

Participants for this study were coded as Community Members Group 1 or 2, and participant 1-7 (CM-G1-P1, P2, P3, P4, P5, P6, and P7 while the Indigenous Knowledge Holders were IKH1 participant1, IKH2, IKH3, and IKH4 in the discussion of findings.

3.8 DATA QUALITY CONTROL

3.8.1 CONFIRMABILITY AND TRUSTWORTHINESS

Confirmability is an unbiased criterion for measuring the trustworthiness of qualitative research. The purpose of confirmability is to clarify that the evidence and thought processes would give another researcher the same conclusions as in the research context in question (Carpenter, Streubert and Speziale, 2003).

The researcher utilised the following auditing criteria to ensure accuracy in this study. Data were collected raw from audio recordings, and the findings of the study analysed through de-contextualization. Then a synthesis of the analysed data was made through re-contextualization. Each phase of the research process, research design, sampling design and data collection process was carefully planned, to make sure that the conclusions of the study's findings were supported by the analysed data. The researcher was responsible for examining data, findings and interpretations to demonstrate that they were supported by data. Therefore, the researcher-maintained integrity, stability, consistency, and quality through the process of collecting and recording data from the respondents. The purpose of the study was clearly explained to the participants. Also, participants were assured of anonymity and confidentiality to encourage frankness during the interviews. These steps ensured that the interviews were conducted under conditions and in an environment acceptable to the participants, and hence ensured that the process was trustworthy.

3.8.2 ETHICAL CONSIDERATIONS

This research honoured the ethical standards set by the generic research ethics. Thus, the participants were informed about all the steps that were to be taken in this research. The study sought the participants' consent to be part of the study by informing them what the study was all about as well as assuring them of their right to participate or not to participate in the study. They were also informed of their right to withdraw from the study before their responses in the study

were recorded. The study was classified as low-risk research, implying that questions asked were less sensitive and posed virtually no risk to participants. The study was explained to participants in their local language, IsiZulu. Therefore, the interview guide was translated from English to isiZulu. An audio recorder was used in the process of interviewing the respondents. However, before it was used, permission was sought from the participants. It was clearly indicated to respondents that the audio recorder was only for capturing information and also to avoid misrepresentation of facts. To assist in the maintenance of confidentiality, the recorded interviews were transcribed by the researcher herself.

3.9 CONCLUSION

This chapter described the methods used to gather data for this study. The study aimed at analysing the utilisation of indigenous foods in enhancing food security at household level. The researcher intended to gain more knowledge and views of participants regarding indigenous foods. Therefore, the study employed the qualitative method to collect data. A qualitative approach was appropriate for this study because of the nature of questions the study sought to answer. The main tools for collecting data were in-depth interviews and focus group discussions, in order to accomplish the research questions and objectives of the research study.

The next chapter details information on data analysis and discussion of findings.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter provides the presentation and analysis of the data collected during the study. The researcher has summarised the findings of the study in terms of the role of indigenous foods in enhancing food security in rural areas. This study aimed to establish how indigenous foods can be used to improve food security and to proffer various strategies that might improve food security efficiently. Data was collected from twelve community members through focus group discussion, and from four indigenous knowledge holders through semi-structured interviews. Responses were analysed and compared to determine the similarities and differences. The principal of Afrocentricity is the centrality of the agency of the African people in responding to phenomena through their own cultural and human interest. This implies that Africans can always use their indigenous knowledge to address or solve issues around them. Afrocentric theory has been used to underpin how various strategies can be used to enhance food security in a real Afrocentric manner.

4.2 IMPORTANCE OF INDIGENOUS FOODS

Indigenous foods are significant for the people of South African communities. All the participants alluded to the fact that indigenous foods undoubtedly play a role in their livelihoods and health. Various studies have established the important roles of indigenous foods in the economic and social lives of the people (Vazquez, 2011; Matenge *et al.*, 2012; FAO, 2014; Ghosh-Jeratha *et al.*, 2016; Mbheyane, 2016). This can be seen in the way communities and individuals strive to maintain those integral aspects of their indigenous processes. In fact, the themes of this study, drawn from participants, reflect these fundamental aspects of the importance of indigenous foods to them.

4.3 AVAILABILITY AND PREPARATION OF INDIGENOUS FOODS

All the participants listed the popular and commonly consumed indigenous foods; this helped the researcher to identify indigenous food that are available and utilised by the community of Emaphephetheni. Based on the listing done through focus group discussions, a list of commonly consumed indigenous foods items was compiled including; *amaranthus*, *dried corn*, *isijabane* (maize meal mixed with leafy vegetables), *amahewu* (fermented maize meal porridge), *isiphuphutho* (maize grains and beans), *isijingi* (pumpkin and maize meal), *mealie bread*, *isiphuphutho* (Maize and beans). Most of these foods were mentioned using their indigenous names.

Participants from both focus groups reiterated that most indigenous foods were usually prepared by steaming or boiling. For example, *Isijingi* (pumpkin and maize meal), a mixture of crushed maize mixed with pumpkin, where the pumpkin is boiled and then mixture cooked until soft. *Amahewu*, (porridge) is cooked and fermented overnight. All the participants agreed that indigenous foods were easy to prepare and the recipes were easy to follow, even though some highlighted that they were time- consuming and tedious. When compared to modern foods, indigenous foods were inconvenient.

Hart and Vorster (2006) note that different ethnic groups in South Africa prepare indigenous foods in a particular style and exposure to other preparation techniques leads them to increase the variety of their diet in terms of taste and micronutrient content. Indigenous foods were described as natural foods that did not require chemicals or seasonings besides salt during the processing stages. Participants perceived indigenous foods as healthy, often comparing indigenous food with modern foods, which were perceived as unhealthy.

Indigenous knowledge holders conveyed the importance of indigenous foods in promoting health and quality of life; they explained how they perceive indigenous foods. One indigenous knowledge holder had this to say:

“When I look at people who grew up in the olden days, they are strong, and they don’t have chronic diseases, they were not limping until the age of 90 years. They would walk and even go to the field for wood cultivation and practise farming”. (CM-G1-P1).

Therefore, indigenous knowledge holders alluded to the fact that indigenous foods meant relearn what ancestors ate and why. It was a reminder of their culture and traditional ways of doing things. Indigenous knowledge holders expressed ancient stories of how they used to consume indigenous foods and share these foods amongst their neighbours and relatives. Indigenous knowledge holders narrated how nowadays the value of sharing food has diminished and knowledge on how to prepare indigenous foods have been lost due to westernisation. According to one of the community members:

“Nowadays younger people have lost the connection on how to prepare indigenous foods, especially as our elders pass on” (CM-G1-P5).

Neufeld and Richmond (2017) state that there is lack of general knowledge related to cultural traditions around Indigenous foods, and that erosion of cultural practices relating to food preparation may result in food insecurity (Turner and Turner, 2008). This knowledge has been the basis for indigenous agriculture, food preparation and a wide range of other activities that sustain livelihoods. Elders are key in disseminating indigenous knowledge. In gatherings and ceremonies, they used to share knowledge of native names for these foods, the places where the foods were harvested and, most often, how to prepare it.

4.4 INDIGENOUS KNOWLEDGE HOLDERS ON INDIGENOUS FOODS

Indigenous knowledge holders advised that indigenous knowledge has been helpful to them in the production of indigenous foods. They further maintained that they had the best knowledge and experience of indigenous knowledge and foods that led to the improvement of household food security. Indigenous knowledge holders highlighted that indigenous knowledge helps with the various traditional foods they plant, and how to use, preserve and produce indigenous foods. One indigenous knowledge holder affirmed that:

“With indigenous knowledge and experiences, we are able to preserve foods. Indigenous knowledge that you can pass from one generation to another, knowledge that grows like that is important. Indigenous knowledge does not change; it should be used to ensure food security. Indigenous knowledge must be preserved for generations,” (IKH1).

Indigenous knowledge holders indicated that indigenous knowledge, which is Afrocentric provides extensive knowledge of indigenous foods they plant on their farms. Their indigenous knowledge helps them to know what to plant, and how and where to plant different indigenous foods successfully.

Indigenous knowledge holders had a perception that if more people can embark on planting indigenous foods, it will help to prevent so many diseases and help people to live a healthy life. A similar perception was expressed by Asante (2000) that African issues, practices and needs should be addressed by using Afrocentric theory. In addition, in this context, Afrocentric theory sees indigenous knowledge in relation to indigenous foods as a means of enhancing food security and sustaining livelihoods at local level. Therefore, the continuity of culture in this study is related to the ability of the African people to consume their indigenous foods. Kuhnlein (2007) notes that providing indigenous foods in communities not only ensures food security but also contributes to healthy living among the people.

4.5 INDIGENOUS FOODS, CULTURAL EVENTS AND CEREMONIES

Community members indicated that indigenous foods were crucial to and central within the context of social events such as cultural ceremonies among the rural people. Some of the community members emphasised how communities consider the traditional meals prepared during social events as part of promoting and sustaining their heritage in ceremonies. Community members took satisfaction from the use of the indigenous foods in their various social ceremonies as being appreciated by the people. This was according to community member who proudly said:

“We appreciate eating our indigenous foods at various local events more than any other western foods, and in fact, it is a normal practice that people find it easier and cheaper to cook indigenous foods as ways of appreciating their cultural practices. It is common to find indigenous foods in cultural events or social ceremonies in our communities” (CG-G2-P3).

Therefore, indigenous foods were not limited to household use only but can also be consumed in ceremonies. Times did not affect the consumption of some of these indigenous foods as people can be fed with these foods at any time or at any social ceremony. The seasons determine the availability of these products in adequate or scarce quantities. Community member had to emphasise:

“Summer seems to be a favourable season for most indigenous foods, as it allows the farmers to have great harvest from their farms. Hence, Isigwaqane is mostly eaten during summer because beans grow abundantly this season; grass grows in summer during heavy rains, so it grows fast. Amadumbe are plants in a wetland like a stream or a moving streamline, whereas, sweet potatoes and amadumbe are planted during winter” (CM-G1-P5).

Most Indigenous foods do not ripen at the same time. Therefore, people just make use of what is in season. This seasonal availability could result in low productivity from their farming because they wait for the relevant season suitable for their preferred type of crops. In some cases, some people prefer to preserve various types of vegetables by drying in order to be able to use them during times when they are not readily available (Misra *et al.*, 2008).

4.6 GROWING CROPS INSIDE A SACK BOOSTS YIELDS

Community members have pioneered methods of innovative ways to further enhance indigenous crop yields despite lack of water. One such method was the utilisation of sacks. This method involves filling a series of sacks with soil, manure and the growing crops. The sides of the sacks are pierced with holes for the seeds to be planted. The sack farming method allows people to grow crops in their homes when there is limited access to arable land and water. Community members elaborated that they plant mostly leafy vegetables inside the sack and one does not need a lot of space to enjoy home grown vegetables. In addition, this method uses very little water and you can use recycled water. Community members briefly explained the process. As illustrated in **figure 1** the stones are usually placed at the bottom of the sack, the sack is filled with a mixture of soil and compost manure. The sack is pricked with holes on the sides for the seedlings to be planted. You can also plant crops on the top. The sack should be watered every day to keep the soil moist. As the stones are centred inside the sack to water the vegetation, water is frequently poured at the centre stone area. Therefore, waterfalls slowly on the plants, which decreases water usage. In **figure 2** the sack is ready and should be watered and any ill plants and weeds taken out.



Figure 1: Sack container with stone vent in Maphephetheni area



Figure 2: Leafy vegetables growing on sack container in Maphephetheni area

Furthermore, Peprah *et al.*, (2014) affirm that sack farming has been adopted worldwide, as this method has the potential to enhance household vegetable consumption and generate extra income. Additionally, community members indicated that they usually stored food in sacks and containers

for long-term consumption, also storing food in bottles for immediate use or short-term household consumption. Notwithstanding the benefits of sack farming some of the respondents cautioned against using sacks for storage because there is little protection against insects and sacks absorb moisture from the floor. Wambui (2015) has also accepted this method of farming by emphasising that sack farming improves food security for households with small parcels of land, especially in township/urban areas.

4.7 INDIGENOUS VEGETABLES AND FOOD SECURITY

Community members and indigenous knowledge holders indicated that indigenous foods such as amaranthus, herbs, and sweet potatoes, and others are always available to people from rural areas, thereby ensuring households food security. One community member had this to say:

“I don’t need permission to plant indigenous foods. I have land like others in the rural areas, where I plant different indigenous crops like amadumbe, corn, and sweet potatoes. I decide to sell the food I have grown to other members of the community or even take it to nearby towns if I feel like doing so with my children” (CM-G1-P1).

The edible, leafy indigenous plants and fruits were mostly found in the bushes, on farms and in fields and areas where water is widely available, hence droughts affect their availability. Because some indigenous foods are available only in certain seasons of the year Van der Hoeven *et al.*, (2013) have noted that seasonal availability of indigenous foods affects the regularity of their consumption. Labadarios *et al.*, (2011) are of the opinion that indigenous foods will be sold to households who do not engage in farming only if they can afford to buy the foods. Therefore, families with restricted income who do not engage in production of indigenous foods will alternatively regulate food consumption (Shisana *et al.*, 2014).

However, due to seasonality and market inaccessible indigenous foods is not always available, which make it difficult to consume it. Indigenous vegetables are often regarded as expensive in markets because of their seasonality availability, and due to their limited availability, these foods become more expensive than conventional ones. Inaccessibility of indigenous vegetables has led to a decrease in consumption as most households opt for cheaper and available foods (Musotsi *et al.*, 2017). Therefore, people tend towards modern foods which are always accessible in the market.

4.8 HEALTH ASPECTS OF INDIGENOUS FOODS

Participants emphasised that these indigenous foods were healthy, nutritious and promote health and quality of life among the consumers of them. Community members indicated that indigenous vegetables such as *amaranthus* are significant sources of food and nutrients, are rich in protein, and contain calcium, iron and vitamins. Rough pigweed, also known as *imbuya* has been reported as being rich in carbohydrate and protein, and often used as a spinach substitute (Hollins, 2015). Community members stated that people used indigenous foods in different ways to satisfy their family needs in terms of food production. One of the community members had this to say:

“As I mentioned it, it is anise hyssop and Isigwaqane which is delicious if mixed, corn, isiphuphula (corn mixed with beans). Amadumbe or sweet potatoes can also be made stew like a potato and pumpkin which can be cooked in different ways. You can mix it with maize meal, umcaba (anise hyssop, mixed with amasi), incwancwa (fermented porridge) and incwancwa (a porridge made with corn). (CM-G1-P1).

Indigenous foods have been perceived as healthy foods because they contribute to immunity in the human body. Indigenous foods are good sources of balanced diets. On this topic one community member had this to say:

“Indigenous food has a lot of nutrition, if we talk about indigenous foods, it takes me back to the time where we milked cows for amasi and prepared them, and we would drink sorghum beer with a wooden spoon”.

4.8.1 INDIGENOUS CROPS AS MEDICINE

The indigenous knowledge holders affirmed that some of the indigenous crops are medicinal; they were used to treat and serve as immunity for some diseases.

According to one indigenous knowledge holder:

“There are a number of diseases that indigenous foods can help to control based on traditional knowledge on these foods. Consumption of the indigenous foods also boosts the immune system of an individual; the foods are good source of energy as well” (IKH3).

These indigenous knowledge holders also revealed that indigenous foods could be used to cure and prevent some illnesses. *Amaranthus* were reported to cure constipation. The herbs are also used as mouth wash for toothache and ulcers. Consuming *amaranthus* can contribute to alleviating the absence of micronutrients and malnutrition and preventing diseases such as cancer because of the cell protective effects of its relatively high antioxidant content (WRC and DAFF, 2012). Community members also mentioned *taro* as good for controlling blood sugar. Laird *et al.*, (2017) and Aworh (2018) highlight the fact that Indigenous vegetables are the most functional foods that reduce risk of diseases such as hypertension, obesity, cardiovascular diseases.

As indigenous foods are medicinal in nature, the decline in consumption of African indigenous leafy vegetables has been implicated in the emergence and spread of chronic diseases in Africa (Kankeu *et al.*, 2013; Rasche *et al.*, 2007). This implies that Africans can always use their indigenous knowledge, skills and information to address or solve issues around them. The incidence of preventive diseases in Africa has been attributed to changing dietary practices and food consumption patterns in which African traditional diets are replaced with western alternatives (Horvoka, 2016).

4.9 COMMERCIALISATION OF INDIGENOUS FOOD

Indigenous people do not only produce indigenous foods for their family consumption, but these indigenous foods are also sold in quantities to the neighbourhood. Vendors in informal markets are the main source of access to indigenous vegetables. Participants in the study revealed that

indigenous foods in their communities serve as a livelihood strategy because they both consume and commercialise it. For commercial production, indigenous foods like *amadumbe*, vegetables, potatoes, beans, and corn are prepared in large quantities based on people's demand. One of the community members had this to say:

“I plant indigenous crops for commercial purposes. Mom has a garden where she has anise hyssop, she sells it, and she eats some. Every day in the morning she wakes up to go to the market to sell it, she goes with pumpkins and herbs. In winter, she plants traditional anise hyssop and she takes care of it by watering because it dies without water, she eats some” (CM-G1-P1).

Community members further stated that they sell to their neighbourhood at a reasonable price, and this is an additional source of income from growing indigenous crops. In rural areas, most of the small-scale farmers who produce indigenous vegetables are unemployed; therefore, production is a key source of income. Indigenous vegetables become crucial sources of income in many households in rural areas (Muhanji *et al.*, 2011; Bruinsma, 2012; FAO, 2013; Ebert and Alexandratos, 2014). Although community members in rural areas depend on indigenous foods Nzimande, (2014) contends that most people in South Africa depend highly on cash to buy indigenous food from commercial suppliers instead of growing food for themselves.

4.10 INDIGENOUS FOODS IN THE MARKET

The findings revealed that indigenous foods are inaccessible in the markets. The lack of availability of traditional foods in various supermarkets and cities plays a major role in the consumption of indigenous foods. Inaccessibility lessens the consumption of these foods. Community members specified that indigenous foods are mostly sold by street vendors along the road. Although in some areas Spar supermarkets are making indigenous foods available for consumers (Mbheyane, 2017). Some people are willing to pay for indigenous foods, while others, particularly people in rural areas prefer planting these foods in their home gardens. The study findings also revealed that there is limited access to indigenous foods. Buying it in supermarkets is very expensive and not everyone can afford it. In addition, community members and indigenous knowledge holders reiterate that

indigenous food are not advertised like modern foods. If this could change, people would consume them more frequently.

4.11 PERCEPTIONS OF COMMUNITY MEMBERS

The study findings revealed that, based on their extensive experience, the elderly people are likely to consume more indigenous foods. The elderly people described indigenous foods as crucial to their lives and good for their well-being. Findings revealed that community members in both groups and indigenous knowledge holders concur with the idea that indigenous foods are of immense importance in the lives of rural based people at three levels: nutritional value, provision of healthy foods, and a good source of income for most of the families in the community. Ghosh-Jeratha *et al.*, (2016) reiterate that indigenous foods are easy to obtain and to plant in the immediate environment to sustain the family and serve as a source of income to cater for other needs of the families. The foods are planted and processed using indigenous knowledge and methods.

Findings from the participants revealed that different perceptions existed amongst community members on indigenous foods. Their perceptions were significantly influenced by the African beliefs and notions known as Afrocentricity. Afrocentricity has been of significant influence on the perceptions of the people regarding indigenous foods. The theory impacts perception about practices or beliefs in the society, this explains why beliefs are culturally based. All the community members expressed their views on the indigenous foods as basic foods for traditional households. Vazquez (2011) sums up that indigenous foods are produced or planted based on the indigenous knowledge and experience of a particular group of people. The diversity of culture translates to diverse group of indigenous foods that can be found in different communities at different seasons. Moreover, most community members unanimously indicated that indigenous foods were predominantly a source of foods to the rural communities; households survive on a variety of these indigenous foods to feed the families.

4.12 YOUTH AND INDIGENOUS FOODS

Community members and indigenous knowledge holders highlighted that the use of indigenous foods among the youth has been declining over the years. According to the indigenous knowledge holders, patronage of these indigenous foods by the youth has been decreasing because of modernisation and preference for modern foods by the young generations. According to the findings, they prefer western foods to indigenous foods. Community members further stated that young people perceive modern foods as more convenient than indigenous foods. Most indigenous foods require more time when cooking, therefore the younger generation prefer meals which are easy to prepare and less tedious.

Despite, the indigenous knowledge holders' affirmation that indigenous foods are easily accessible to the masses for consumption, the younger generations do not consume indigenous leafy vegetables because of their unfamiliar taste. Modernisation is fast catching up with the generation of this century. According to the findings, they prefer western foods to their indigenous foods. Matenge *et al.*, (2012) in their study, reveal that younger generations are shifting away from consumption of indigenous foods in the same way that they do not want to be involved in the planting of these indigenous foods as they consider indigenous foods as old generation foods.

4.13 HINDRANCES TO THE PRODUCTION AND CONSUMPTION OF INDIGENOUS FOODS

The study findings indicated definite hindrances to the production of indigenous foods in the Emaphephetheni area. These challenges have been affecting the production and consumption of indigenous foods within rural households, thereby negatively impacting on large farming activities and the improvement of food security in rural communities. Some of the indicated challenges are as follows.

4.13. 1 UNFENCED FARMS

All community members noted that numerous problems were encountered by small scale farmers in the production of indigenous foods in their communities. A major complaint highlighted by community members was that most rural farms were not fenced. Therefore, the farms were exposed to stray animal invasion. Farms crops are often destroyed by cows, goats, and sheep and othersthat graze on the crops, which affects the production of indigenous foods in the community.

In group two, a community member had this to say:

“We don’t have fencing around our farmlands. Most times animals like cows, goats and sheep invade our farms to destroy our indigenous crops” (CM-G2-P1).

Animal invasion on rural people’s farms was worrisome to community members. Invasion of these animals on farms leads to loss of valuable crops that farmers had laboured to plant and nurture for harvests. This loss from animal invasion was deduced from the findings as a serious threat to their indigenous crops production. In fact, one of the community members was embittered in his remark on animal invasion on his farm indicating that cows/goats damage their crops. Cook *et al.*, (2011) emphasise that invasion of animals is a major cause of crop loss and food security. Also, invasion of animals’ results in the degradation of local ecosystem services (pests and diseases) which can affect production and harvests in communities.

4.13.2 INADEQUATE WATER SUPPLY

Community members indicated that adequate water supply was necessary for some indigenous crops to survive and grow well. Due to unpredictable rainfall, water is a scarce resource. Therefore, there is a need to make water available to these crops to enhance maximum production of the crops. This was acknowledged by one community member in his views:

“Water is highly needed to sustain our crops, especially when rainfall is not regular or has stopped. In winter we face water shortage, some of our crops need to water to grow well but there is no irrigation system and we don’t have water to cater for agricultural purposes” (CM-G1-P3).

The study confirmed that numerous aspects affect the growth of plants and water is amongst the most essential, as these plants struggle to thrive when water supply becomes inadequate or unavailable to them. Indigenous crops are in need of a regular supply of water to enhance their growth and production. In rural areas, people depend on agriculture for food, and water is the key element to food security. Water is vital for food security and people who have access to water tend to have lower levels of undernourishment (FAO, 2014).

4.13.3 INFERTILE SOIL FOR FARMING

The indigenous knowledge holders indicated that farming requires fertile soil that can yield good crops. All the participants mentioned that farming land was known to be fertile or infertile based on the harvest and production of indigenous crops from such farmland. Indigenous knowledge holders noted that production of indigenous crops by the rural people is challenged by the infertile soil, and they indicated that they had limited access to arable land for farming purposes. It was therefore a challenge, as the success of their indigenous foods was determined by the type of soil. Indigenous knowledge holders mentioned that it was difficult to plant indigenous foods in an infertile soil. One indigenous knowledge holder had this to say:

“It is true that land is readily available in most rural areas, but not all the land is good for farming of indigenous crops. Sometimes, we plant particular crops on a particular portion of land, and we discover that the crops are not growing well or just die off. This is an indication that arable land alone can be used for farming of these indigenous crops” (IKH2).

This view supports D’Haese’s (2013) assertion that the benefits of indigenous knowledge in the planting of indigenous foods include the knowledge of soil or farmlands where different indigenous crops could be planted for desired results in harvest. Crops cannot just be planted without knowing suitable soil that can enhance production of such crops. Indigenous people have enormous knowledge in traditional ways of growing food. In this area they use mixed cropping,

where farmers sow more than two crops at the same time. In this manner farmers can maximise land and also reduce the risks associated with single crop failure (Food Tank, 2017).

4.14 GOVERNMENT SUPPORT FOR THE PROMOTION OF INDIGENOUS FOODS

The indigenous knowledge holders and the community members revealed their pleas for government to support and promote indigenous foods among the people. One Indigenous knowledge holder said:

“Our government should promote Indigenous foods. This will protect us from illnesses, and they prolong our life span. Eating them makes us to be immune to certain diseases and also heals us from some ailments” (IKH4).

Indigenous knowledge holders believed it for a fact that indigenous foods are healthy, nutritious and promote healthy living (D’Haese *et al.*, 2013). Government should therefore promote these foods in communities as one of the strategies to reduce household food insecurity. They further agreed that commercialisation of indigenous foods could be used as a strategy to create employment opportunities. One indigenous knowledge holder advocated that if government could support people with the necessary farming tools, seedlings and funds to start farming, this would create jobs and reduce food insecurity and poverty in rural areas.

This approach could be the promotion of indigenous crops and encouragement of more communities to produce these crops. Most of these crops and indigenous leafy vegetables are harvested in the wild and few are cultivated; they form part of daily staple diets in households. Therefore, if indigenous crops and vegetables are promoted within the rural sector, poverty could be eliminated while the surplus received could be sold locally and could also be exported to neighbouring countries (Masekoameng, 2007).

Additionally, community farming may be seen as another strategy to strengthen community food security. Households in the communities can team together to practise community gardens where members of the community will work together to plant indigenous crops. This was according to one community member who said:

“Communities can decide to use their community lands for community gardens, where more people will be interested to plant indigenous foods such as beetroot, amadumbe, sweet potatoes, and sugarcane in commercial quantities. These gardens will also provide employment, food security and sources of income to the community members” (CM-G1-P1).

This suggestion supports the views of Hendriks and Ngidi (2014) in their mixed method survey of 69 irrigation scheme households where community farmers were able to produce various indigenous foods. These households also engaged in poultry farming (chickens), and about 30% of them additionally engaged in livestock production (cattle, goats, sheep and pigs) and other items for commercial production and sustaining their families.

4.14. 1 PROVISION OF FARMING EDUCATION

Community members indicated that they collaborate to educate people on farming activities. People need to be provided with education on what, how and when to plant various indigenous crops before they can have fruitful harvests. Study participants indicated that they had been trying to encourage one another and invited youth to join in farming of indigenous crops. Vazquez (2011) states that young people have taken the initiative in learning more about gardening, hence youth volunteers would also go to elders’ homes and build traditional raised bed gardens for them, while the elders in return would share some of their knowledge and stories of indigenous foods. Community members reiterated that they educate themselves on agricultural practices. One community member remarked that:

“We have an organisation that we have joined; it helps us about agriculture. We meet with other young and old women to share ideas about farming, how to go about it, and we are also trying to invite young people into the organisation” (CM-G2-P3).

Community members advised the small-scale farmers to guard against vandalism of their farms by protecting the farms from intruders. Farmers need to find solutions to keep their farms away from animal invasions. Farmers should be conscious of their labour on their farm; they labour in planting weeding and watering, so they should guard against fruitless effort. This is why participants enjoined the farmers to be mindful of their gardens. Community members indicated that they frequently meet to encourage one another; they also encourage new members to join in farming, especially the young ones. Community members further emphasised that more awareness, such as workshops, should be raised to educate people on the need to consume more of indigenous foods and also to plant them. Community members indicated that they want programmes on indigenous foods to address food insecurity. However, programmes have been implemented and are still being implemented to encourage more participation in farming activities, especially in South African rural areas, which include household food production and food preservation, social grants. (Abdu-Raheem and Worth, 2006 and Hendriks 2014).

4.14.2 PARTICIPATION IN THE PRODUCTION OF INDIGENOUS FOODS

Indigenous knowledge holders and community members concurred that it is essential for every household in the community to be involved in the production of indigenous foods. The knowledge holders attested to the need to plant indigenous crops for healthy lives and to make more money to cater for their families. One indigenous knowledge holder said:

“Production of indigenous foods should be embraced by more family members; there is a need to increase the production of these traditional foods to provide foods in abundance for families, most especially people in rural areas where land can be used for farming purposes” (IKH3).

All participants advocated that every household in rural communities should have a garden at the back of their homes to plant various indigenous crops. One indigenous knowledge holder declared that almost every household should have a small garden at the back of the house where they plant indigenous vegetables. The participation of more households in the planting of indigenous foods supports the advocacy of Gray (2001) that Africans should view their involvement in various indigenous practices from the vantage point of an African worldview which, in turn, is informed

by African culture. Therefore, this suggestion supports Abdu-Raheem and Worth's (2011) position that families should be encouraged by government at various levels to engage in the planting of indigenous crops to improve food security in their societies.

Findings of this study stressed that indigenous foods could provide food security as long as the planting of these indigenous crops are not negatively affected by circumstances. Farmers need to protect their farms; they need to understand in which season they should plant various indigenous foods crops; and above all they need to be in good health to perform the required farming duties. Abundant provision of indigenous foods in rural communities prevents food insecurity. Owusu-Ansah and Mji (2013) maintain that one of the significant achievements of Afrocentric theory is its ability to promote and sustain continuity of age-long cultural practices of rich African culture.

4.15 CONCLUSION

This chapter has presented the findings regarding the utilisation of indigenous foods. The study showed that in the community of Emaphephetheni indigenous foods are commonly consumed by the elderly people, who are more passionate and knowledgeable about indigenous foods. It was reported that the decline in the consumption of these indigenous food is due to the fact that the youth is less knowledgeable about these foods, and western diets have led indigenous foods to be less predominant in the diets of indigenous people. Knowledge on indigenous food has been eroded. It was also noted that there are challenges that hinder the production of these indigenous foods within rural households and it even negatively impacts large farming activities in the community.

The next chapter presents the conclusion and recommendations on how to enhance food security through the promotion of indigenous foods.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 INTRODUCTION

The aim of the present study was to explore how indigenous foods could enhance food security at household level. This study revealed that rural communities have often been regarded as food insecure, particularly at household level, yet many indigenous communities are known to be rich in indigenous food crops which can play an important role in reducing food security in households. This chapter presents the summary, conclusions, and the recommendations from the analysis of the data presented in chapter four. This study has explored existing literature which critically points to how indigenous foods are utilised in order to improve household food security. Through this study, a greater understanding of indigenous foods was refined and the drive for food security to be achieved through this route was expounded on. This study strived to get a deeper insight into the value behind the indigenous knowledge held within rural communities. Indigenous communities have used their indigenous knowledge to ensure food and livelihood security over the centuries. Therefore, this study was geared towards analysing the utilisation of indigenous foods to the enhancement of food security at household level.

5.2 SUMMARY OF FINDINGS

5.2.1 PERSPECTIVES OF INDIGENOUS KNOWLEDGE HOLDERS ON INDIGENOUS FOOD

The findings of the study indicated that elders had enormous knowledge on indigenous foods. This knowledge included how to prepare indigenous foods. These foods were regarded as natural, easy to prepare, and required less seasoning during the processing stage. However, nowadays, knowledge on how to prepare these foods has diminished due to westernisation. Indigenous knowledge holders indicated that indigenous foods are connected to culture and the identity of indigenous people. Therefore, indigenous foods are important to the people in rural communities as the main means of improving household food security. The study findings revealed that the extensive knowledge on traditional foods held by people in communities plays an enormous role in knowing what and where to plant indigenous foods successfully. It was also found that

indigenous foods were the predominant source of food for the rural communities, especially for the elderly people, who appreciated these foods. These results indicate that the youth have their own preference when it comes to what to eat.

This reduction of low consumption in indigenous foods is caused by the presence of modern foods in supermarkets; nowadays almost all food products are purchased rather than home-grown. Change of lifestyle was highlighted as a reason why people do not consume indigenous food more often. The findings indicated that people have other obligations like work, therefore there is no time to plough and cook indigenous foods, which is time consuming. The patronage of these indigenous foods by the youth has been decreasing because of modernisation and a preference for modern foods by the young generation. It was further reported that the young generation should be encouraged to join in planting of indigenous foods. Community members revealed that indigenous foods are being labelled as inferior by the young generation.

5.2.2 AVAILABILITY AND UTILISATION OF INDIGENOUS FOODS

The study findings indicated that some indigenous foods were easily available and were consumed by majority of households, which is a positive reflection on the consumption of indigenous food. However, the results further revealed various constraints on the availability of indigenous foods. Community members regarded indigenous foods as inexpensive and accessible when obtained from home gardens, informal markets and vendors, simply because some indigenous plants are picked in the wild or planted in home gardens. However, in formal markets these foods are very expensive because of their frequent consumption and limited seasonal availability. The effect of high prices of food results in other expenses, such as transportation. This impacts on underprivileged households because they usually spend a large share of their income on food and other necessities. The findings further indicated that most people grow indigenous foods for their family consumption, while others produce to sell the foods in their neighbourhood to generate income for their households. Income enhances the food purchasing power of most households in order to meet their daily food needs, which therefore enhances household food

security. The study confirmed that indigenous vegetables were fundamental sources of both food and income in households.

5.2.3 HEALTH AND MEDICINAL BENEFITS OF INDIGENOUS FOODS

Community members described indigenous foods as healthy when compared to modern foods. Modern foods were highlighted as foods that use chemicals and cause illnesses, whereas, indigenous foods are natural and fresh. The study findings revealed that indigenous foods are regarded as being healthy and nutritious and also good for preventing chronic illnesses, but because they are natural and are found growing in the yard or at a local small- scale farmer's they are often overlooked. It was emphasised that indigenous foods should be consumed more because of their nutritional value. *Amaranthus (imifino)* were regarded as the largest source of nutrients, which can also help in digestive disorders and reducing inflammation. *Amadumbe* also contain high amounts of potassium, which lowers blood pressure.

5.2.4 COMMERCIALISING INDIGENOUS FOODS

The study confirmed that the production and sale of indigenous foods is a livelihood strategy for most households. It was noted that farmers who produce indigenous vegetables are unemployed, so production is a key source of income. Community members clearly indicated that they sell indigenous produce to their neighbourhoods at a reasonable price and this is an additional source of income to growing indigenous crops for their own consumption. Regarding commercialisation, it was found that indigenous foods are not well marketed. The findings highlighted that western foods are continuously being promoted through advertising. On the other hand, indigenous foods and their proponents do not have the backing that western foods have in terms of marketability and promotion. Because of lack of commercialisation, the younger generation do not find indigenous foods appealing and they are regarded as unfamiliar.

5.2.5 SMALL SCALE FARMING AND INDIGENOUS FOODS

The results of study showed that there were challenges that impact the production of these indigenous foods within rural households. One of the foremost challenges highlighted was unfenced farms; as animals' graze on their farms, this caused destruction on the fields and had dire consequences for the production of the indigenous foods. Findings revealed fencing as a major immediate and long- term need for the farmers.

The findings revealed insufficient water supply as the main challenge in planting indigenous crops. It was noted that some indigenous farm crops are in need of a regular supply of water to enhance their growth and production. Hence, most crops struggle to thrive when the water supply becomes inadequate. The results further showed that some parts of the study area have infertile soil and the success of their indigenous foods is determined by the quality of farming soil. It was indicated that it is problematic to plant indigenous foods in dry or infertile soil. Community members specified that production of indigenous food is slowly declining due to various constraints which include poor soil and unpredictable rainfall.

5.3 CONCLUDING REMARKS

Food insecurity is still predominant in rural communities. In South Africa rural households experience food and nutritional insecurity. The potential for eradicating food insecurity through indigenous foods is enormous. The (FAO, 2018) has recognised indigenous people as allies in the fight against hunger, but there is a decline in household production and a negative perception that indigenous foods are merely for the poor. Therefore, government should promote these foods in communities as one of the strategies to reduce household food insecurity. Rural communities depend on these indigenous foods to complement their diets and assist them to endure through hard times.

The study indicates that most rural households in the study area consume indigenous foods in their households and produce indigenous foods for income to purchase food in order to meet their daily food needs. Indigenous food consumption is an integral part of the Emaphephetheni diet. This

shows that there is progress in ensuring food in households and that people generate income by selling their surplus produce. Desires and inclinations have changed generally. As indicated by the findings, people have developed a preference for western food, especially the young generation. There is a lack of attention paid to producing and consuming indigenous foods.

The study also showed that indigenous foods are regarded as being healthy, nutritious and that they promote quality of life. Indigenous foods were recognised as being healthier than their western counterparts so, increased consumption would lead to better health outcomes within the population. From this study it can be concluded that there is an interrelatedness of health, indigenous foods and food security which must be expanded on. Overall, the study indicated the challenges that farmers of these foods face, with community members raising issues such as variations in seasonal availability of indigenous foods, infertile soil, lack of water, and animal trespassing. These challenges should be addressed as burning issues in rural communities in order to improve the production and consumption of indigenous foods.

5.4 RECOMMENDATIONS

The present study aimed to enhance food security using indigenous foods. Based on the results and conclusions, the study proffers the following recommendations:

Recommendations for Indigenous knowledge holders

- Indigenous foods should be encouraged and emphasised in communities; they should be seen as a route to achieving food security. Indigenous foods should be seen as immediate and long- term economic benefits to the rural community at large. If indigenous food can be fortified rural people themselves can discover ways in which the communities can be mobilised to start reaping returns.
- It is recommended that the idea of the value of indigenous foods needs to be reintroduced and promoted amongst South African populations. The young generation should be educated about indigenous foods.

- Rural households should be provided with farming inputs which could improve their agricultural productivity as most households depend on farming for extra income to sustain their families.

Recommendations for community members

- Community members should be encouraging community members to use their household plots to produce local food, increase accessibility and reduce hunger and food insecurity in poor households.
- There should be no divergence between indigenous foods and western foods. Areas where western food is most likely to be found, such as formal markets, can be used to further promote indigenous foods. These places can be used to increase the visibility and accessibility of indigenous foods. Commercialisation of these will make them more accessible.
- There should be promotional education in media platforms to create awareness on the importance and health benefits of consuming indigenous foods. Households should be encouraged and educated about nutritious eating throughout life.

5.4.1 RECOMMENDATIONS FOR FUTURE RESEARCH

Further research should investigate how indigenous foods can be commercialised and promoted. In the present study, most participants were elderly people. However, other research could focus on younger people; it would be interesting to assess youth's knowledge on indigenous food, as well as their attitudes regarding these foods. This will determine whether young people recognise the significant role of indigenous foods in well- balanced diets and hence include these indigenous foods in their daily diets.

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APPENDIX 1: INFORMED CONSENT



UNIVERSITY OF ZULULAND

Department of Anthropology and Development Studies

Researcher: Ms Anele.S Bhengu

Cell Phone No: (+27) 73 35 17067

Research Office: Ms Daniela Viljoen

Tel: (035) 902 6645

Please receive my greetings

I am Anele Sthabile Bhengu, a Master's candidate in the Department of Anthropology and Development Studies at the University of Zululand. The aim of the study is to analyse the utilisation of indigenous foods in enhancing food security at household level.

The study will be of help to policy makers, government and relevant stakeholders to play a sustainable and significant role in ensuring food security in rural households. Your contribution to this project is voluntary and you have all rights to withdraw at any stage if you feel uncomfortable, without suffering any harm. There will be no financial gains from participating in this research project. Both anonymity and confidentiality of participants are guaranteed. If you have any questions or inquiry about participating in this study, please contact me (contact details above). It should only take you a few minutes to complete the questionnaire or interview questions.

Sincerely

.....
Researcher's signature

...../...../..2018
Date



UNIVERSITY OF ZULULAND

Department of Anthropology and Development Studies

Researcher: Ms Anele Bhengu

Cell Phone No: (+27) 73 35 17067

Research Office: Ms Daniela Viljoen

Tel: (035) 902 6645

INFORMED CONSENT

I (full name of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I voluntarily participate in this research project. I am aware that I have a right to withdraw from the research project at any stage, should I so wish.

.....

Signature of participant

...../..... /2018

Date

APPENDIX B

ANNEXURE A: INTERVIEW GUIDE

ANNEXURE A.1: INTERVIEW GUIDE: INDIGENOUS KNOWLEDGE HOLDERS

Q.1 How do you think your indigenous knowledge and your experience can ensure food security in your home and community?

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Q.2 What factors do you think impact food insecurity in rural communities?

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Q.3 What role do 'Indigenous foods' play in improving food security and nutrition?

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Q.5 Of all the things we've talked about, what do you think can be done to motivate people to eat these foods?

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ANNEXURE A.2: FOCUS GROUP INTERVIEW GUIDE: COMMUNITY MEMBERS

Q.1 Let's talk about indigenous foods. What comes to your mind when you hear the words indigenous food? How do you perceive indigenous foods?

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[illegible][illegible][illegible]

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Q.6 How do the indigenous foods improve food security?

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Q.7 Can you tell me positive things about indigenous foods?

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Q.8 Can you tell me negative things about indigenous foods?

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Q.9 How do you adapt if there doesn't seem to be enough food (traditional or store-bought) for your household?

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Q.10 Do you produce indigenous foods and if so, who are the main buyers?

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Q.11 Do you have any suggestions on how your community's food security can be strengthened?

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ANNEXURE A.3:

**LIST RECORD FORM FOR COMMUNITY INDIGENOUS/TRADITIONAL FOODS
AVAILABLE**

GIVEN BY: COMMUNITY MEMBERS

	INDIGENOUS/ TRADITIONAL FOOD ITEM	LOCAL NAME/LANGUAGE NAME	COMMENTS; CHARACTERISTICS AND FREQUENCY OF USE
1			
2			
3			
4			
5			
6			
7			
8			
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11			
12			
13			
14			
15			

UHLAKA

ISIGABA A: IMIGUDU NGEMIBUZO

ISIGABA A.1: IMIGUDU NGEMIBUZO: IZINCITHA BUCHOPHO ZABOMDABU

Q.1 Kungani ucabange ukuthi ulwazi lomdabu Kanye nesipiliyoni kungaba yisisekelo sokuqikekelwa kokudla ekhaya lakho Kanye nase mphakathini?

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Q.2 Yiziphi izici ocabanga ukuthi zingumthelela wokungaqikekelwa kokudla emiphakathini wasendaweni zasemakhaya?

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Q.3 Iyiphi indima engadlalwa ‘Ukudla komdabu’ ukuthuthukisa izinga lokuqikekelwa kokudla?

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Q.4 Ungasho ukuthi ukusetsheniswa ‘kokudla komdabu’ bekungavumelekine eminyakeni eyedlule?

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Q.5 Kukho konke esesikhulume ngakho, ucabanga ukuthi yikuphi okungenziwa ukukhuthaza abantu ukuthi bedle lokhu kudla?

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ISIGABA A.2: IDLANZANA OKUKHULUNYWE NALO IMIGUDU NGEMIBUZO: AMALUNGA OMPHAKATHI

Q.1 Asikhulume ngokudla komdabu, yikuphi okufika emqondweni wakho uma uzwa amagama okudla komdabu, yikuphi okuqaphelayo ekudleni kwendabuko?

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Q.2 Ungakhona ukuhlonza izinhlobonhlobo zokudla komdabu ezidliwe ezikhathini zonyaka ezihlukene futhi kungani?

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Q.3 Ulithola kanjani igunya lokusebenzisa ukudla komdabu okuse mphakathini wase-Emaphephetheni?

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Q.4 Hlobo luni lwezinkinga ohlangabezana nalo ekufinyeleleni ekudleni komdabu?

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Q.5 Ukusebenzisa kanjani ukudla komdabu okusuke kukhona?

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Q.6 Ucabanga ukuthi ukudla komdabu kumele kunyuse izinga lezoqikekelwa?

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Q.7 Ungangitshela izinto ezinhle mayelana nokudla komdabu?

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Q.8 Ungangitshela izinto eimbi mayelana nokudla komdabu?

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Q.9 Uyakukhiqiza ukudla komdabu futhi yibaphi abathengi abakhulu?

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Q.10 Umissa kanjani uma kubukeka sengathi ukudla akwenele (komdabu noma okuthengwa) ekhaya lakho?

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Q.11 Unazo iziphakamiso mayelana nokuthi ezokuqikekelwa kokudla emiphakathini ziqiniswa kanjani?

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**ISIGABA A.3: UHLA OLUSHICILELWE EMPHAKATHINI ONGUMNSINSI/UKUDLA
KWENDABUKO OKUKHONA**

LUNIKEZELWE: NGAMALUNGA OMPHAKATHI

	UMNSINSI/UKUDLA KWESINTU	IGAMA LALEYONDAWO/IGAMA LOLIMI	IMIBONO; UKWEHLUKAHLUKANA KANYE NEZINGA LOKUSETSHENZISWA
1.			
2.			
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APPENDIX C: ETHICAL CLEARANCE

**UNIVERSITY OF ZULULAND
RESEARCH ETHICS COMMITTEE**
(Reg No: UZREC 171110-030)



RESEARCH & INNOVATION

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ETHICAL CLEARANCE CERTIFICATE

Certificate Number	UZREC 171110-030 PGM 2018/530						
Project Title	THE UTILISATION OF INDIGENOUS FOODS IN ENHANCING FOOD SECURITY IN RURAL AREA OF EMAPHEPHETHENI KWAZULU NATAL						
Principal Researcher/ Investigator	A Bhengu						
Supervisor and Co-supervisor	Dr MM Masuku						
Department	Anthropology Development Studies						
Faculty	Arts						
Type of Risk	Med Risk- Data collection from people						
Nature of Project	Honours/4 th Year		Master's	x	Doctoral		Departmental

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical approval in respect of the undertakings contained in the above-mentioned project. The Researcher may therefore commence with data collection as from the date of this Certificate, using the certificate number indicated above.

Special conditions:

- (1) This certificate is valid for 1 year from the date of issue.
- (2) Principal researcher must provide an annual report to the UZREC in the prescribed format [due date- 18 September 2019]
- (3) Principal researcher must submit a report at the end of project in respect of ethical compliance.
- (4) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.

The UZREC wishes the researcher well in conducting research.


Professor Gideon De Wet
Chairperson: University Research Ethics Committee
Deputy Vice-Chancellor: Research & Innovation
18 September 2018

