



**FEEDING PRACTICES OF MOTHERS WITH CHILDREN ATTENDING EARLY CHILDHOOD  
DEVELOPMENT CENTRES IN THE XHARIEP DISTRICT**

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## DECLARATION

I, Angelique Celestè Carson-Porter, declare that the Master's Degree research dissertation or interrelated, publishable manuscripts/published articles, or coursework Master's Degree mini-dissertation that I herewith submit for the Master's Degree qualification in Dietetics at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution of higher education.

A handwritten signature in black ink, appearing to read 'A.C. Carson-Porter', with a circular flourish at the beginning.

A.C. Carson-Porter

November 2021

*"A simple vote, without food, shelter and health care is to use first-generation rights as a smokescreen to obscure the deep underlying forces which dehumanise people. It is to create an appearance of equality and justice, while by implication socio-economic inequality is entrenched.*

*We do not want freedom without bread, nor do we want bread without freedom. We must provide for all the fundamental rights and freedoms associated with a democratic society."*

**Nelson Mandela**

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## DEDICATION

*Inspired by London,*

*Pursued for Dantè,*

*Accomplished for Aidan*

*With the support of Dalton.*

## SUMMARY

**Background and motivation:** The nutritional status and health of under five year olds are considered indicators of social progress, development and access to resources within communities. In developing countries, undernutrition is a major contributing factor to children failing to achieve their developmental potential. The prevention of malnutrition requires, among others, safe, nutritious, and diverse foods in early childhood. Young children become vulnerable to malnutrition when complementary foods are introduced, and breastfeeding is discontinued. The 2016 South African Demographic and Health Survey reported that 27% of children younger than five years were stunted. Complementary feeding practices are, therefore, a priority matter that needs to be addressed in South Africa.

The Assuring Health For All in the Free State (AHA-FS) study in 2007 already identified malnutrition in the Xhariep District. Also, while rendering health services during community-based education and interprofessional training to the communities in the Xhariep District, the Department of Nutrition and Dietetics of the University of the Free State identified that mothers face many barriers to feeding their young children an appropriate diet. Therefore, this study aimed to explore the perspectives of mothers of children who attend ECD centres in the Xhariep District to gain a nuanced understanding of the driving factors of malnutrition in the area.

**Methods:** This was a qualitative, exploratory study in which the researcher had a constructive paradigm. Twelve participants who met the inclusion criteria were conveniently sampled. Semi-structured interviews were used to determine the mothers' choices and motivation for foods they fed their children until data saturation was reached. The interviews were audio-recorded after informed consent was obtained. Content analysis was used to analyse the data and identify themes, while descriptive statistics described the participants.

**Results:** The participants had a median age of 31 years (IQR: 26.8-41.8; range: 20-71 years), with 1-3 children in their care. Five of the participants finished grade 11 or 12, while six only had some

primary school education, and one never went to school. Nine of the participants relied on social grants as a source of income, 11 were unemployed, and only two had a spouse or partner who was employed. The following themes were identified from the interviews: infant and young child feeding practices, social support for child feeding practices, financial restraints to feeding practices, concern for the nutrition wellbeing of the children and household amenities. The participants mostly fed their children cooked maize meal porridge (pap), milk, cordial mixed with water, and vegetables and meat were mostly fed only once a week. When the participants had no meat, they fed the children pap with oil. Fruits were fed to the children only at the beginning of the month and were considered as treats.

All the participants reported that they skipped meals so that their young children could have food to eat. Other coping strategies included borrowing money, mostly from loan sharks, and using store credit to purchase electricity and food when they had none. However, these practices, in turn, were detrimental to the overall available household funds because of the interest incurred.

The availability of water, and the amount of money spent on electricity, also influenced food choices. The participants reported that they did not have vegetable gardens because they lacked seeds, space, and water.

Participants reported that they had received nutrition advice from neighbours, nearby grandmothers, and the staff at their local clinics. They reported that they tend to implement the advice from grandmothers and neighbours because they had raised children before. However, they did not always implement the advice from the clinic staff due to lack of access to the foods they recommended.

**Conclusion and recommendations:** The participants experienced similar challenges that contributed to household food insecurity. The main challenge identified was the lack of employment opportunities in their communities. In conclusion, the effects of unemployment and the level of education of mothers should be acknowledged when policymakers recommend

feeding practices for young children. The staff at the local clinics were unaware of the mothers' lived experiences, so the nutritional advice was not adapted to the circumstances of the mothers.

Although the mothers received support from the government through social care grants, they still experienced frequent periods of insufficient funds to purchase food and electricity for their households. Thus, it would be worthwhile to teach recipients of social grants to budget their money and thus discourage the use of loan sharks and store credit as coping strategies. Furthermore, empowering women to generate an income through communal agricultural practices, cooking, and sewing skills could help improve their food access.

**Keywords:** Child health; Complementary feeding; Breastfeeding; Rural; South Africa; Qualitative research; Lived experiences; Mothers; Poverty

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## **LIST OF ABBREVIATIONS**

ECD	Early Childhood Development
FAO	Food and Agriculture Organization of the United Nations
NCD	Non-Communicable Diseases
NFCS	National Food Consumption Survey
NFCS-FB	National Food Consumption Survey- Fortification Baseline
SANHANES	South African National Health and Nutrition Examination Survey
SADHS	South African Demographic and Health Survey
STATS-SA	Statistics South Africa
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

## **GLOSSARY OF TERMS AND OPERATIONAL DEFINITIONS**

In this study, the following terms and concepts (listed alphabetically) are used and discussed:

### **Children**

In this study, children refer to males and females between the ages of two to six years.

### **The double burden of malnutrition**

The WHO defines the double burden of malnutrition as the co-occurrence of under- and overnutrition. Different forms of malnutrition can coexist in individuals, households, cities and countries. The term “triple burden” is sometimes used to emphasize micronutrient deficiencies” (WHO, 2022b).

### **Early childhood development centres**

Early childhood development centres are “facilities that cater to young children, from infants to six years old. These facilities may also offer Grade R classes” (Statistics South Africa, 2016).

### **Equity and inequity**

Equity focuses on the idea of fairness, impartiality or justice of the opportunities rather than the results of opportunities, whereas inequity follows a moral element that refers to “unfairness of opportunity”. Inequalities (or unequal outcomes/consequences) result from unequal access to systems and processes that structure everyday conditions. To put it another way, equality of opportunity, often known as equity, has an impact on equality of outcome. Nutrition equity focuses on the possibilities and limitations that exist within the food, health, and social protection systems that affect access to healthy, inexpensive food and high-quality nutrition care, and can lead to unequal nutrition outcomes (or nutrition inequalities) (Food & Agriculture Organization (FAO), 2008).

## **Food access**

Food access is defined as access by individuals to adequate resources for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all resources (money, fertile land, labour tools, seeds, credit, and livestock) over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources) (Sligh & Christman, 2007:1). At the household level, access, therefore, refers to the ability of the household to secure access to adequate nutritious food by producing it or buying it. The local food environment shapes access, including food prices and household income (FAO, 2008), and it also depends on factors like distance, daily mobility, modes of transport, space and place, and time that determine how much access an individual or household has to food (Turner et al., 2018:96).

## **Food availability**

At the national level, food availability is defined as “the availability of sufficient quantities of food of appropriate quality, supplied, on the national level, through domestic production or imports (including food aid)” (FAO, 2006). At the personal or household level, availability refers to “whether a food vendor or product is present or not within a given context” (Turner et al., 2018:96).

## **Food environment**

On the national level, food environment is defined as the physical, economic, political and sociocultural contexts that affect the accessibility, availability, affordability and cultural/sensory perceptions of food, which, in turn, influences people’s food choices and their nutritional status (FAO, 2006). At the individual and household level, food environments refer to the foods that people can find in their daily lives and the nutritional content, safety, pricing, convenience, labelling, and advertising of these foods (Turner et al., 2018:94).

### **Food poverty line**

The food poverty line is defined as “the amount of money required for an individual to afford the minimum required daily energy intake, commonly referred to as the “extreme” poverty line” (Ruch, 2018: 3). At the time of data collection in 2021, this amount was set at R624.00 (according to March 2021 Household affordability index) person per month (STATS-SA, 2021).

### **Food security**

Food security exists “when all people have physical and economic access to enough, safe, and nutritious food to suit their dietary needs and preferences for an active and healthy life at all times” (FAO, 2006:1).

### **Food stability**

Having food stability is to be food secure. A population is defined as having food stability when “households or individuals have access to adequate food at all times, without risking losing access to food because of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). Therefore, the concept of stability refers to both the availability and access dimensions of food security” (FAO, 2006:1).

### **Food system**

The South African Child Gauge 2020 defines food systems as “all the elements (including environment, people, inputs, processes, infrastructures and institutions) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socioeconomic and environmental outcomes” (May et al., 2020:23).

## **Food utilisation**

Food utilisation is defined as the proper biological use of food (nutritional uptake and describes the ability to consume and use sufficient energy and nutrients, including food preferences, dietary diversity, food safety, access to safe water, sanitation and health care services (May et al., 2020). Effective food usage largely depends on households' understanding of food storage and processing procedures, basic nutrition principles, good childcare, and attention and knowledge on preparing and feeding the food" (Rivera & Qamar, 2003). This definition highlights the important role of non-food inputs in food security (FAO, 2006:1).

## **Hidden hunger**

Hidden hunger is defined as micronutrient deficiencies caused by insufficient intake of vitamins and minerals (including vitamin A, iron, zinc and iodine), essential for growth and development (FAO, 2022).

## **Household dietary diversity**

Household dietary diversity is defined as the number of different foods or food groups that the household consumed over a given reference period. Therefore, it reflects the variety of foods to which a household has access and is used as a qualitative measure of food consumption and a proxy for nutrient adequacy of diets (Department of Social Development, 2015; Kennedy et al., 2010).

## **Lower-bound poverty line**

The lower-bound poverty line is defined as "the food poverty line plus the average amount spent on non- food items by households whose total expenditure is equal to the food poverty line" (Ruch, 2018). At the time of data collection in March 2021, this was R890.00 per person per month (STATS-SA, 2021).



## **Malnutrition**

The European Society for Clinical Nutrition and Metabolism (ESPEN) defines malnutrition as “a state resulting from lack of intake or uptake of nutrition that leads to altered body composition, such as decreased fat-free mass and body cell mass leading to diminished physical and mental function and impaired clinical outcome from disease” (Cederholm et al., 2017). The World Health Organization (WHO) defines malnutrition as the condition associated with deficiencies, excesses or imbalances in the consumption of macro- and/or micronutrients. For example, undernutrition and obesity are both forms of malnutrition (World Health Organization, 2021).

### **Micronutrient deficiencies**

Micronutrient deficiencies are a form of malnutrition (CDC, 2022) caused by insufficient intake of vitamins and minerals, such as zinc, iron, iodine and vitamin A that are essential for proper growth and development (WHO, 2021a).

### **Overnutrition**

Overnutrition is a form of malnutrition caused by consuming too much energy and not enough energy expenditure through exercise, which can manifest as overweight, obesity and diet-related non-communicable diseases (WHO, 2021a).

### **Overweight and obesity**

Children under the age of five are diagnosed as overweight if their weight-for-height is more than two standard deviations over the reference population's median, and obese if it is more than three standard deviations above the reference population's median. In older children, the body mass index (BMI) is used to determine if they are overweight or obese (WHO, 2021a).

### **Poverty**

Poverty is defined as “the lack of, or the inability to achieve, a socially acceptable standard of living” (Bellù & Liberati, 2005:1).

## **Rural areas**

Rural areas are defined as farms and traditional areas characterised by low population densities, economic activity and low levels of infrastructure (Maluleke, 2019: vii).

## **Stunting**

Children are diagnosed as being stunted when their length- or height-for-age is more than two standard deviations below the median of the reference population. Therefore, stunting refers to low height-for-age and is a sign of growth and development impaired by chronic malnutrition, repeated infection and inadequate psychosocial stimulation (WHO, 2021a).

## **Transient poverty**

Transient poverty at the household level is defined as the component of time-mean consumption poverty that is directly related to consumption fluctuation; it can be regarded as a measure of vulnerability to falling consumption (Jalan & Ravallion, 2007:82). In other words, transient poverty is short-term as opposed to chronic poverty.

## **Undernutrition**

Undernutrition is defined as a form of malnutrition due to insufficient intake of energy and nutrients, which can manifest as stunting, wasting, underweight or micronutrient deficiencies (WHO, 2021a).

## **Underweight**

When a child's weight-for-age falls more than two standard deviations below the reference population's median, they are considered underweight. As a result, being underweight is defined as a low weight-for-age, which is a sign of acute or chronic malnutrition (WHO, 2021a).

**Upper-bound poverty line**

The upper-bound poverty line is defined as “the food poverty line plus the average amount derived from non- food items of households whose food expenditure is equal to the food poverty” line (Ruch, 2018). At the time of data collection in March 2021, this was R1335.00 per person per month (STATS-SA, 2021).

**Wasting**

When a child's weight-for-height is more than two standard deviations below the reference population's median, they are considered wasted. As a result, wasting is defined as a low weight-for-height, indicating recent (acute) and severe weight loss caused by an infectious condition (such as diarrhoea) or a lack of food (WHO, 2021a).

## CHAPTER 1: ORIENTATION AND MOTIVATION

### 1.1 Introduction

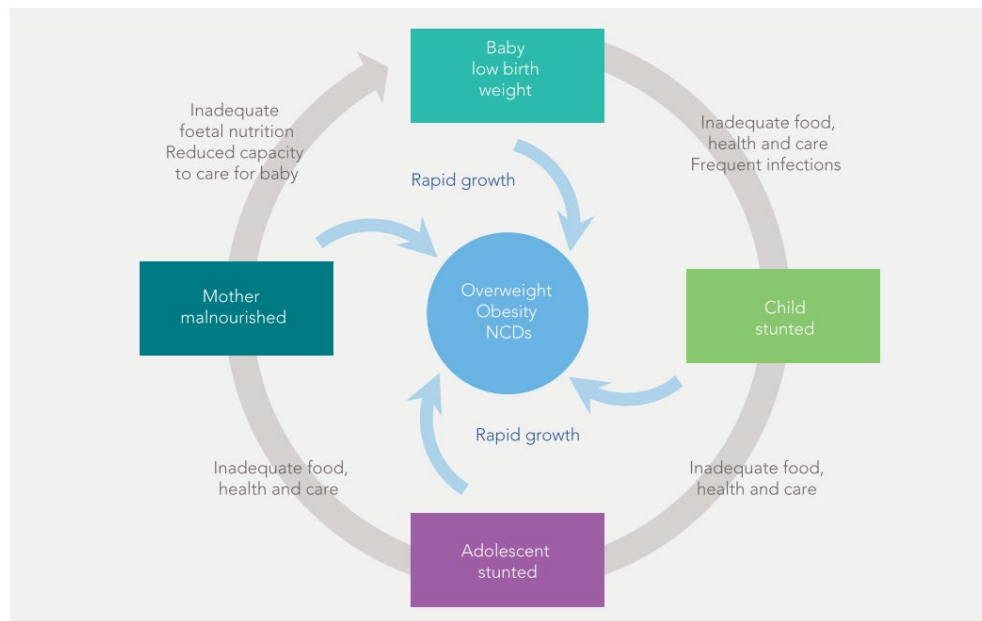
*“Good nutrition allows children to survive, grow, develop, learn, play, participate and contribute – while malnutrition robs children of their futures and leaves young lives hanging in the balance” (UNICEF et al., 2020).*

Malnutrition is classified as undernutrition, which refers to inadequate intake of macro-and micronutrients; and overnutrition, which refers to excess energy intake replacing other important nutrients (Schwarzenberg & Georgieff, 2018:2).

The types of malnutrition distinguished among children are hidden hunger, underweight, wasting, stunting and overweight. In some cases, children may suffer from combinations of these forms of malnutrition (UNICEF, WHO and World Bank, 2019). Hidden hunger refers to deficiencies in micronutrients that impair growth, decrease immunity and increase mortality (UNICEF, 2019). Growth is assessed compared to growth standards developed by the World Health Organisation (WHO) to represent how children should grow under ideal circumstances (WHO, 2021). According to these growth standards, children are classified as underweight when their weight is low for their age, as wasted when their weight is low for their height, and as stunted when their height is low for their age (WHO, 2021).

While the main form of undernutrition in affluent societies develops secondary to disease (disease-related malnutrition), hunger is still the main cause of undernutrition (Cederholm et al., 2017: 51). Undernutrition in children can be caused by starvation or disease, alone or in combination. Children suffering from acute food shortages first become underweight, and then as their weight drops, but their height remains constant, they become wasted. With chronic malnutrition, they eventually become stunted as their height growth starts faltering (UNICEF et al., 2020). Because malnutrition impairs the immune system, malnourished children are susceptible to infections that cause their nutritional status to deteriorate further due to disease-

mediated malnutrition. Thus, mortality from diarrhoea, measles, pneumonia and other infectious diseases is high among undernourished children (UNICEF, 2009). In the long term, early malnutrition, particularly in the first 1000 days (from conception to the age of two years), leads to poor child development and impaired learning capacity (Mayneris-Perxachs & Swann, 2018; Black et al., 2013).



**Figure 1.1 The impact of malnutrition across the life course development** (May et al., 2020)

Additionally, the physiological impact of malnutrition tracks into adolescence and adulthood (Figure 1.1), increasing susceptibility to central obesity, insulin resistance and the associated metabolic changes that may eventually culminate in non-communicable diseases (NCDs) like type 2 diabetes, hypertension, and dyslipidaemia (Soliman et al., 2021:6). The risk for overweight, obesity, and NCDs is worsened by the greater availability of cheap energy from sugary and fatty foods. Adults who were stunted at a young age are also more likely to have lower work capacity and lower incomes (Steenkamp et al., 2016:27; Jenkins, 2015:3). Moreover, malnutrition has an intergenerational effect, as a malnourished mother starts the cycle all over again (May et al., 2020:30). Therefore, young children's health and nutritional status are “indicators of the

development, social progress, and access to resources within communities” (Shisana et al., 2013: 39).

Malnutrition in young children remains a global pandemic that is not appropriately prioritised (Madiba et al., 2019:1). In 2008, at least 200 million children failed to achieve their developmental potential in developing countries, and undernutrition was a major contributing factor (Mayneris-Perxachs & Swann, 2018:1), while malnutrition was responsible for half of all child deaths and was a leading cause of illness such as pneumonia, diarrhoea and malaria, and cognitive development problems (UNICEF, 2009:12). Globally, in 2019, according to the State of the World’s Children Report, 149 million of the children below the age of five years were still stunted, 49.5 million were wasted, and at least 340 million children (one in two) suffered from hidden hunger (UNICEF, 2019:12). In the Southern and Eastern African Region, 29 million children were stunted, and 5.4 million wasted. Figure 1.2 maps the progress made regarding childhood malnutrition in South Africa, indicating that stunting as a consequence of chronic malnutrition remains a challenge (May et al., 2020:25). Therefore, policies and programmes that promote appropriate dietary intake and lifestyles to prevent and manage malnutrition are critical initiatives that improve food and nutrition security (Schönfeldt et al., 2013:233).

		NFCS 1999 1 – 9 years	SADHS 2003 < 5 years	NFCS-FB 2005 1 – 9 years	SANHANES 2012 < 5 years	SADHS 2016 < 5 years
●	Wasting	3.7%	5.2%	4.5%	2.9%	2.5%
●	Underweight	10.3%	11.5%	9.3%	5.8%	6%
●	Stunting	25.5% (1-3 years)	27.4%	23.4% (1-3 years)	26.5% (1-3 years)	27% (<5 years)
●	Overweight	12.4%	Not reported	10.6%	16.5% (girls) 11.5% (boys)	13.3%
●	Obesity	6.6%	Not reported	4.8%	7.1% (girls) 4.7% (boys)	Not reported
●	Vitamin A deficiency	Not reported	Not reported	64%	43.6%	Not reported
●	Zinc deficiency	Not reported	Not reported	45%	Not reported	Not reported
●	Iron deficiency and iron deficiency anaemia	Not reported	Not reported	20%	10%	Not reported
●	Iodine deficiency	Not reported	Not reported	15%	Not reported	Not reported

● No progress      ● Progress made      ● Target achieved

**Figure 1.2: Indicators of children's nutrition status, 1998 – 2016** (May et al., 2020)

The UNICEF conceptual framework (Figure 1.2) indicates that chronic malnutrition (stunting) derives from inadequate nutrition as a result to poor diet, suboptimal breastfeeding practices, gender factors, genetic inheritance, and infections that hinder the body from absorbing nutrients adequately (Casale & Espi, 2017:5). A societal perspective contextualises factors that contribute to the causes of stunting, including socioeconomic status, the home and neighbourhood environment, hygiene facilities, service delivery, parental education, and societal beliefs about feeding and food practices (Spencer, 2018:138; Casale & Espi, 2017:5).

During the shift from a milk-based diet to a supplemental food diet, infants as young as six months are most prone to malnutrition leading to growth faltering (Sayed & Schönfeldt, 2018:37). Bhutta et al. (2013:18) used a model to find that supplemental feeding treatments scaled up to 90 % coverage had the fourth biggest impact on preventable deaths out of ten interventions studied. This, however, would necessitate additional resources being allocated to supplementary feeding interventions, as well as an examination of the current complementary feeding scenario to aid policymakers and programme decisions (Sayed & Schönfeldt, 2018:37).

Breastfeeding promotion, protection, and support have received much more attention and resources globally than supplemental feeding of newborns and young children (Sayed & Schönfeldt, 2018:37). Similarly, the relevance of supplemental nutrition for infants and young children in South Africa has not received enough attention or resources from numerous stakeholders and research organizations (Sayed & Schönfeldt, 2018:37). Researching and understanding the challenges to good complementary and early child feeding practices in South Africa, are also critical. In South Africa, “nearly half of the population is considered chronically poor”, meaning that they live at the upper-bound national poverty line of R1335.00 (in March 2021) (STATS-SA, 2021:3; Ruch, 2018: 3), while the transient poor and non-poor but vulnerable segment of the population has an above-average chance of falling into poverty and comprise 27 % of the population (The World Bank, 2018: xviii). In other words, the non-poor but vulnerable face an “above-average risk of slipping into poverty despite their basic needs being currently met. Poverty is a constant threat to their daily lives” (The World Bank, 2018: xviii). The prevalence of poverty is consistently higher in rural than urban areas (The World Bank, 2018: xviii; du Toit, 2017). According to the World Bank, the rural population made up 32.7 % of the South African population in 2020.

Poverty translates to food insecurity (Maluleke, 2019:6). Undernourished children experience food insecurity at some point in their lives, particularly due to poverty, single-parent homes, child-headed families and unemployment (Schwarzenberg & Georgieff, 2018:2); these factors threaten food accessibility and food utilisation. The South African National Health and Nutrition Examination Survey (SANHANES) reported that 45.6% of the South African population were food secure, 28.3% were at risk of hunger, and 26.0% were food insecure. Most food insecure participants lived in urban informal (32.4%) and rural formal (37.0%) areas. The highest prevalence of food insecurity (30.3%) occurred among the black African population, followed by the coloured population (13.1%). In addition, 30.3% of the black population and 25.1% of the coloured population were found to be at risk of hunger (Shisana et al., 2013:10). Children often skip meals or do not eat food all day due to food insecurity (Schwarzenberg & Georgieff, 2018:3). Moreover, compared to male-headed households, households with young children that are



female-headed (25%) are more likely to reduce meal sizes due to food insecurity (17.3%) (STATSA, 2016:13). According to the General Household Survey conducted in South Africa during 2016, 7.2 million children aged zero to six years lived in households where meals were being skipped due to insufficient food in the house (STATSA, 2016:38). Moreover, the limited types of food that poor households can afford limit dietary diversity, which is a major driver of hidden hunger. A global paradigm shift from food security to “food and nutrition security” to meet all the nutritional requirements of the growing population whilst alleviating hunger is required (Schönfeldt et al., 2013:233).

High poverty rates persist in South Africa, particularly in rural areas (du Toit, 2017:1), and disproportionately affects women and female-headed rural households (Cheteni et al., 2019:2). As the majority (70%) of children in South Africa live with their mothers, and only 30% of African children live with their fathers present in residence, the mother is assumed to be the most obvious channel for assessing and improving early child health (Casale & Espi, 2017:4). However, since mothers take up employment, a percentage of children are cared for in Early Childhood Development (ECD) centres by non-maternal caregivers (Madiba et al., 2019:2). While nationally, approximately 82% of children aged zero to six years do not attend ECDs, the remaining 21.2% attended ECD centres in 2016 (STATSA, 2016:33). Of the proportion aged zero to six years, who were reported to be attending an ECD centre, 65.6% were provided with food twice, or more times per day, 32% received food once every day, while the remaining 2.4% received food a few times a week or sometimes at the ECD centre they attended (STATSA, 2016:33). A cross-sectional study by Madiba et al. (2019:3) of children attending ECD centres in underprivileged communities in Gauteng, South Africa, found that undernutrition was common. Moreover, the study in the Tshwane district in South Africa among health facilities that help population groups from urban, peri-urban, and informal settlement areas included mothers with children aged 0–60 months; compared the nutritional status of children under five years who attended ECD centres to children that stayed at home found that malnutrition was higher amongst those attending ECD centres, with 20.5% of these children being underweight, 17.2% wasted, 35.8% stunted, and 14% overweight (Madiba et al., 2019:9). Similarly, a retrospective cohort study performed between

July 2014 and June 2015 in Mangaung Free State among children six months to five years entering the Integrated Nutrition Programme that was a supplementary feeding programme at the Mangaung University of the Free State Community Partnership Project Community Health Centre, found that almost 40% (38.8%) of the children fell in the 'at risk' for malnutrition category, while 61.2% were malnourished (Brits et al., 2017:216-217). Nevertheless, ECDs (along with primary health care clinics and hospitals) are considered important delivery platforms for nutritional intervention among children 2 – 5 years in South Africa (May et al., 2020: 40).

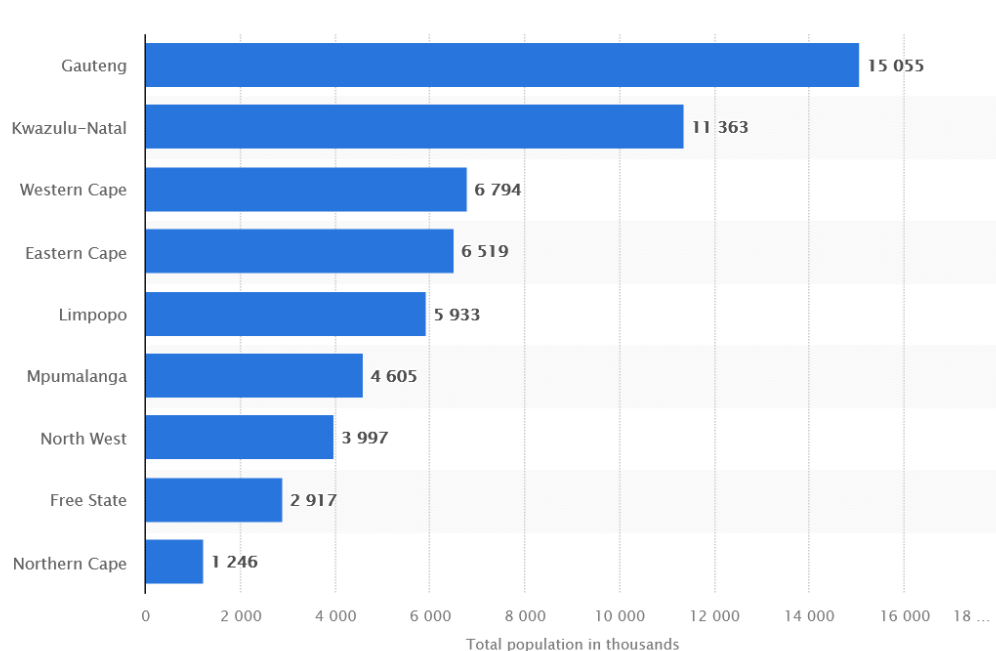
## **1.2 Problem statement**

A healthy diet is essential for growth and development and crucial for long-term and short-term disease prevention (Hamilton et al., 2003:113). Since food availability and food accessibility differ from population to population (Contento, 2011: 32-33), a healthy diet is threatened by poverty, the leading cause of food insecurity amongst millions of children (Steenkamp et al., 2016:27; Schönfeldt et al., 2013:233) particularly in the population under five years (May et al., 2020:25).

Although South Africa has policies and a political commitment to improve infant health and nutrition, malnutrition in young children remains a pandemic. Complementary feeding of infants and young children remain less prioritised and resourced when compared with promoting breastfeeding in South Africa (Sayed & Schönfeldt, 2018:37). For example, Sayed & Schönfeldt (2018:37) noted that none of the national food consumption surveys conducted in South Africa included older infants and young children; thus, there are limited data on complementary feeding practices during this stage life. Furthermore, there is a need for the social factors that impact children's growth, health, and development (Spencer, 2018:138), including mothers' education and socioeconomic status (Casale & Espi, 2017:9), to be investigated so that nutrition interventions aimed at improving young child feeding can be contextualised in specific populations in specific areas (Sayed & Schönfeldt, 2018:37).

The Free State province is a rural province with a lower population than most others in South Africa, as indicated in Figure 1.3. The Xhariep District (Figure 1.4) in the southern part of the Free

State Province is a rural area where the students and staff of the Faculty of Health Sciences of the University of the Free State have been doing community-based education and interprofessional training through rendering health services to the communities of Trompsburg, Springfontein and Phillipolis area. During this time, the Department of Nutrition and Dietetics of the university noted that mothers of young children face many barriers to feeding these children an appropriate diet.



**Figure 1.3: The population of the Free State relative to other provinces**  
(Statistics South Africa (Stats SA), 2021)

The Xhariep District has a population of 121 687, which is 4.2 % of the total population of the Free State Province. It has a total of 40 234 households, of which women head 37.6%. Overall, 41.9% of the population are living in poverty (below the lower-bound poverty line). The median age in the District is 26 years (COGTA, 2020:9). The Kopanong Municipality, is the largest in Xhariep District with a total surface area of 15 645 km<sup>2</sup>, which includes Trompsburg (municipal head office), Gariep Dam, Springfontein, Bethulie, Philippolis, Jagersfontein, Fauresmith,

Edenburg, Reddersburg and Waterkloof (COGTA, 2020: 8). According to the latest available data (COGTA, 2020), the Kopanong Municipality has a total population of 48 675 people (40 % of the population of the Xhariep District), of whom 71.5% are Black African, 18.2% Coloured, and 9.4% White; with other population groups make up the remaining 0.9%. The municipality includes 15643 households; the average household size is 3.0 persons per household, 92.6% of households have access to electricity, and 46.7% of households have access to piped water, either in their dwelling or in the yard, but 1.3% of households do not have access to municipal water.



**Figure 1.4: The Kopanong Local Municipality within the Xhariep District** (Municipalities, 2021: online)

Only 6.4% of the adults in this municipality have some form of higher education, 20.7% have completed school, 33.3% have some secondary education but did not complete school, 6.7% completed only primary school, and 13.4% have no form of schooling (COGTA, 2020). About one-third of the population are economically active (either employed or unemployed but looking for

work) (Frith, 2011: online). According to the latest community survey, children under five years make up about 4.5% of the population in Kopanong (COGTA, 2020).

Only the (quantitative) AHA-FS study, under the auspices of the University of the Free State, has focussed on nutritional issues in the Kopanong area. This study found that amongst a convenience sample of 40 infants and preschool children, 47.5% were stunted, 15% were underweight, and 6% were wasted (Tydeman-Edwards et al., 2018). High unemployment rates and reliance on pensions or childcare grants were found, while a large percentage reported running out of money to purchase food (Walsh & van Rooyen, 2015). No formal study has been conducted in this population regarding the feeding practices of mothers of infants and young children. A qualitative approach, focussing on the experiences and perspectives of the mothers, was needed to gain a nuanced understanding of the factors that affect the feeding practices of mothers with young children in the area. The current study was designed to fill this research gap. Such qualitative data will be valuable in developing programmes to assist this community, while it may also translate to recommendations that consider socioeconomics, food knowledge and skills for the rural communities of South Africa in general.

### **1.3 Research question**

Thus, the following research question was formulated:

What are the feeding practices of the mothers of children between the ages of two to six years attending ECDs in the Xhariep District?

### **1.4 Aim**

The study aimed to explore the feeding practices and motivation for what the mothers fed their children who attend ECD centres in the Xhariep District.

### **1.5 Objectives**

The objectives were to determine from the mothers' perspectives:

- the types of foods they give to infants and children;
- the motivations for their feeding practices; and
- factors influencing their feeding practices.

## **1.6 The layout of the dissertation**

Chapter 1 outlines the background, motivation, and problem statement, aim and objectives of the study. Chapter 2 is an in-depth literature review related to the research topic. Chapter 3 summarised the paradigm, study design, sampling, data collection procedure, data analysis procedure, and the ethical considerations for the study. The study results are summarised in Chapter 4 and discussed in-depth in chapter 5. Conclusions are drawn, and recommendations are made for future practice and research in chapter 6.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

Challenges experienced due to malnutrition that prevent children from achieving their developmental potential have long-term negative implications for these children and society. A strong evidence-based conceptual framework is the first stage to leading policies and programmes that will empower all children to survive and thrive (Black et al., 2020). Infant health and nutrition are of primary importance in South Africa, which is evident from the political commitment and policy development over the last 25 years. The 2016 South African Demographic and Health Survey (SADHS) indicated that exclusive breastfeeding (EBF) had improved to 32% in infants younger than six months. However, the SADHS also reported stunting in 32.3% for infants under six months old and 27% for children under the age of five years, which indicates that complementary feeding practices in South Africa should be urgently addressed to improve older infant and young child nutrition (Sayed & Schönfeldt, 2018).

In this chapter, literature related to childhood malnutrition and feeding practices, specifically in children aged zero to six years, including food security, food environment of children, and the role of mothers in feeding practices, are explored.

### **2.2 Early childhood malnutrition and prevalence**

The United Nations Children's Fund (UNICEF), WHO, and World Bank report on Global and Regional Child Malnutrition Estimates (2020) stated that the goal of a world without malnutrition is still distant. The report covers indicators of stunting, wasting, severe wasting and overweight among children under five years, and concludes that adequate progress has not been made to reach the 2025 World Health Assembly targets or the 2030 Sustainable Development Goals (UNICEF et al., 2020). Moreover, globally, the COVID-19 pandemic and lockdown restrictions may have undone all the progress related to malnutrition, especially in low-income countries in Africa and Asia. Estimates are that undernutrition may have increased by an additional 6.7 million

children in 2020, adding to the existing 47 million wasted and 144 million stunted children under five years (Zemrani et al., 2021).

Growth is assessed with indicators developed by the WHO. These indicators consider a child's age and measurements of weight and height together so that trends can be observed over time and any growth problems identified (WHO, 2008).

### **2.2.1 Definition of underweight**

A weight-for-age of  $-2$  to  $-3$  z-score indicates underweight, while weight-for-height of  $-2$  to  $-3$  z-score indicates moderate acute malnutrition (MAM); and may include children who are stunted (de Onis, 2006). Children underweight may be short for their age and have a low weight in relation to their height (Allam et al., 2012; UNICEF et al., 2012). Severe underweight or severe acute malnutrition (SAM) is defined as a weight-for-height below  $-3$  z-score of the WHO growth standard (as shown in Table 2.1), or a mid-upper arm circumference (MUAC) of less than 115 mm (in children aged 6 to 60 months), or the presence of nutritional oedema. Children with a low MUAC are included in the MUAC-based classification of severely underweight (SAM) because they are at significant risk of death (de Onis, 2006). Underweight is defined as a MUAC between 115 and 125 mm in programmes aimed at preventing malnutrition-related mortality (Allam et al., 2012). Underweight is, therefore, a composite index of weight-for-height and height-for-age that takes both wasting (acute malnutrition) and stunting (chronic malnutrition) into account; however, it does not distinguish between them (Akombi et al., 2017). Children living with acute food shortages become underweight as they lose weight, but their height remains constant (United Nations Children's Fund & World Bank., 2012); the result is usually recent rapid weight loss or the failure to gain weight.

### **2.2.2 Definition of wasting**

Wasting refers to children who are too thin for their height (UNICEF et al., 2020); in other words, children with a low weight-for-height. Wasting can also be considered chronic (Allam et al., 2012:4), as linear growth stops in the case of acute malnutrition, which is often specifically



defined by a weight-for-height below  $-2$  z-score of the WHO growth standard (as indicated in Table 2.1). Although treatment may successfully prevent death, a moderately (MAM) or severely wasted (SAM) child has an increased risk of death (UNICEF et al., 2020).

**Table 2.1: WHO Growth Chart Interpretations (WHO, 2008)**

Z-score	Growth indicators			
	Length/height-for-age	Weight-for-age	Weight-for-length/height	BMI-for-age
Above 3	See note 1	See note 2	Obese	Obese
Above 2			Overweight	Overweight
Above 1			Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
0 (median)				
Below $-1$				
Below $-2$	Stunted (See note 4)	Underweight	Wasted	Wasted
Below $-3$	Severely stunted (See note 4)	Severely underweight (See note 5)	Severely wasted	Severely wasted

Notes:

1. A child in this range is very tall. Tallness is rarely a problem, unless it is so excessive that it may indicate an endocrine disorder such as a growth-hormone-producing tumor. Refer a child in this range for assessment if you suspect an endocrine disorder (e.g. if parents of normal height have a child who is excessively tall for his or her age).
2. A child whose weight-for-age falls in this range may have a growth problem, but this is better assessed from weight-for-length/height or BMI-for-age.
3. A plotted point above 1 shows possible risk. A trend towards the 2 z-score line shows definite risk.
4. It is possible for a stunted or severely stunted child to become overweight.
5. This is referred to as very low weight in IMCI training modules. (Integrated Management of Childhood Illness, In-service training. WHO, Geneva, 1997).

### 2.2.3 Definition of stunting

Children may become stunted (short) due to prolonged undernutrition or repeated illness (WHO, 2008). Stunting refers to children who are too short for their age (UNICEF et al., 2020); and is defined by height-for-age below the  $-2$  z score of the WHO growth standard (see Table 2.1Table 2.1: WHO Growth Chart Interpretations (**WHO, 2008**); for children under five years of age; and

refers to impaired linear growth, this, reflect chronic or recurrent undernutrition. Furthermore, stunting reflects poor development in children and, in developing countries, this is a major public health concern (Steenkamp et al., 2016:28) as these children can suffer severe, irreversible physical and cognitive damage, and even affect the next generation (UNICEF et al., 2020).

#### **2.2.4 Definition of overnutrition**

Overnutrition is a type of malnutrition caused by ingesting too much energy from food and not expending enough energy, leading to overweight, obesity, and associated NCD (May et al., 2020: 23). In other words, when weight-for-height or body mass index (BMI)-for-age is above 1 z-score of the WHO growth standard there is a risk for being overweight, while BMI-for-age above 2 z-score is regarded as as overweight (Table 2.1).

#### **2.2.5 Definition of overweight and obesity**

Children under five years old are overweight when their weight-for-height is above 2 z-score, and obese when their weight-for-height or BMI-for-age is above 3 z-score (Table 2.1) BMI is used to measure overweight or obesity in older children (May et al., 2020).

#### **2.2.6 Micronutrient deficiency**

Another form of malnutrition is micronutrient deficiencies resulting from insufficient intake of vitamins and minerals (WHO, 2021a), including vitamin A, iron, zinc and iodine, essential for proper growth and development (CDC, 2022). These micronutrient deficiencies contribute to the burden of malnutrition and hidden hunger that reflects periods of undernutrition and food insecurity (Muthayya et al., 2013).

#### **2.2.7 Prevalence of malnutrition**

In 2015, about 7.7% of children were wasted globally, 24.5% were stunted, and 15% were underweight (Akombi et al., 2017). However, in the global 2018 results, 49 million (7.3%) children younger than five years were wasted, 149 million (21.9%) were stunted, and 40 million (5.9%)

were overweight (UNICEF et al., 2019: 2), which shows little improvement in 2019, global results of, 47.0 million (6.9%) children under five years were wasted, while 144.0 million (21.3%) were stunted and 38.3 million (5.6 %) were overweight (UNICEF et al., 2020). The SADHS of 2016 results show that 27% of children under age five were stunted, 3% were wasted, and 6% were underweight (Matsoso, 2019). The African and South-East Asia regions reported the highest prevalence of undernutrition, with 39.4% of children under five years being stunted, 24.9% underweight and 10.3% wasted. The WHO Millennium development goals target for 2015 reported that sub-Saharan Africa accounted for 33.3 % of all undernourished children globally, emphasizing malnutrition as a key health concern for children under five years in the sub-region, thus emphasizing that intervention was needed (Akombi et al., 2017).

Wasting in children results from insufficient nutrient intake, an immediate determinant for the outcome of child nutrition. Wasted children have a weakened immune system, are susceptible to long-term delays in development, and, particularly in the case of severe wasting, face an increased mortality risk (UNICEF 2019). The physical, mental, and developmental damage caused by undernutrition during the first 1000 days may last a lifetime and affect later generations (Adu-Afarwuah et al., 2017). The first 1000 days of a child's life, between conception and the second birthday of a child's life, is crucial for the development of tissue essential to the brain and other major organs. The first 1000 days has been identified as the crucial period in which mothers should receive accurate health information as this is a critical period of rapid child development (Georgiadis & Penny, 2017; Perkins et al., 2015). Although the overall prevalence of wasting in South Africa is at 2.5%, children with SAM have nine times higher mortality rates than well-nourished children. Thus, 25% of all in-hospital deaths of children in South Africa are associated with SAM, and COVID-19 and the associated lockdown restrictions may have worsened the situation (May et al., 2020:99). The lack of food, which is an underlying determinant of malnutrition; especially essential nutrients during these crucial 1000 days, already place the child at a development disadvantage and hinder the potential contribution the child could make to society as an adult one day as a result of development deficiencies (Maluleke, 2019); the outcomes of malnutrition. The role of nutrition in the first 1000 days is critical in shaping the

development and long-term health of the individual. During this period, individuals' developmental trajectories can be disrupted by nutritional deficits, resulting in delayed and impaired immunological, cognitive, and physical development. Such deficits are generally irreversible, resulting in poor academic and occupational performance and an increased chance of developing diseases later in life. At least 200 million children in developing countries do not reach their full developmental potential, and undernutrition is a key contributor (Mayneris-Perxachs & Swann, 2018). Nutrition interventions could potentially stop the intergenerational cycle of poor growth and development of newborns and young children in low- and middle-income countries during the first 1000 days of life (Mayneris-Perxachs & Swann, 2018; Schwarzenberg & Georgieff, 2018).

Inadequate nutrition in utero and early childhood, particularly before the age of five, is linked to inadequate growth and development that may present as stunting. Stunting reflects poor growth and development in children, is a major public health concern in developing countries, and is still the most common form of malnutrition in South Africa, affecting nearly one in five children during 2005 (Vorster et al., 2005:534) and almost one in four children during 2020 (UNICEF, WHO, 2021). Intrauterine growth restriction causes children to carry their typical development deficit into adulthood, resulting in reduced cognitive ability and work capacity (UNICEF WHO and World Bank, 2019). Children who become stunted may never grow to their full genetically programmed height and may never develop to their full cognitive potential. Longitudinal cohort studies show that they begin their lives at a disadvantage and experience learning difficulties in school. As adults, they earn less than those that never experienced stunting and face many obstacles to participation in their communities (UNICEF WHO and World Bank, 2019). Therefore, children that are diagnosed as stunted require urgent feeding, treatment and care to survive (UNICEF WHO and World Bank, 2019).

According to UNICEF, by 2009, South Africa was one of the 24 high-burden countries that accounted for 80 % of the world's stunted children (UNICEF, 2009:10). In 2012 the South African National Health and Nutrition Examination Survey (SANHANES) indicated that 21 % of South African children under the age of five years were stunted. Boys (26.9 %) and girls (25.9 %) of ages

zero to three years had the highest prevalence of stunting. When combining genders, the prevalence of stunting among the age group zero to three was 26.5 %, while 11.9 % of four- to six-year-olds were stunted. Infants and young children residing in rural informal areas had the highest prevalence of undernutrition, indicated by stunting (20.6 %), wasting (6.8 %) and underweight (12.1 %) (Shisana et al., 2013:18). Furthermore, stunting was highest in Gauteng and Free State provinces with 34. 2% and 33.5 %, respectively, while the North West, Free State, and Limpopo provinces had children who were wasted as well (Statistics South Africa, 2016:35).

In 2016, the SADHS indicated that one-third of infants below the age of six months (32.3%) and almost a third of children younger than five years (27%) were still stunted, even though exclusive breastfeeding of infants younger than six months (32%) had improved (Sayed & Schönfeldt, 2018:36) since 1998 (7%) (Matsoso M.P, 2019). This highlights the need to improve older infant and young child nutrition by addressing complementary feeding practices in South Africa (Sayed & Schönfeldt, 2018: 36).

Globally, at least 1 in 2 children under the age of five years lives with hidden hunger due to deficiencies in vitamins and other essential nutrients (UNICEF, 2019). Hidden hunger is another form of malnutrition resulting from the deficiency of essential vitamins and minerals. Of all the 17 minerals and 13 vitamins essential to good health, iron, zinc, and vitamin A are the most important. Currently, almost half the world population is iron deficient, mostly pregnant women who need iron the most, and infants born to such mothers often become iron deficient themselves, impairing their cognitive development. Zinc deficiency is common in developing countries, causing poor growth, childhood diarrhoea, and impaired immunity against diseases, to name a few. Vitamin A deficiency is also a major threat to the health of young children, as it may result from insufficient vitamin A in their diets, which leads to impaired eyesight, and hinders the child's body from developing an improved immune system (Shekhar, 2013). In South Africa, most diets consist mostly of staple foods that contain mostly macronutrients, which leads to low dietary diversity. The consequences of low dietary diversity are micronutrient deficiency-induced diseases in South Africa, mostly from insufficient vitamin A, zinc and iron that present as anaemia

(South African National Department of Social Development and Department of Agriculture, 2013).

## 2.3 Outcomes and determinants of nutrition in early childhood

The 2020 UNICEF Determinants of Maternal and Child Nutrition provides a framework for preventing malnutrition in all its forms (Figure 2.2). The framework acknowledges that mother and child nutrition and health are intertwined and identifies the immediate, underlying and enabling determinants required to prevent malnutrition and ensure that specific outcomes of adequate nutrition for both mother and children are reached. Conversely, the absence of these determinants constitutes the causes of malnutrition.

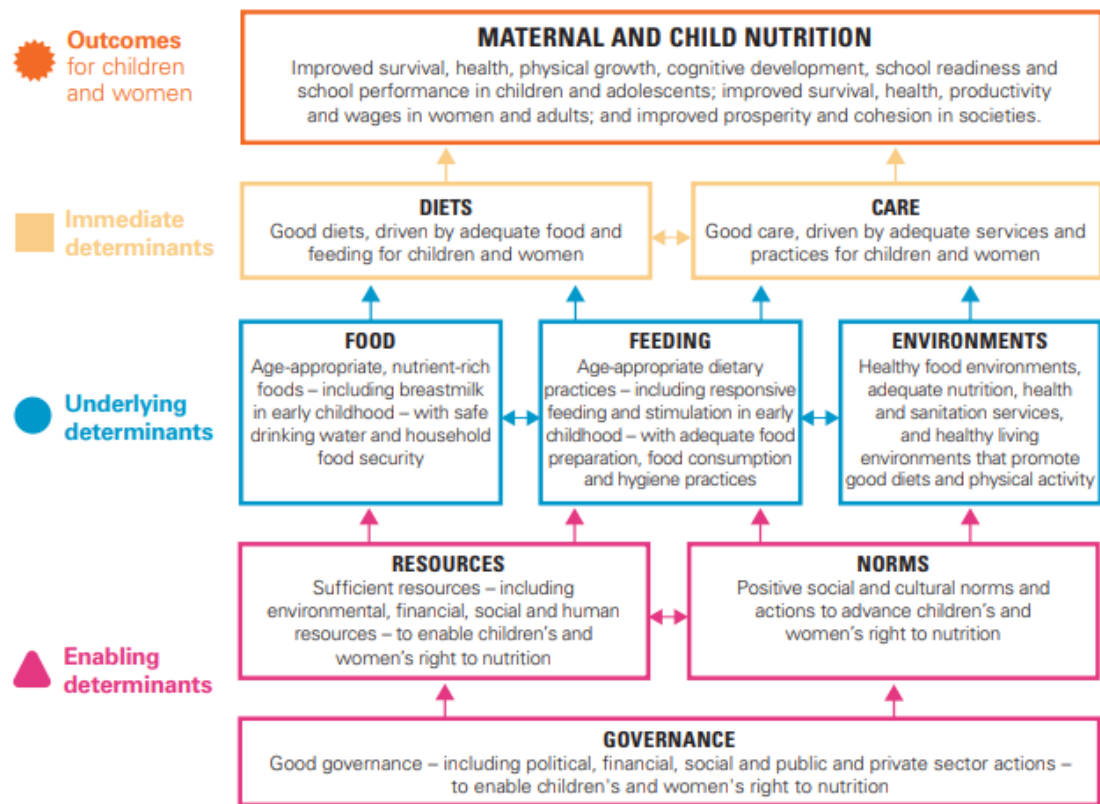


Figure 2.1: UNICEF 2020 Determinants of Maternal and Child Nutrition

### 2.3.1 Outcomes of adequate nutrition for children

The framework identified the outcomes of good maternal and child nutrition for children as improved survival, health, and physical and cognitive growth and development. During 2010 – 2015 improvement for maternal, newborn and child health were a priority as US\$ 40 billion was pledged to globally address the health of women and children through the execution of the United Nations (UN) Millennium Development Goals (MDG) over the five years (Mabaso et al., 2014). The Sustainable Development Goals target is to terminate avoidable deaths of newborns and children under five years of age, and for all countries to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births by 2030 (United Nations: Online).

Globally, about 15,000 children under five years old still die every day (Keeley et al., n.d.). In 2018 in South Africa, 5,796 per 100 000 live births were reported, the annual number of deaths was 40 (median = 34 IQR= P75; P25 = 30:38) (Keeley et al., n.d.); which can be considered an improvement from the 2009 South African National Department of Health gave a child (under five years) mortality rate of 56 000 deaths per 100 000 live births (Mabaso et al., 2014). These deaths were the highest in the Free State, Eastern Cape, KwaZulu-Natal, and Limpopo Provinces, and the lowest in Western Cape, Gauteng, Mpumalanga, North West and the Northern Cape Provinces. The major causes for childhood deaths were diarrhoea, meningitis, lower respiratory perinatal pneumonia, infections associated with malnutrition and HIV, AIDS and tuberculosis, as well as inadequate quality of care and inadequate attention to reproductive health services (Mabaso et al., 2014; South Africa Every Death Counts Writing Group, 2008). Thus, Masbaso et al. (2014) concludes that the major causes of maternal and child mortality in South Africa, namely HIV and AIDS, complications during pregnancy and childbirth, neonatal and childhood illness, and malnutrition are all related to poverty and extreme inequity.

Approximately 32-54% of all mother, infant and child-related deaths in 2009 are estimated to have resulted from preventable causes (Mayosi et al, 2012); 25-44% of these deaths were linked to poor health status and care of women, illiteracy and lack of information regarding the available

health services. Furthermore, in South Africa, socio-economic and geographical differences lead to substantial inequalities in health service coverage and health outcomes among mothers and children (South Africa Every Death Counts Writing Group, 2008).

### **2.3.2 Determinants of early childhood malnutrition**

The underlying determinants of malnutrition (UNICEF, 2020) associated with unsafe water use, sanitation and hygiene in living conditions (WHO, 2012); it can present as stunted, wasted and overweight, to name a few. However, the prevention of all forms of malnutrition require sufficient maternal nutrition prior and during pregnancy and lactation; optimal breastfeeding in the first two years of life; a variety of healthy and safe foods during early childhood; and a healthy environment, that includes access to basic health, water, hygiene and sanitation services and safe physical activity opportunities and areas (UNICEF WHO and World Bank, 2019).

However, the first 1000 days of life is not just an important period for the body and brain development but also the best period to prevent obesity and the associated adverse consequences (Pietrobelli et al., 2017). Young children who are obese have an increased risk of being obese as adults (Allam et al., 2012). Childhood overweight and obesity are emerging as an additional form of malnutrition, caused mostly by greater access to processed foods that are vigorously marketed by industry, combined with lower levels of physical activity (UNICEF WHO and World Bank, 2019). The risk profile of obesity is complex, as it is linked to the biological and social predispositions across population groups, environments, and life cycles that could be present in infancy and childhood (Pietrobelli et al., 2017). Globally, in 2010 the prevalence of childhood obesity was 43 million overweight and obese preschool children (i.e., weight-for-height is above 2 z-score, and weight-for-height or BMI-for-age is above 3 z-score according to the WHO standards). Globally in 2019, 38 million (5.6 %) of children under five years were overweight (UNICEF et al., 2020). The 2016 SADHS estimated that in South Africa, 13 % of children under the age of five were overweight or obese (Statistics South Africa, 2016).



## **2.4 The double burden of malnutrition**

The double burden of malnutrition refers to the “simultaneous existence of undernutrition (i.e. thinness, stunting and underweight) and overnutrition (i.e. overweight and obesity) or diet-related non-communicable diseases” (Modjadji & Madiba, 2019). The double burden of malnutrition was previously only seen in industrialized and affluent populations, but it was discovered in low-to-middle-income nations as early as 1996 (Modjadji and Madiba, 2019). The double burden of malnutrition adversely affects school-aged children's health and growth, intellectual development, and, ultimately, school attendance. The effects of the double burden of malnutrition on health result in increased health care costs, reduced productivity, and reduced economic growth, which in turn can extend the cycle of poverty and ill-health (Modjadji and Madiba, 2019). At first, the double burden of malnutrition was identified in adults in low-to-middle income countries but is increasingly identified in children from diverse countries, including Russia, China, Brazil, and South Africa. The double burden of malnutrition is reported as the “prevalence of undernutrition related to the prevalence of overnutrition within households, specific communities, regions or at a country level” (Modjadji and Madiba, 2019).

At the individual level, the double burden of malnutrition can manifest itself as the presence of two or more forms of malnutrition, such as a child who is stunted or has micronutrient deficiencies while also being overweight or obese. At the household level, the double burden of malnutrition can result from multiple family members suffering from distinct forms of malnutrition, such as an underweight child living with an overweight mother. Undernutrition and obesity coexist in the same town, nation, or area at the population level. In low-to-middle-income nations like Brazil, China, and Russia, studies have found a significant prevalence of stunted or underweight and fat family members in the same household and underweight or stunting and obesity in the same community. In South Africa, 13% of children under 5 years are overweight, while 27% are stunted (Modjadji & Madiba, 2019b).

A study conducted in 2017 in a rural Dikgale Health and Demographic Surveillance System Site, in the Limpopo Province, among children and adolescents aged 1–20 years, found that the double

burden of malnutrition existed amongst the adolescents, with a high incidence of overweight/obesity and wasting (i.e. wasting, stunting, and underweight) at a young age. The researchers looked at the frequency and determinants of stunting and underweight in a rural setting in primary school pupils. The majority of the mothers and their children were unemployed with no income (82.3%) and relied on social assistance (86.8 %). The majority of people lived in families of 5–9 people, had electricity (78.5%), but had no access to running water (73.8%) and used pit toilets (95.5%) (Modjadji & Madiba, 2019). Furthermore, a high prevalence of overweight and obesity was identified among women of reproductive age within the same region. Popkin (et al., 2003, cited by Reale et al., 2019), argue that the prevalence of overweight and obesity is now high among rural women in low-to-middle income countries. South Africa and other low-to-middle income countries are undergoing nutrition and lifestyle shifts, which indicate an increase of overnutrition at the population level, with undernutrition among children remaining consistent. The shift has caused obesity and hunger-related to the rising food prices and less food availability. In South Africa, obesity is associated with urban migration, economic and social transformations, but persistent undernutrition is linked to poverty and food insecurity in the home. Consumption of high-energy-density foods combined with a lack of physical activity contributes to overweight/obesity (Modjadji and Madiba, 2019). Yet, experiences of hunger and inconsistent access to food in urban contexts are seldom incorporated into responses to obesity in low-and-middle-income countries (Hunter-Adams, Battersby, & Oni, 2019). Thus the double-burden of malnutrition is a concern as households struggle with food insecurity in many countries (Hunter-Adams, Battersby, & Oni 2019).

## **2.5 Food security**

Malnourished infants and young children are food insecure at some point in their lives (Schwarzenberg & Georgieff, 2018). Families who are facing "food insecurity," defined as "inadequate physical, social, and economic access to nutritious food" (FAO, 2008), may have limited money to purchase a range of foods and are in danger of having their food rejected (Cooke, 2007) by their children. A household with children living below the poverty line is food insecure. Impoverished families are at increased risk of food insecurity, especially when divorce

and loss of employment occur and can cause food insecurity; and children who skip meals or do not eat food all day due to food insecurity (Schwarzenberg & Georgieff, 2018). As a result, children from food-insecure families may be at risk of receiving less exposure to a variety of healthy foods, which could have long-term detrimental repercussions for food choices and dietary consumption (Cooke, 2007). According to the 2005 National Food Consumption Survey (NFCS), “in Northern Cape, Mpumalanga, Northern Province and the Free State, overall one in three children of all age groups had less than half of their daily energy needs met”(Labadarios et al., 2005). The micronutrient intakes of women and children in low-income settings who eat primarily starchy staples could be increased if they had access to a more varied diet that includes more food groups (Adu-Afarwuah, Lartey, & Dewey, 2017). However, household food insecurity and the availability of fruits and vegetables in the home are known to be linked (Harris et al., 2019), because cheaper, processed foods that are high in fat, sodium and sugar, tend to be more accessible, more satisfying, and more pleasant as energy sources compared to nutrient-dense foods like fruit and vegetables (Darmon & Drewnowski, 2015). One issue is that eating more foods from different groups typically raises costs; thus, efforts should be made to make dietary diversity more accessible, especially for low-income people (Adu-Afarwuah, Lartey, & Dewey, 2017). Furthermore, rural poverty and food insecurity are more acute (Modjadji & Madiba, 2019).

## **2.6 Poverty and unemployment**

The nutritional status of a population is a good indicator of the poverty level of that community (Jenkins, 2015). For South Africa to reduce malnutrition, it will have to reduce poverty significantly. Knowledge of nutrition problems and solutions must acknowledge the poverty agenda of South Africa (Jenkins, 2015). Populations in developing countries also suffer from impaired work capacity, increased susceptibility to infections, and reduced economic productivity (Jenkins, 2015; WHO, 2012). Children from low-socioeconomic backgrounds are affected by poor nutrition status, lower resistance to infection, impaired work capacity, and reduced economic productivity of their parents. In addition, the rising costs of nutritious foods contribute to the challenge parents face to regularly provide healthy foods for their children (Daniel, 2016).

According to a qualitative study by Daniel (2016), parents' meal choices are influenced by their budgetary constraints. Parents reported selecting energy-dense and nutrient-poor meals that their child already enjoyed and would eat to reduce the risk of food waste in low-income homes, while parents reported feeling more pressure to feed their children who were "fussy eaters." Daniel (2016) discovered that the parents' feeding habits limited the child's exposure to a variety of foods, which influenced the child's food preference development and resulted in a lower dietary diversity that lasted into adulthood. Food waste can have serious financial effects in households with food insecurity; hence these feeding behaviours may be more widespread (Harris et al., 2019).

## **2.7 Food environment**

To achieve the goal of a world without malnutrition will require renewed efforts to ensure affordable healthy diets for all people. It would entail that food systems be transformed in such a way that a healthy food environment is not only available but ensures equitable access to healthy, affordable, and sustainable diets that will, in turn, eliminate all forms of malnutrition (Heidkamp et al., 2021).

The nutrition environment of the foetus, infant and toddler affect brain growth and differentiation. The absence of malnutrition and adequate provision of macro- and micronutrients are required during the critical timeframe of normal brain development (Schwarzenberg & Georgieff, 2018). Undernutrition and obesity may co-exist in a child and may both affect neurodevelopment (Schwarzenberg & Georgieff, 2018). The effects of undernutrition during the first 1000 days are life-long (Schwarzenberg & Georgieff, 2018). Restricted intake of protein, zinc, and iron due to poverty or neglect in infants and young children are associated with neurodevelopment problems (Schwarzenberg & Georgieff, 2018).

The COVID-19 pandemic and national lockdown restrictions rapidly changed the food environments in low and middle-income countries, causing the consumption of cheap, unhealthy, ultra-processed foods and beverages in infants and young children to increase. This

places these children at an increased risk of micronutrient deficiencies, growth failure, and overweight and obesity (Heidkamp et al., 2021; Zemrani et al., 2021).

The consumption of vegetables and fruit by children in many countries are below the European recommendations. Thus, it is important to establish the preferences of vegetables and fruit during childhood, especially during the phase when children are “learning to eat”. Vegetables and fruits are vital sources of essential vitamins and minerals, and consuming more of these foods can reduce the risks of non-communicable diseases. Faith et al. (2018) found that a mother's diet during pregnancy and lactation determines the child's diet through maternal foods, particularly fruit and vegetables to which the child is exposed. Thus the complementary foods offered to children must include foods from all the food groups, especially vegetables and fruits. Daily dietary diversity in meals and repeated exposure to vegetables and fruits up to eight times can effectively increase a child's acceptance of vegetables and fruits. Thus, complementary feeding education should promote healthy foods and the inclusion of healthy foods in most meals since the eating habits established during childhood continue to adulthood. Furthermore, it is recommended not to add sugar and salt to foods and avoid sugar-sweetened beverages (juice drinks, soda), and juices during complementary feeding (Johnson et al., 2018).

Faith et al. (2018) indicated that fruit juice consumption was positively related to adiposity gain in low-income families. Several strategies are recommended to increase the vegetable and fruit consumption of young children, such as (a) the early introduction of vegetables and fruit and vegetables during complementary feeding, (b) including a variety of vegetables and fruit, (c) repeating the exposure of vegetables and fruit multiple times, (d) appropriately offering fruit and vegetables, considering to incorporate it with a sweet, sour or savoury element to make it more palatable, and (e) applying responsive feeding practices (Johnson et al., 2018); (Pietrobelli et al., 2017a). The neglect of indigenous foods included in the South African diet, also exacerbates micronutrient deficiencies. According to the South African National Department of Social Development and Department of Agriculture (2013), crops indigenous to South Africans such as “Amaranth” (*Amaranthus hypochondriacus*) and “Spider plant” (*Cleome gynandra*) contain more micronutrients than cabbage and lettuce. They note that the inclusion of indigenous crops such

as Bambara groundnuts (*Vigna subterranae*), amadumbe (*Colocasia esculenta*), cowpeas (*Vigna unguiculata*) and mung beans (*Vigna radiata*) will provide households with more diverse diets. Increased consumption of indigenous foods will promote the production of these crops and assist in creating markets for these commodities, which will, in turn, improve rural economies (South African National Department of Social Development and Department of Agriculture, 2013).

Infants of obese and non-obese mothers who were fed traditionally high-protein formulas gain more rapidly weight than breastfed infants (Fewtrell et al., 2016). Insulin is important for metabolic regulation as indicated by the increased insulin and insulin-like growth factor (IGF-1) secretion which result from insulin-releasing amino acids, which are all upstream of the mammalian target of the rapamycin growth signalling network, which is linked to high-protein intake during early childhood. Thus, a lower protein intake during infancy and early childhood would be beneficial to children's long-term health, and this includes avoiding the use of unmodified cows' milk, which contributes to a high protein intake during the first year of a child's life. The link between increased early protein intake and the risk for overweight and obesity later in life is caused by the faster increase in weight of infants that is related to their increase in fatness (adipogenesis) (Pietrobelli et al., 2017), which can have long-term consequences such as increased risk of non-communicable diseases (Fewtrell et al., 2016). Human fat cell formation and adipose tissue expansion are influenced by early life stages. Body fat accounts for around 14% of total body mass immediately after birth and grows to 20% in the first year of life. The increase in fat mass is due to the expansion of existing fat cells. There is a link between early newborn fat deposition and adult overweight status (Pietrobelli et al., 2017).

The child's adipose tissue deposition may be ascribed to infant exposure to high fatty acid intake, mimicking the mother's dietary fatty acid intake. The long-chain PUFAs (LC-PUFA) present in breast milk provided health benefits and beneficial effects against fat deposition; therefore, exclusively breastfed infants' weight and length rose more swiftly during the first months. Omega-3 fatty acids had anti-obesity effects and indicated decreased adipose tissue cellularity and reduced lipid synthesis in animal studies. Omega-3 and omega-6 fatty acids are important for optimizing brain and eyes development. Neurological abnormalities and poor growth may

develop in a clinical deficiency of omega-3 and omega-6 fatty acids since the fatty acids accumulate in the brain most rapidly during the first two years of life (Pietrobelli et al., 2017).

The use of the low fat and high protein diet is discouraged during early childhood as it may result in nutrient imbalances. Children have high energy requirements for growth, and childhood is the period of important cognitive development, a diet that comprises less animal and more plant-based foods would decrease the protein and saturated fat intake (Pietrobelli et al., 2017) and help decrease the risk for non-communicable diseases (Fewtrell et al., 2016). An increased protein intake during the first year of a child's life was linked to the increased height, weight, and BMI in childhood up to the age of nine years. After 12 months, young-child formulae (growing-up milk) should be consumed instead of cow's milk to meet the child nutritional requirements to decrease the animal protein intake while meeting the essential fatty acid and iron needs of young children (Pietrobelli et al., 2017).

“The lowest continuing intake level of the nutrient that will maintain a defined level of nutrition in an individual” is referred to as a nutrient need or requirement. Such defined nutrition levels include “appropriate physiological adaptations, normal growth (infants and young children), maintenance of normal circulating nutrient concentrations, and other characteristics of being nutritionally well and overall health” (Adu-Afarwuah et al., 2017).

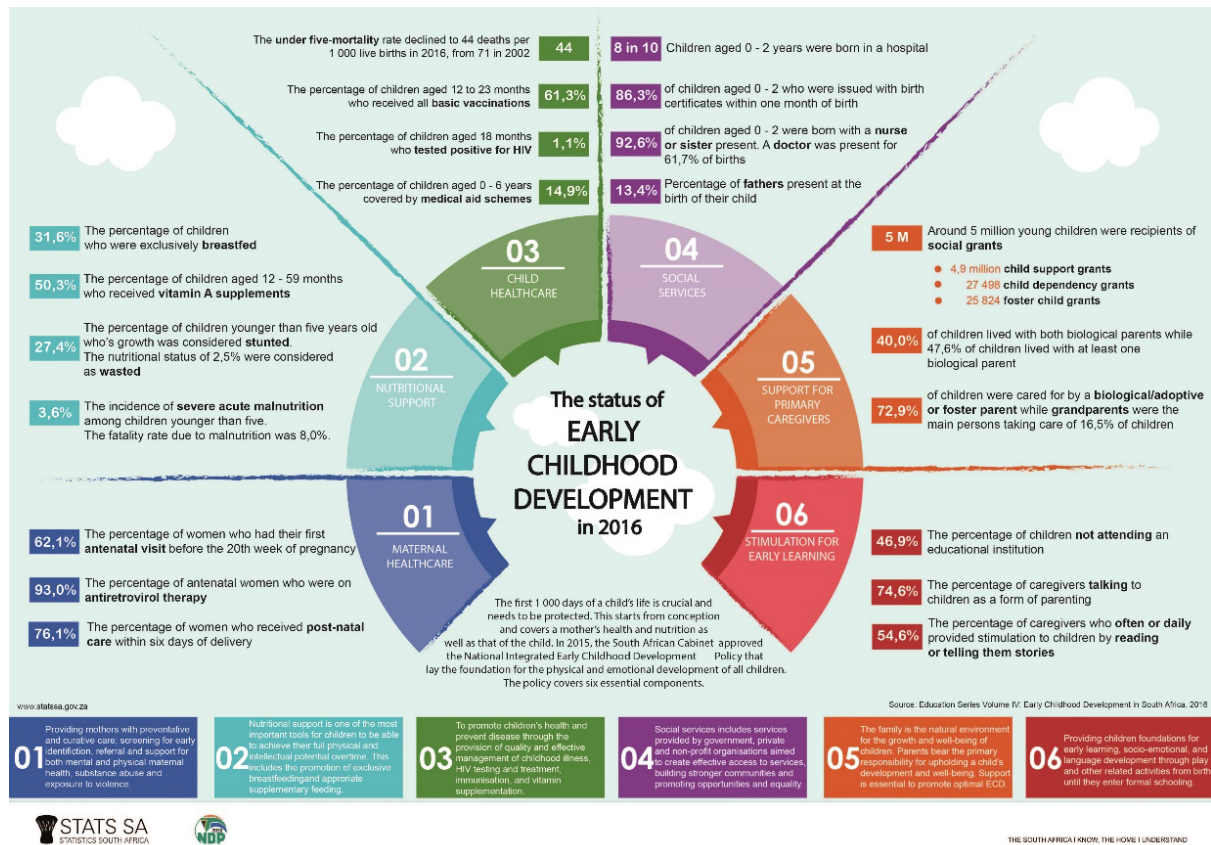
The food environment of young children's preference for sweet and salty tastes encourages unhealthy eating habits. Through frequent exposure in their early eating environment, children learn to prefer sour or bitter flavours, which are often linked with fruit and vegetables. To adopt an initially rejected or disliked meal as a regular component of their diet, children require up to 15 tasting exposures. As a result, children's food preferences and dietary consumption are strongly influenced by their environment (Cooke et al., 2007).

## **2.8 Breastfeeding, infant feeding and complementary feeding**

Breastfeeding is the most advocated mode of feeding infants during the first 1000 days of life. However, globally less than 40% of infants are exclusively breastfed (EBF) for the first six months

of life, although previous studies indicated in South Africa that EBF in the first six months of life is lower than 15% (Mushaphi et al., 2017). Figure 2.3 indicates that only 31.6% of infants were EBF in South Africa during 2016 (STATSSA, 2018). Furman, Banks, & North (2013) noted that women to view formula feeding as more suitable than breastfeeding because systems, policies, and practices do not support breastfeeding at their place of work and in their community, especially when someone else must care for their infant. A lower protein intake from infant formula had significant effects on the weight of young children in the first two years of life, as reported by a large randomized controlled trial (Fewtrell et al., 2016) . Thus, reducing the protein intake of infants may be an appropriate strategy to reduce the risk of overweight and obesity during childhood. Cow's milk has a higher protein content than infant formula and an even higher protein level than human milk. Contrary, the differences in the content of protein in formula-fed infants may be related to the differences in cognitive development scores during the period of early infancy (Pietrobelli et al., 2017).





**Figure 2.2 The status of early childhood development in 2016 (STATS-SA, 2018)**

At the age of six months, a newborn transitions from a milk diet to a diet that includes complementary foods, and it is during this time, infants are most prone to malnutrition and growth faltering (Sayed & Schönfeldt 2018). The late introduction of supplemental foods may raise the child's risk of obesity in maturity. When compared to baby feeding, young child nutrition and supplemental meals were not adequately addressed globally (Piwoz et al., 2003). Complementary feeding has received insufficient attention, and the most attention was paid to breastfeeding promotion, protection, and support (Heidkamp et al., 2021). Similarly, in South Africa, various stakeholders and research institutions have concentrated resources to improve the rate of exclusive breastfeeding and neglected the importance of complementary feeding during older infancy and young childhood (Sayed & Schönfeldt 2018).

World Health Organization defines complementary feeding as the shift from breast milk to the usual diet of the family. Once the infant has fully developed around the age of four to six months,

the mother's breast milk is insufficient to meet their nutritional needs, and they are ready for complementary foods. Exclusive breastfeeding until six months of age, and continued breastfeeding until two years, with the introduction of complementary foods at the age of six months, is recommended by the WHO. The shift from breast milk to complementary feeding is an important milestone for all children. In a systematic review, Pearce et al. (2013) found that high energy intake and high animal protein intake during the period of complementary feeding was linked to an increased BMI in childhood, especially in the second year of life. The introduction of complementary foods before the age of 4 months may increase the risk for greater childhood BMI, while no significance for being overweight or obese during childhood was found when the complementary foods were introduced after the age of six months of age. Also, the earlier introduction of complementary foods may alter the iron stores of infants and cause a different iron status in healthy infants. Higher energy intake during complementary feeding was associated with weight-for-height above 2 z-score and BMI-for-age above 3 z-score in childhood. Compliance with dietary guidelines during the period of introducing when complementary foods were introduced was associated with higher lean mass, while high energy and protein intakes, particularly dairy protein, could be associated with increased body fatness (Pearce et al., 2013). Project Viva, a longitudinal pre-birth cohort study of mother-offspring pairs in Massachusetts, showed that introducing complementary foods before four months in infants who were never breastfed or who stopped breastfeeding before the age of four months was associated with an approximately sixfold increase in the risk of obesity among three-year-olds (Huh et al., 2011).

Even when a high-quality, five-food group local complementary food diet was used, linear programming techniques revealed that meeting the nutrient requirements for iron and zinc in infants aged 6 to 8 months in low-income countries such as Bangladesh, Ethiopia, and Vietnam based on the foods that infants eat the most in these countries, without any fortification, was difficult, even when a high-quality, five-food group local complementary food diet was used. When infants aged 6 to 12 months in Ghana were given a cereal-legume blend (Weanimix), a fermented maize porridge with fish powder, Weanimix plus fish powder, or Weanimix plus vitamins and minerals only, the Weanimix plus vitamins and minerals resulted in better iron

reserves and vitamin A status (Adu-Afarwuah, Lartey & Dewey 2017), but zinc recommendations were not met.

Thus, the intake of adequate fat-containing essential fatty acids should be included in the complementary foods, and low-fat food should be avoided when complementary foods are introduced and onwards (Pietrobelli et al., 2017).

## **2.9 The role of mothers**

Mothers experience challenges to meet the nutrient needs of their infants during the complementary feeding period from 6 to 24 months for many reasons, among others, their inadequate knowledge; difficulties to adhere to international recommendations practically, such as during food emergencies and shocks; and infants and children have a small gastric capacity, which limits the amount of food they eat at a meal (Adu-Afarwuah, Lartey, & Dewey 2017).

During the first 1000 days, it is challenging for women and children to meet their nutrient requirements due to the increase of their physiological needs for nutrients, which nutrition programme planners and decision-makers do not comprehend. Furthermore, limited access to nutrient-rich foods and the high prevalence of infections are additional challenges that women and children in low-income countries experience. Thus new strategies for meeting the nutrient requirements of mothers and children during the first 1000 days are needed. Recent studies that used the small-quantity lipid-based supplements (also known as SQ-LNS) to fortify home-prepared foods would effectively improve the diets of women and children (Adu-Afarwuah, Lartey, & Dewey 2017).

As Mabaso et al. (2014) summarised, mothers, infants, and children of families in low-income countries are at a higher risk of illness and experience many challenges accessing timely and high-quality care. The authors relate this to their poor use of health care facilities due to some health providers' lack of transport and sub-optimal quality of care. Increasing the coverage of health care to ensure that the poorest, least educated and most-difficult-to reach mothers, their infants and children under five years get accessible, timely, quality health care remains a major challenge

for the South African government. Additionally, inequalities exist between public and private health care systems in South Africa, with approximately 40 % of the total health care expenditures are allocated to the public health care system that accommodates an estimated 86 % of the population, where the most deprived provinces and districts receive the least primary care expenditure. Therefore, to achieve the MDGs in South Africa, these inequalities must be addressed (Mabaso et al., 2014).

Women in developing countries face additional challenges because they eat a poor-quality diet low in nutrient density, high in phytates and polyphenols, which limit nutrient absorption of already inadequate diets; high rates of infections and infestations also weaken nutrient absorption, negatively affecting their nutritional status; food avoidance restricts the consumption of important food items; and nausea and vomiting caused by pregnancy limit the consumption of important food items (Adu-Afarwuah, Lartey, & Dewey 2017).

Eating habits form early in life due to an interplay between genetics, natural dietary responses and preferences, and, most importantly, environmental variables. Parents impact a child's growth through interactions that determine the development of their young child's eating behaviours. The control of a child's appetite is linked to maternal autonomy, which encourages serving habits. When parents use food as a reward, it damages their children's ability to regulate intake, leading to emotional overeating. This suggests that children should be assisted in learning to self-regulate when food is present. Caregivers should refrain from demanding "clean your plate" feedings or rewarding children with food. Rather than utilizing food as a reward for excellent behaviour, it is vital to change meal quantities and provide meals to children in response to their hunger. As a result of the lack of exposure to vegetables regularly, recommendations are being modified to prioritize vegetables (Pietrobelli et al., 2017).

Because dietary habits form early in life, the only approach to improve infant diet quality and lower the risk of obesity in children is to influence their parents' eating habits (Pietrobelli et al., 2017). During their second year of life, children share their eating environment with their parents and siblings. This typical "family food environment" impacts children's nutritional intake and can

be used to help them change their eating habits. When compared to children who eat in the car while playing or while moving around the house, studies show that eating at a table is linked to greater fruit and vegetable consumption, proper portion size, social contact between parents and children, and less access to TV viewing during meals in younger children. Screen use has been demonstrated to negatively influence physical and cognitive development (Pietrobelli et al., 2017).

Furthermore, marketing for high-fat, high-sugar foods is routinely presented to young children, increasing desire and consumption. Obesity prevention could be as simple as limiting advertising for particular goods. When it comes to eating, parents must set a positive example for their children. Parents should model their behaviour after that of their children, making meals an enjoyable family affair, beginning with breakfast, and honouring the child's hunger and nutritional needs by turning off the television and any other screens (Pietrobelli et al., 2017).

Thriving takes place first and foremost in the most immediate environment: the family. Children rely on their families for guidance, protection, and support throughout their childhood and adolescence. The loving care that infants get early in life lays the groundwork for responsive relationships based on respect, trust and mutuality, throughout childhood, adolescence, and beyond. However, there are larger systems at work as well. Families, especially children and adolescents, rely on their communities for behavioural and cultural difficulties as well as health and education services (Black et al., 2020). Black et al. (2020) states that families' daily lives are also increasingly affected by “politics, ideology, pandemics, economics, and climate change “. As a result, children need an inclusive, system of services and opportunities from all sectors, that will support efforts to improve their diet and minimize the risks for sickness, as indicated in the UNICEF framework) (Black et al., 2020).

## **2.10 The role of Early Childhood Development Centres**

The South African government defines ECD centres as “partial care facilities providing an early childhood programme focusing on early learning and development of children from birth until

the year before they enter Grade R/formal school” (Statistics South Africa, 2016; Department of Social Development, 2015). These centres include crèches, day care centres for young children (nursery schools), playgroups, pre-schools, and after school care facilities. A comprehensive, universally accessible, and equitable ECD service would allow for intervention programmes to enhance early children's nutrition.

According to a 2016 report, *Early Childhood Development in South Africa*, only 18% of children zero to six years attend an ECD centre, and of these children, 65.6% are provided with food twice, or more times per day; 32% received food once every day, while only 2.4% received food only a few times a week or less (Statistics South Africa, 2016:33). The 2015 National Integrated Early Childhood Development (NIECD) Policy states that an essential package of ECD services would be to promote children's development - physically, cognitively, emotionally and socially - by providing health services, nutritional support, support for primary caregivers, social services and protection, and early learning programme to mothers and children (Department of Social Development, 2015). The NIECD Policy thus has a strong focus on nutrition, health and social support for caregivers. While this can make a difference to malnutrition, the country is still far from the ideal of eradicating malnutrition in children who attend ECD centres. A cross-sectional study by Madiba et al. (2019:3) conducted in health facilities in Tshwane district in South Africa, including 1256 mothers and their children, found that malnutrition was more prevalent among those children in the study that were attending ECD centres, compared to those that were cared for at home. Similarly, a retrospective cohort study in Mangaung Free State assessing children aged six months to five years who entered the Integrated Nutrition Programme that was a supplementary feeding programme at the Mangaung University of the Free State Community Partnership Project Community Health Centre, between July 2014 and June 2015 discovered that nearly 40% (38.8%) of the children were 'at risk' of malnutrition, with 61.2 % of the children being malnourished (Brits et al., 2017:216-217). Far from suggesting that ECDs do not play an important role in curbing malnutrition, these findings highlight the importance of ECD centres as platforms for nutritional intervention among children 2 – 5 years in South Africa (May et al., 2020: 40).

## **2.11 Nutrition outcomes of mothers and children**

The outcomes of positive childhood nutrition are defined as improved survival, better health and physical growth, and improved cognitive development, school readiness and school performance in children and adolescents. For mothers, the outcome of positive maternal nutrition are improved survival, health, productivity and wages in women and adults; and improved prosperity and cohesion in adults. For women in low- and middle-income countries, various initiatives, goals, and programs have been created to combat undernutrition: The 1000 Days Initiative and the Scaling Up Nutrition Movement both aim to help countries improve the implementation of high-impact nutrition initiatives; The United Nations Sustainable Development Goals; the 2012 World Health Assembly Resolution; the USAID Multi-Sectoral Nutrition Strategy 2014–2025; and the newly designated United Nations Decade of Action on Nutrition are among the others (Adu-Afarwuah, Lartey, & Dewey 2017) to name a few.

Dietary diversification includes, firstly, the consumption of animal-source foods (i.e., incorporating more, nutrient-dense food groups that are locally available into the diet); nutrient supplementation (e.g., balanced energy protein supplementation, iron and folic acid for women, high-dose vitamin A supplementation, among others). Secondly, it refers to bio-fortification, which is the process of adding vitamins and minerals to foods through conventional plant breeding, agronomic practices, or modern biotechnology to increase nutrient levels in crops during plant growth. Existing examples include the iron-biofortification of rice, beans, sweet potato, cassava and legumes, zinc-biofortification of wheat, rice, beans, sweet potato and maize, provitamin A carotenoid-biofortification of sweet potato, maize and cassava; and amino acid and protein-biofortification of sorghum and cassava (WHO: online; Shekhar, 2013). Thirdly, dietary diversification refers to commercial fortification of staple foods. Furthermore, family strategies for extra food preparation, such as maize soaking or fermentation, the addition of small dried fish, and the addition of vitamin A-rich vegetables, might help meet requirements in some instances. Increased production and affordability of nutrient-dense foods, particularly animal-source foods; cash transfers and in-kind household food distributions to increase access to a high-quality diet among resource-poor households; water, sanitation, and hygiene interventions, such

as improved water quality, community-led total sanitation, and handwashing with soap and deworming; and improved health care to help nutrient-deficient people (Adu-Afarwuah et al., 2017). Recent evidence suggests that home fortification with small-quantity lipid-based supplements should be considered among the strategies for meeting nutrient demands during the first 1000 days in underdeveloped nations. Following that, the International Lipid-based Nutrient Supplements (iLiNS) Project created a small-quantity lipid-based supplement for babies and young children (dubbed LNS-I&C) (Adu-Afarwuah et al., 2017). Lipid-based nutrient supplements for preventing malnutrition and promoting growth and development are now characterized as small-quantity lipid-based supplements.

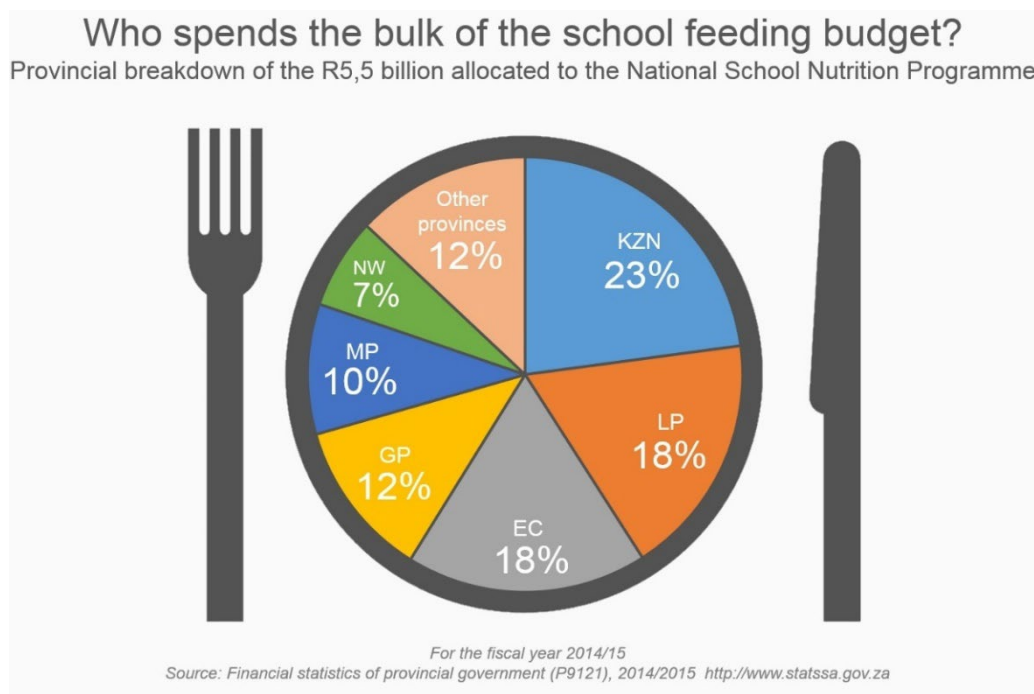
Vegetable oil, powdered milk, groundnut paste, sugar, and a variety of micronutrients are commonly used in lipid-based nutrient supplements. These supplements are usually given as a daily ration of about 20 g, providing around 110 kcal/day to boost the nutritional content of the local cuisine with vitamins, minerals, and vital fatty acids while still leaving room for other meals (Adu-Afarwuah et al., 2017). These supplements have several advantages, including the ability to deliver a wide range of nutrients, including essential fatty acids, that are not commonly found in multiple micronutrient supplements, as well as improving the taste and acceptability of cereal porridges commonly consumed in developing countries without affecting infant and young child feeding practices (Adu-Afarwuah et al., 2017).

While interventions targeting children's nutrition benefit their growth and nutritional status, interventions targeting responsive caregiving and learning further promote their neurodevelopment. Thus, for a child to thrive and reach the goals associated with the SDGs, children require attention to their health, nutrition, learning, responsive caregiving, and safety and security (Black et al., 2020).

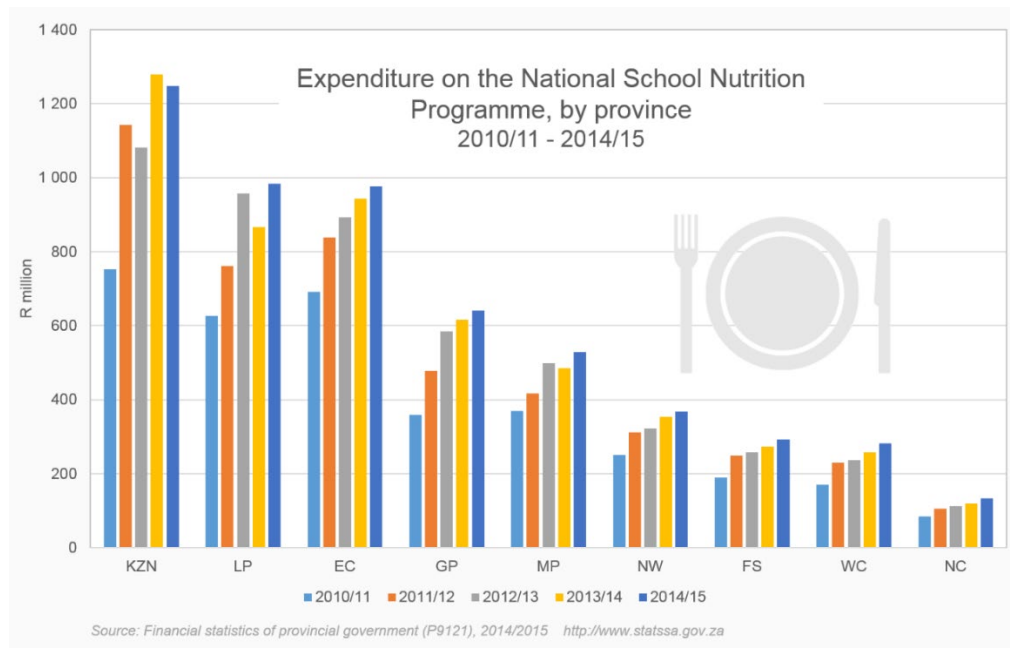
Macronutrient deficiency during the early phases of life is associated with lower IQ, poor school attendance, behavioural problems (Schwarzenberg & Georgieff, 2018), and deficits in cognitive development (Georgiadis & Penny 2017). Food insecurity affects school attendance and academic performance (Schwarzenberg & Georgieff 2018). In South Africa, 12% of the 5.5 billion



rands budgeted to the National School Nutrition Programme is allocated to the Free State, Northern Cape, and North West province combined, as illustrated in Figure 2.4. Even though 200 to 400 million rands have been spent annually since 2010 on the school nutrition programme in the Free State, as depicted in Figure 2.5 (STATSA, 2018), malnutrition is still not eradicated in children. Nutrition supplementation programmes in South Africa only assist persons already identified as malnourished; it is not preventative of malnutrition. The individuals at risk of malnutrition but are not yet malnourished do not qualify for nutrition supplementation, only nutrition education.



**Figure 2.4: Provincial expenditure of the school feeding budget (STATS-SA, 2018)**



**Figure 2.5: Expenditure of the National School Nutrition Programme, by province (STATSSA, 2018)**

The food-related knowledge and skills taught to people may influence what they eat. However, social and environmental factors are more influential factors of food choice and nutrition-related behaviours; that must be addressed by nutrition educators and nutrition programmes (Contento, 2011: 32-33). With the high unemployment rate in South Africa, one can imagine how much of the population lives in poverty and how this affects the available household funds for food. Community health workers who provide education about the maternal diet to pregnant women should combine home visits and group meeting visits to effectively minimize child BMI z-scores and decrease the risk of overweight by 57 % at 13–24 months of life (Pietrobelli et al., 2017).

The model by Bhutta et al., (2013:18) mentioned in chapter 1 assessed ten different interventions and modelled how many lives could be saved if these interventions were scaled up to reach 90% coverage; as also confirmed 34 countries in which 90% of the world's stunted children occur found in the desk review of 34 English-language research papers published between 2006 and 2017 by Sayed & Schönfeldt (2018). The promotion of breastfeeding and appropriate complementary feeding interventions were ranked third and fourth, respectively, to have the largest impact on deaths averted, however, complementary feeding practices in South Africa are

suboptimal (Sayed & Schönfeldt, 2018). The 2016 SADHS also indicated that stunting rates rise from 8 months old and peak at 40% amongst children 18 – 27 months old, suggesting that complementary feeding diets are inadequate (May et al., 2020).

South Africa has great regulations and political commitment to enhance baby health and nutrition, but when compared to breastfeeding efforts, the complementary feeding action plan receives less attention and funding (Sayed & Schönfeldt, 2018). Social determinants are complex and influenced by behavioural and environmental factors (Spencer, 2018). Maslow's hierarchy of needs specifies that food is a basic need but does not determine that nutritious food is a need nor acknowledges how social determinants affect food procurement. There is not enough research about what “nutritious food” means to people and how people perceive socioeconomic barriers to eating nutritious foods. Nutrition knowledge among the general population is good because of nutrition education at government clinics, but very little knowledge is practised (Mushaphi et al., 2017; Contento, 2011: 32-33). Food choice models have been conceptualized as early as 1981 by Khan and Randall, and Sajur (cited in Hamilton et al., 2003). Shepard and Booth had also conceptualized a food choice model illustrating the factors affecting food preferences in 1988 (cited in Hamilton et al., 2003). However, these food choice models lack the insight of social and economic factors in developing countries such as South Africa. There is an absence of research about socioeconomic factors that affect food choices, especially in South Africa.

## **2.12 Summary**

While malnutrition can manifest in multiple ways, the prevention is similar : sufficient maternal nutrition prior and throughout pregnancy and breastfeeding; optimal breastfeeding in the first two years of life; nutritious, diverse and safe foods after infancy; and satisfactory surroundings, including access to basic health, water, hygiene and sanitation services and opportunities for safe physical activity. These key ingredients can deliver a world where children are free from all forms of malnutrition (UNICEF et al., 2020).

The nutritional status of a population is a good indicator of the poverty level of that community (Jenkins, 2015). The collection of data related to nutrition does not cost much, and this data is sensitive enough to use to make policy decisions for the country (Jenkins, 2015). Because food availability and food accessibility differ from population to population, this needs to be researched in South Africa. Food availability and accessibility are inadequately researched in developing countries compared to developed countries (Contento, 2011: 32-33). In summary, high intakes of energy and protein, particularly dairy protein in infancy, could be associated with an increase in weight-for-height or BMI-for-age z-scores and body fatness. Weaning is an important time for introducing complementary foods; so, the commitment of mothers to the dietary guidelines during weaning should be followed (Pietrobelli et al., 2017).

## **CHAPTER 3: METHODOLOGY**

### **3.1 Introduction**

This chapter describes the paradigm, study design, data collection methods used, and the ethical considerations of the study.

### **3.2 Research design and approach**

The research design is defined as an architectural backbone of the study (Polit and Beck, 2012:58). The research design is the strategy that transfers the philosophical assumptions to specifying the selection of participants, the data-gathering methods used, and the data analysis that should be done (Nieuwenhuis, 2016:72). Quantitative and qualitative inquiries are empirical approaches that require data collection, data analysis, and interpretation of observations (Ponterotto, 2005:128). Qualitative findings may be reported in everyday language, including participants' own words (Ponterotto, 2005:128). Since qualitative research is a natural and emergent approach to inquiry, the description of people within social environments and cultural studies identified various phenomena due to people's cultures within a specific environment and how income, circumstances and experiences are affected (Tomal, 2003:3). Qualitative research, therefore, answers questions by examining individuals within various social settings (Nieuwenhuis, 2016a:53).

Descriptive research describes a wide phenomenon and may measure, classify and compare phenomena (Drummond & Murphy-Reyes, 2018: 8). Exploratory studies are often based on qualitative research, and most exploratory studies are also descriptive studies (Drummond & Murphy-Reyes, 2018: 8). Exploratory research is conducted to explore the topic, for the researchers to acquaint themselves with the topic, to fulfil the inquisitiveness of the researcher(s), to test the feasibility of conducting more extensive research on a given topic among a given population, and to develop methods to be used in any later study (Babbie, 2016: 90). For this study, exploratory research was conducted to gain nuanced insight into the feeding

practices of mothers and caregivers (Fouchè & De Vos, 2018: 95-96). Descriptive research allowed the researcher to observe and then scientifically accurately and precisely describe what was observed regarding the mothers and caregivers (Fouchè & De Vos, 2018: 96) and their perceptions of the issue under study (Babbie, 2016: 91).

This explorative study design followed a constructivism paradigm. This study described the feeding practices of mothers of young children in Trompsburg, Springfontein and Jagersfontein. The paradigm is the fundamental frame of reference to organise reasoning of the world and the nature of research that a researcher brings to a study (Babbie, 2016: 32; Creswell, 2014:35) and sets the context for the study investigated (Denzin & Lincoln, 2000b:127-128; as referenced by Ponterotto, 2005). The researcher took a constructivist paradigm, which is perceived as an alternative to the positivist. As a constructivist, the researcher wished to understand the feeding practices of mothers of children between the ages of two to six years who attended ECD centres in the study area. The researcher, thus, sought to understand the world in which the mothers lived and worked (Creswell, 2014: 296) in order to understand their historical and cultural settings (Creswell, 2014: 37) and observe and assume their multiple, questionable, and equally valid realities (Schwandt, 1994 as referenced by Ponterotto, 2005:128).

The researcher supported an enlightening approach, assuming that the feeding practices of mothers were not well understood by policy-makers and had to be brought to the surface through deep reflection, whilst creating a reconstructed understanding of the social domain (Denzin & Lincoln, 2018:98) of the mothers. Since individuals develop subjective meanings of their experiences and give meaning to their reflection, the researcher explored the feeding practices of mothers through reflecting upon the interviewer-participant interaction (Ponterotto, 2005:128). Constructivist researchers often address the processes of interaction among individuals. Through face-to-face interviews with the participants, transactional knowledge was gained (Denzin & Lincoln, 2018:98) about the feeding practices of mothers with young children attending ECD centres in the study area.

The researcher intended to co-construct insights with the participants through the findings from their interactive discussion and interpretation (Ponterotto, 2005:128). The researcher, therefore, conducted interviews with the participants, who described their lives and how it influences their feeding practices. This approach enabled the researcher to explore and understand the meaning individuals attributed to their social or human problems (Nieuwenhuis, 2016a:53; Creswell, 2014:38), such as the meaning of food and which foods were considered nutritious by the population. This research process involved emerging questions and procedures, data collected in the setting of the participants, analysis of the data that emerged from particulars into general themes, and interpretation of the meaning of the data. This form of research focused on personal meaning and the importance of interpreting the complexity of a situation (Creswell, 2014:48).

### 3.3 Study population

A study population is a combination of elements from which the sample is selected (Babbie, 2016:193). For this study, the target population were mothers of young children aged two to six years who attend ECD centres in Trompsburg, Springfontein and Jagersfontein. According to the Department of Social Development in the Xhariep District, there are five ECD centres in Jagersfontein, two in Springfontein and four in Trompsburg. The number of children attending these centres at the time of this study is summarised in Table 3.1. The researcher met with all the matrons of the ECD centres to obtain permission to conduct the study at their ECD centres, and they all gave their permission.

**Table 3.1: ECD centres in the study area**

Area	ECD centre	Number of children attending the ECD centre
Trompsburg	A1	40
Trompsburg	A2	14
Trompsburg	A3	13
Springfontein	B1	28
Springfontein	B2	93

Jagersfontein	C1	63
Jagersfontein	C2	14
Jagersfontein	C3	56
Jagersfontein	C4	32
Jagersfontein	C5	21

### 3.4 Sampling and unit of analysis

Convenience sampling was used as the population selected was easily and conveniently available, and the method corresponds to exploratory research where the researcher is interested in the underlying truth (Maree & Pietersen, 2016:197). The mothers were the unit of analysis for this study (Babbie, 2016: 9). When the researcher visited the ECD centres, those matrons that gave permission for the study were encouraged to inform the mothers whose children attended their ECD centre about the study. Interested mothers volunteered, and participants were included in the study until data saturation was reached.

#### 3.4.1 Inclusion criteria

For this study, the participants had to comply with the following criteria:

- Reside in the Kopanong Municipality;
- Be the biological mother or caregiver of children aged 2-6 years (which is the age of children that may attend ECD centres,
- Reside with the above mentioned biological child(ren) that they cared for;
- Children must attend an ECD centre in the Xhariep District;
- Be 18 years or older (as at this age their cognitive development will enable them to be more aware of certain requirements because at this age the operational thinking allows them to develop hypotheses about possible outcomes of problems and evaluate these outcomes comparatively (Keller, 2000: 256-257).
- Be able to speak and read English, Afrikaans or SeSotho; and
- Give consent to participate in the study.



### **3.4.2 Exclusion criteria**

For this study, the following were excluded:

- Mothers of children who had existing disabilities that affected their feeding; and
- Mothers who withdrew from the study before completion.

### **3.5 Data collection method**

Semi-structured interviews are the most common type of interview in nutrition research as they allow for structure but are not so rigid that they limit the participant from sharing tangential and frequently relevant information (Goodell et al., 2018:256). The researcher, therefore, conducted semi-structured, face-to-face, one-on-one interviews with the participants. The interviews were recorded with consent from the participants, and a SeSotho-speaking interpreter was arranged to assist when necessary. The participants described their reality, culture, beliefs, norms, knowledge, practices, and living environment related to the feeding and food procurement and preparation practices they applied to their young children. This explorational approach (Babbie, 2016: 90) aimed to form a nuanced understanding of the beliefs and perceptions of the participants that impact their feeding practices (Bothma et al., 2016: 208). The interview schedule is attached (Appendix E). The pilot study was conducted on three participants to test the interview schedule and interview procedures. No changes were made to the interview schedule and the participants were included in the results of the study.

### **3.6 Data collection procedure**

The matrons received information letters (Appendix C) about the study in English, Afrikaans and SeSotho, and were asked to place them inside the children's school bags or distribute them to the mothers who collected their children from the ECD centres. The matrons contacted the researcher to inform her of participants who were willing to participate in the study. The participants were given a date and time to attend the interview at their child's ECD centre. As some of the mothers did not have phones or phone signals to contact the researcher, the

interview arrangements were communicated to each of them through the matrons. The researcher conveniently sampled mothers based on their availability to attend an interview with the researcher at their child's ECD centre. The participants were interviewed until data saturation was reached, thus no new themes emerged (Bojlén & Lunde, 2003:1).

As the data collection occurred in March 2021, during the COVID-19 pandemic, the appropriate Covid protocol was observed. Thus, screening using a Covid questionnaire (Appendix G) took place before the interviews, and the temperatures of the participants were recorded. If the participant's temperature were more or equal to 37.5°C, the interviews would be rescheduled. All the participants had temperatures below 37.5°C and reported no symptoms or risks for Covid. Social distancing was adhered to during the interviews. The researcher and participants wore facial masks during the interviews and sanitized their hands before and after. Consent was obtained from each participant (Appendix A) followed by the interview.

The interview schedule (Appendix E) was used to direct the researcher to collect the necessary data while interviewing the individual participants. The interview guide was developed from the study aim and objectives, which in turn was formulated from the existing literature. The participants were asked a central question, followed by further probing with follow-up questions. The interviews were recorded with a voice recorder.

The researcher also made field notes of the interview (Appendix F) of observations and reflections related to obtaining the data for this study. The questions that were asked during the interview aligned with the study's objectives to explore which foods the mothers fed their children and if the mothers considered these foods nutritious. The researcher transcribed the interviews.

The guiding principles for the interviews were that they should be

- reproducible, so that someone else could use the same interview schedule to generate similar information;

- systematic, so that the participants do not answer to support the pre-existing ideas of the researcher;
- credible, so that the inquiry and manner of inquiry is reasonable and generates valid accounts; and
- transparent, so that the methods are recorded and describe exactly how the data was collected and analyzed (Niewenhuis, 2016b: 94).

### 3.7 Data analysis

Thematic or content analysis is a commonly used qualitative research method that allows researchers to draw conclusions from their data and obtain new knowledge or insights into the researched phenomena (Krippendorff, 1980 as referenced by Stage et al., 2018:286). Furthermore, its focus is to analyse and organize the key ideas that emerge from the data (Stage et al.; 2018:285).

The researcher transcribed the interviews (Appendix H) and imported the transcripts to the *NVivo 12 Pro* software to organise and manage the data. This software allows the researcher to do qualitative data analysis that helps uncover deeper research insights. The researcher may import text, audio and other content from various sources using *NVivo*. Furthermore, *NVivo* allows the researcher to code the data to identify themes and trends, and visualise the data with word frequency charts, word clouds, comparison diagrams and many more (NVivo, 2020: online). The procedure for data analysis is summarised in Table 3.2.

**Table 3.2: Procedure for data analysis**

Step 1: Organize and prepare	Transcribed the interviews (Appendix H, typed field notes (Appendix I) and imported them into NVivo.
Step 2: Develop a general sense	Read through all the data. Obtained a general sense of the information and reflected on its overall meaning. Noted general thoughts about the data.
Step 3: Code the data	Began a detailed analysis with a coding process. Segmented texts by bringing meaning to the

	information. Categorized information and labelled the categories using NVivo.
Step 4: Describe and identify themes	Generated major themes to create headings in the report of findings. These themes were supported by quotations and evidence. The themes were developed into a theoretical model.
Step 5: Represent findings	Discussed in detail the several themes with subthemes using perspectives and quotations from individuals.
Step 6: Interpret the data	Interpreted the meaning of the data. Discussed themes with supervisors.

Data reduction was used to understand how participants framed their feeding practices by analyzing their responses. Content analysis was implemented as a data reduction technique to produce codes and categories (Margolis & Zunjarwad, 2018: 620). The researcher first applied open- and descriptive coding and then analysed the code reports to categorise the interview transcripts (Appendix H and the researcher notes (Appendix I) into themes (Schurink et al., 2018:405-406). The analysis continued until no new major themes emerged (Perkins, Cunningham and Taveras, 2015; Maree, 2016:42-43). The interview schedule (Appendix E) and the observations and reflections (Appendix F) were independently coded in *NVivo*. The findings were repeatedly discussed with the study supervisors to determine topical content and emerging themes, which could then be interpreted.

### **3.8 Ensuring trustworthiness**

Member checks (a method that qualitative researchers use to enhance the validity or trustworthiness of a study) were conducted to prevent measurement errors. Member checks often establish the credibility of a study because participants have had opportunities to react to the data and/or researchers' interpretation (Nieuwenhuis 2016b: 125). Member checks should be conducted with fidelity to participants and their experiences in such a way that participants' feedback and challenges are seriously considered and help inform the interpretive frames of a study (Frey, 2018: online). Member checks were conducted with each participant by

communicating the researcher's interpretation with the participant, who responded verbally to ensure they deemed it accurate and sensitive enough (Nieuwenhuis 2016b: 125).

The following aspects were considered regarding the research findings to ensure the trustworthiness of the study:

- **Credibility:** The extent to which the research findings are believable and trustworthy (Nieuwenhuis, 2016b: 123).
- **Transferability:** The extent to which the research findings can be generalized (Nieuwenhuis, 2016b: 123-124).
- **Dependability:** The extent to which the researcher can replicate the research findings within a similar research context (Nieuwenhuis, 2016b: 124).
- **Confirmability:** The extent to which other people confirm the research findings (Nieuwenhuis, 2016b: 125).

The specific ways in which these strategies were used are indicated in Table 3.3.

**Table 3.3: Strategies applied to improve the trustworthiness of the study**

Criteria	Strategy	Description
Credibility	Quotes were carefully chosen	Using the participant's quotes within context to support the argument of the researcher at hand.
Credibility	The limitations of the study were stated	Limitations of the study are stated to provide the readers with a better understanding of the findings and how the researcher's conclusions were made.
Transferability	Generalisations were avoided	Focused on gaining understanding from the perspectives of the participants to improve the trustworthiness of the study.
Credibility, transferability and confirmability	Digital recordings	Obtained verbatim accounts of the participants by digital recording the interviews and then transcribing them. The digital records improve the trustworthiness of the qualitative data.

Dependability and confirmability	Multiple researchers	Evaluation and interpretation of data were made with consultation with the supervisors
Credibility, dependability and confirmability	Member checks and verified raw data	The researcher informally consulted with participants to verify the accuracy of the data collected.

Data were collected and analysed from multiple participants at different ECD centres in 3 different towns; to ensure the trustworthiness of qualitative research. Triangulation of the interviews from the participants was carried out to identify common themes that enhanced the trustworthiness of the study. Saturation implies that the researcher gathered data until, generally, no new themes emerged (Bojlén & Lunde, 2003:1). The categories and themes are saturated “when gathering fresh data no longer sparks new insights or reveal new properties,” according to Charmaz (2006 in Creswell, 2014:239). In qualitative, face-to-face interviews, saturation can be reached with six to eight interviewees (Creswell, 2014:296). In this study, data saturation was reached with 12 participants.

### **3.9 Ethical consideration**

The following ethics considerations were observed:

#### **3.9.1 Approval**

This study was approved by the Health Sciences Research Ethics Committee, Faculty of Health Sciences, University of the Free State (UFS-HSD2020/1821/2302) (Appendix A), and the Free State Department of Social Development (Appendix B). Permission was also obtained from the matrons of the ECD centres where the interviews were conducted. Ethical consideration is essential for any study to be successful and will be upheld during the study in the following ways:

- Ensuring transparency by informing all the participants of the purpose of the study, the procedures to be followed and their rights regarding their participation;
- Obtaining informed consent before participating in the study;

- Maintaining confidentiality by ensuring that the data cannot be linked to a specific participant by name; thus, the names of the participants and the ECD facilities will not be published.
- Communicating the results to the participants for verification to avoid misinterpretation of the study findings; and
- Adhering to the ethical guidelines specified in the Ethics and Research Statement of the Ethics Committee of the Faculty of Health Sciences, University of the Free State.

The participants were informed that they might withdraw from the study at any stage. The interviewer collected the data, led and guided the participants in a professional manner during the interviews. Permission from the participants to record and transcribe the interviews were obtained.

### **3.9.2 Informed consent**

Participation was voluntary, and no coercion was used. Informed consent (Appendix D) was obtained from participants before participating in the study. The researcher explained the nature, aim, and objectives of the study and the contribution of the participant to the study. Face-to-face, semi-structured interviews were used to collect data. Digital recordings were made, to which the consent of the participants was obtained in the consent form. The participation was confidential, and the interview was private.

### **3.9.3 Confidentiality**

The particulars of the participants were not shared; confidentiality was ensured at all costs. Although, findings will be shared in the form of a report with the Free State Department of Social Development and Free State Department of Health, and with the participants in the form of an information pamphlet illustrating appropriate nutrition for young children. The participation was confidential, and the interview was private. Participants were assigned numbers, and no names were used. Participants could withdraw from the study at any point. Data was locked and keyed,

raw data was known to the researcher who collected the raw data. Once the raw data had been analysed, the digital recordings were destroyed. The analysed data will be kept for five years.

#### **3.9.4 Risk-benefit assessment**

No immediate benefits were offered, although refreshments were served during the interviews. Participants were assured that although verbatim responses were recorded and may appear in the results and publications, their names and particulars or of the EDC centre where their children attend would not appear in any format in which the findings are disseminated, including in the dissertation, published articles or presentations.

#### **3.9.5 Role of the researcher**

The researcher was an observer (Nieuwenhuis, 2016b: 91) and was transparent to all the stakeholders regarding the purpose of the study, obtaining informed consent from the participants, permission from the matrons of the ECD centres and approval of the Health Sciences Research Ethics Committee and Evaluation Committee members of the University of the Free State.

In this study, the researcher:

- Prepared and structured the interview questions based on the objectives set for the study,
- Prepared the interview guide,
- Kept field notes,
- Contacted the ECD centre matrons,
- Recruited participants for the study by working with the ECD centre matrons,
- Informed recruits of the study,
- Contacted the matrons to arrange the interviews,
- Obtained consent from participants,
- Analyzed the raw data,
- Wrote the dissertation, and



- Hopefully, publish the research.

#### 3.9.6 COVID-19 Protocols

All protocols for Covid-19 were followed according to the COVID-19 Environmental Health Guidelines by the National Department of Health (2020), as mentioned before (refer to 3.6 Data collection procedure).

## CHAPTER 4: RESULTS

### 4.1 Introduction

This chapter discusses the results of the data analysis. The study population is discussed, as well as the themes and sub-themes identified from the transcribed interviews.

### 4.2 Description of the study participants

A total of 12 participants who met the inclusion criteria, and were conveniently sampled from ECD centres in the Xhariep District with children between the ages of two and six years old, who completed the informed consent form, were included in the study and were interviewed. Three participants were interviewed in Trompsburgs, another three were interviewed in Springfontein, and six participants were interviewed in Jagersfontein at the ECD centres that their children attended, as indicated in Table 4.1. Thus, only one of the three ECD centres in Trompsburg, one of the two ECD centres in Springfontein, and three of the five ECD centres in Jagersfontein had participants in this study.

**Table 4.1: Description of the participants**

Participant	ECD centre	Description of participant
Participant 1	C1	66-year-old African female who was widowed and the primary caregiver of a five-year-old child. Her highest level of education was grade 4. The participant received a government pension grant as her source of income.
Participant 2	A1	23-year-old African female who lived with her partner and was the primary caregiver of a two-year-old child. Her highest level of education was grade 11. The participant received a child grant as her source of income.
Participant 3	A1	28-year-old African female who was unmarried and was the primary caregiver of a two-year-old child. Her highest level of education was grade 2. The participant receives a child grant as her source of income.
Participant 4	A1	20-year-old African female who was unmarried and was the primary caregiver of a two-year-old child. Her highest level of

Participant	ECD centre	Description of participant
		education was grade 12. The participant received a child grant as her source of income.
Participant 5	C2	21-year-old African female living with her partner and was the primary caregiver of a seven-year-old, a six-year-old, and a two-year-old. Her highest level of education was grade 8. The participant received child grants for the three children as her source of income.
Participant 6	C2	50-year-old African female who lived with her partner and was the primary caregiver of a one-year-old child. Her highest level of education was grade 3. The participant received a child grant as her source of income.
Participant 7	C2	39-year-old African female living with her partner and was the primary caregiver of a twelve-year-old, an eight-year-old and a three-year-old. Her highest level of education was grade 4. The participant received child grants for the three children as her source of income.
Participant 8	C3	30-year-old African female living with her partner and was the primary caregiver of a seven-year-old, a three-year-old and a four-month-old. Her highest level of education was grade 12. The participant received child grants for the three children as her source of income.
Participant 9	C3	35-year old African female who was married and was the primary caregiver of a three-year-old child. Her highest level of education was grade 11. The spouse of the participant was employed, and she noted his salary as their source of income.
Participant 10	B1	71-year-old African female who was a widow and was the primary caregiver of a three-year-old child. She never attended school. The participant received a government pension grant and a child grant as her sources of income.
Participant 11	B1	A 32-year-old African female was married and was the primary caregiver of a three-year-old child. Her highest level of education was grade 12. The spouse of the participant was employed, and she noted his salary as their source of income.
Participant 12	B1	30-year-old African female living with her partner and was the primary caregiver of a two-year-old and a two-month. Her highest level of education was grade 12. The participant received child grants for both of the children, and she was also employed and earning a salary as her source of income.

Table 4.2 describes the women who participated in this qualitative study in terms of their socio-demographic characteristics. The mothers who participated in this study were primary caregivers of children aged two to six years old. At the start of the interview, the women were asked their

age, the number of children in their primary care, level of education, marital status, employment status and whether they were receiving any grants. The youngest participant was 20-years old, and the oldest 71-years old (median age: 31-years; P25; P75: 26.8; 41.8 years). Eight participants had only one child in their primary care, while the rest were the primary caregiver of two to three children. Five of the participants finished grade 11 or 12, while six only had some primary school education, and one never went to school. The participants' marital status varied from being widowed, in a relationship, living with a partner, or married. Eight of the participants received a child care grant, while two participants received pension grants, and only two participants had a spouse or partner who was employed.

**Table 4.2: Socio-demographic information of the participants**

<b>Variable</b>	<b>Number (Percentage)</b>
<b>Occupation</b>	
Unemployed	9 (75.0)
Employed	1 ( 8.3)
Seeking employment	5 (41.7)
Pensioner	2 (16.6)
<b>Family structure</b>	
Nuclear	9 (75.0)
Extended	3 (25.0)
<b>Source of income</b>	
Social grant	9 (75.0)
Employment	1 ( 8.3)
Employment of spouse/partner	2 (16.7)
<b>Access to municipal utilities</b>	
Water in/at home	5 (41.7)
Electricity in the home	7 (58.3)

Seven participants had municipal electricity in their homes, and five had facilities for municipal water in or at their homes.

### **4.3 Identified themes**

Five major themes, namely (i) infant and child feeding practices, (ii) social support for infant and child feeding practices, (iii) financial restraints that impact infant and child feeding practices, (iv)

concern for the nutritional wellbeing of infants and children, and (v) access to household amenities that affect infant and child feeding practices, were identified from the transcripts as summarized in Table 4.3 – 4.7:

#### **4.3.1 Theme 1- Infant and child feeding practices**

The interview schedule (Appendix E) included questions asking what participants had fed their children since birth. Two subthemes were identified, namely breastfeeding practices and types of foods given to infants and young children.

The participants reported breastfeeding, mixed feeding, formula feeding and feeding the children thin porridge (Table 4.3: Theme 1- Infant and child feeding practices).

**Table 4.3: Theme 1- Infant and child feeding practices**

Themes	Sub-themes	Illustrative responses
Infant and child feeding practices	Breastfeeding practices	<p>"I didn't breastfeed her. She was drinking the bottle." (P2)</p> <p>"I was breastfeeding the child." (P11)</p> <p>"I was using NAN." (P2)</p> <p>"Breast milk and thin pap....If she was not satisfied with the breast milk." (P3)</p> <p>"Since he was born, I was using the bottle. He was drinking Pelargon.... and sometimes even tea and thin porridge." (P4)</p> <p>"I give him the breastfeeding. All of them." (P5)</p> <p>"No, she didn't eat (niks geëet nie). No, she drank from the mother. (She indicates the breast)." (P6)</p> <p>"I breastfed her." (P7)</p> <p>"When she was born, it was breast milk, and at six months, it was bottle and breast milk, and fruit and vegetables. My mother always just said that the best medicine for the baby is the breast milk." (P8)</p> <p>"Breast milk. After the breast milk, I began to give her food. She never drank bottle (she says proudly)." (P9)</p>

Themes	Sub-themes	Illustrative responses
		<p>When the mother came out of the hospital, she said she would go find a job. Then she left the child with me. So that is how she stopped to breastfeed.” (P10)</p> <p>“Only breastfeeding until two years, and then after breastfeeding I started to give her the Cerelac. Now she is eating like a normal child.” (P11)</p> <p>“I breastfeed.”(P12)</p>
	Types of foods given to infants and young children	<p>“...white bread is too much starch” (P1)</p> <p>“I give her usual food, pap and milk” (P2)</p> <p>“Because water is very important for the body, and pap makes her grow” (P2)</p> <p>“Literally speaking, you can say that we are struggling. We can’t afford to buy those things? Just if I receive some little of the money, I buy Russians, you see, yeah, like that. So I can’t buy vegetables all the time.” (P2)</p> <p>“I give the child water, I give the child pap and milk, and I give the child pap and meat” (P3)</p> <p>“He eats pap and milk, and sometimes pap and meat.</p>

Themes	Sub-themes	Illustrative responses
		<p>Sometimes in the morning it is porridge. And he drinks lots of water.” (P4)</p> <p>“Yes, the pap and milk, but sometimes the meat is not healthy. Because I’m sometimes cooking with spices and the others have too much fat.” (P4)</p> <p>“I give him pap, porridge and milk, bread, and rice, meat, pumpkin, spinach and pap. I give them meat and pap, meat and oil if we don’t have pap. Something to eat? We eat pap and tuna; we eat fish oil and sugar.” (P5)</p> <p>“I give milk and pap, and the pumpkin and potatoes, and meat.” (P6)</p> <p>“In the morning, she actually loves her tea a lot. In the morning, I give her pap and milk. If I don’t give her that, then she eats thin porridge or oats. “ (P7)</p> <p>“I give pap and milk, pap and meat. In the mornings so Cerelac (she thinks and tries to get the name)...” (P8)</p> <p>“The pap, uhm, how can I explain. The pap builds his body for weight gain and so on. The cereal is for energy and the Iron that the child needs”. (P8).</p>



Themes	Sub-themes	Illustrative responses
		<p>“For meat, for now mostly eat chicken because it is the cheapest. But so once in a month when the “uncle” had “piece-job”, we can have red meat, well actually white meat because it is pork and wors, is all I can say we eat. (She giggles) I can’t afford mutton, so I leave that.” (P8)</p> <p>“...in the mornings, I give her pap and milk, cornflakes and fruits. And certain vegetables. But she doesn’t just eat vegetables.... So what do I do, I give her those vegetables, and milk and rice.... sometimes give her sweets and cold drink.” (P9)</p> <p>“Sometimes if we don’t have any meat. I will just put a little fat, the fat that was left from the meat. Then I just put in the pap, and we eat it. Only when I get paid, I cook veggies.” (P10)</p> <p>“I feed my child porridge, milk, rice, Weet-bix, noodles, and vegetables and noodles, and fruit also.... juice, the Fruit tree, sometimes I just buy the Wild Island because we don’t use money, which means I cannot buy all the time. And water.” (P11)</p> <p>“...when I have money I buy some fruits, and drinks and water” (P12)</p>

Participant 5: *"I give him the breastfeeding. All of them."*

Participant 7: *"I breastfed her"*

Participant 9: *"After the breast milk, I began to give her food. She never drank bottle" (she says proudly).*

Participant 11: *"Only breastfeeding until two years, and then after breastfeeding I started to give her the Cerelac. Now she is eating like a normal child".*

Participant 3: *"Breast milk and thin pap. If she was not satisfied with the breast milk".*

Participant 2: *"I didn't breastfeed her. She was drinking the bottle... I was using NAN".*

Participant 4: *"Since he was born, I was using the bottle. He was drinking Pelargon".*

Participant 10: *"Just porridge, mielie porridge... Nothing, no milk nothing, no bottle".*

In the cases where the primary caregivers were grandmothers, the children were not breastfed.

Participant 10: *"When the mother came out of the hospital, she said she is going to go find a job. Then she left the child with me. So that's how she stopped to breastfeed".*

Regarding the foods given to the children that were already eating (Table 4.3), the participants reported mostly feeding their children pap, milk, "juice" (which invariably, on probing, turned out to be cordials) and water (on probing). Vegetables and meat were only offered to the children once a week on Sundays. The most mentioned vegetables were cabbage, spinach, pumpkin and carrots. Fruits were mostly only fed to the children at the beginning of the month and considered treats.

Participant 2: *"I give her usual food, pap and milk".*

Participant 3: *"I give the child water, I give the child pap and milk, and I give the child pap and meat".*

Participant 12: *"...when I have money I buy some fruits, and drinks and water".*

When the grandmother (Participant 10) had no meat, she fed the children pap with oil previously used to prepare the meat (referring to drippings from the meat preparation).

Other starchy foods that were mentioned were bread, cornflakes, Weet-bix, noodles, rice and potatoes. The participants reported that they fed their children these foods because it would make the child grow, it is what they could afford, it was the food that they were sure their child would eat, and they believed it was healthy.

## **Theme 2 - Social support for infant and child feeding practices**

The second theme was related to the social support that participants accessed for feeding their young children (Table 4.4: Theme 2 - Social support for infant and child feeding practices). The first subtheme was related to their use of and access to services at the clinics. They described that they received advice on feeding to ensure that their children were healthy and growing and developing well from the clinic staff.

Participant 6: *"I listened because it is a clinic that told me what food to feed the child when the child was six months old."*

However, their comments indicated that they did not always find the information practical and achievable within their circumstances:

Participant 1: *"Usually, the doctor says you must not eat pap every day. But under the circumstances we are living now, we must eat pap. We can't afford the other food."*

Participant 2: *"Yeah, at the clinic they did... Sometimes I do it, sometimes not doing it... As I said, sometimes I do have those things that I must feed the child, sometimes I don't have it".*

Participant 12: *"In the clinic, they give some advice, but ahh..."*

The second subtheme is related to being able to depend on social support from relationship partners. Some participants talked about them not being able or willing to contribute financially to the household:

Participant 3: *"No, I have relations with the man. He does not do piece-job. I use the R100 to buy pap, I buy milk and I buy little meat to be satisfied when we eat."*

In this case, the boyfriend of the participant took a portion of the child grant money to buy things for himself.

Participant 12: *"Nothing (he is not working)...he's just.... No, we are just helping each other for the children."*

Two participants reported that their partners had some income and contributed to the household:

Participant 9: *"My husband has a job";*

Participant 11: *"My husband is working."*

In some cases, their partners could only contribute occasionally:

Participant 2: *"He is doing part-time jobs, there and there. Sometimes.";*

Participant 6: *"No, the father... when the father was working, he cared for the child."*

Participant 8: *"Yes, he (boyfriend) works." "...once in a month when the "uncle" had "piece-job...";*

Family, particularly grandmothers, were noted as a source of social support in feeding their young children:

Participant 8: *"Sometimes at my mother or mother-in-law. Yes, or borrow to add to the money."*

Neighbours (the community) also gave the mothers social support in the form of advice regarding the feeding of young children:

Participant 2: *"Because she is the oldest person and knows how to raise the child. That is why I listen to her."*

Participant 4: *"She just told me that kids must eat pap and milk, must not give kids light food. And, I must give healthy foods, like spinach, fruits and veggies."*

Participant 4: *"Because she has grown many children."*

Finally, neighbours also supplied social support in the form of food assistance:

Participant 4: *"Yeah, like sometimes I don't have mielie meal, so I just go to the next door."*

However, this kind of support was not without pitfalls, as a participant explained being scared that the neighbours might speak behind her back because they did not understand her circumstances:

Participant 12: *"Because like, other people they talk. Like "(her name), you're getting two grants, but you don't have..."; "They don't know how we struggle as people."*

**Table 4.4: Theme 2 - Social support for infant and child feeding practices**

Themes	Sub-themes	Illustrative responses
Social support	The clinic	<p>"Yeah, at the clinic they did... Sometimes I do it, sometimes not doing it...As I said, sometimes I do have those things that I must feed the child, sometimes I don't have it. You see, that's why I'm doing it." (P2)</p> <p>"Yes, sometimes at the clinic..... The clinic said I must not give, I must no more give the child thin porridge. The child must not eat light food. He must only eat the things that keep him strong." (P4)</p> <p>"The clinic did say we must give him pumpkin, potatoes, cooked veg and thin porridge. I listened because it is a clinic that told me what food to feed the child when the child was six months old." (P6)</p> <p>"I listened because it is a clinic that told me what food to feed the child when the child was six months old." (P6)</p> <p>"There at the clinic, I read it on the cupboards." (P7)</p> <p>"Yes, it is on the clinic card... Because from the clinic I understand (the baby fusses) that, that those foods are healthy for the baby. Very healthy for the baby, because I found out that most, there is of the food in</p>

Themes	Sub-themes	Illustrative responses
		<p>that clinic book, that he didn't really enjoy. But most of what there is, he did enjoy it. And until now, he still enjoys it." (P8)</p> <p>"Yes, because I took her to the clinic. When she was drinking milk, I took her for her weight was off. So I asked why is this child's weight be off. So they explained because she drinks milk, the milk went out her body, so you must give the child vegetables, milk to drink if you have and fruit. " (P9)</p> <p>"At the clinic. And here at the school. They say we must change the diet for the children. Today if they are eating this, then tomorrow the child must eat something else". (P11)</p> <p>"In clinic they give some advice, but ahhh..." (P12)</p>
	Support form partners/spouses	<p>"He is doing part-time jobs, there and there. Sometimes." (P2)</p> <p>"No, I have relations with the man. He does not do piece-job. I use the R100 to buy pap, I buy milk, and I buy little meat to be satisfied when we eat." (P3)</p> <p>"No, the father when the father was working he cared for the child." (P6)</p> <p>"No, the boyfriend (of the grandmother) makes "piece job"." (P6)</p> <p>"...once in a month when the "uncle" had "piece-job..." (P8)</p> <p>"Yes, he (boyfriend) works." (P8)</p> <p>"My husband has a job." (P9)</p> <p>"My husband, is working." (P11)</p> <p>"Nothing (he is not working)...he's just.... No, we are just helping each other for the children." (P12)</p>
	Family (grandmother)	<p>"Yeah, there is someone who tells me I must give my child pap, a lot of the time, I must give her pap and milk.... Because she is the oldest person and knows</p>

Themes	Sub-themes	Illustrative responses
		<p>how to raise the child. That is why I listen to her.” (P2)</p> <p>“My mother died. My grandmother is staying there.” (P5)</p> <p>“Sometimes at my mother or mother-in-law. Yes, or borrow to add to the money.” (P8)</p>
	Assistance from neighbours	<p>“Then I go ask next door.” (P3)</p> <p>“It’s the grandmother from next door. Because my mother has passed away.” (P4)</p> <p>“She just told me that kids must eat pap and milk, must not give kids light food. And I must give healthy foods, like spinach, fruits and veggies.” (P4)</p> <p>“Because she has grown many children.” (P4)</p> <p>“Within a month, if I don’t have, then I go next door and ask. Sometimes they give me meal and meat. Sometimes they already buy milk for the kids.” (P4)</p> <p>“From my neighbours. End the month; then I give them the money.” (P9)</p> <p>“Yeah, like sometimes I don’t have mielie meal, so I just go to the next door...” (P12)</p>

#### 4.3.2 Theme 3 – Financial restraints that impact infant and young child feeding practices

Financial restraints were identified as the third theme, as it seemed that all the participants were affected and it influenced their access to food for their children (Table 4.5: Theme 3 – Financial restraints that impact infant and child feeding practices). As mentioned before, only two participants’ partners had jobs. The heavy reliance on social grants was therefore identified as the first sub-theme.

Participant 12: *“I’m living with the grant of the children....”*

Participant 6: *“But now the father is without work (werkloos). So we just live off the grant.”*

All twelve participants reported that these source(s) of income they had access to be less than adequate for food. Five participants specifically mentioned that they would like to gain employment or a source of income to improve their food access:

Participant 2: *“What I can say the only thing I will need is the job. Then I can get the money and buy the healthy food you see.”*

Participant 8: *“I don’t work. Sometimes I feel if my money, if I maybe only I had a job I could add to the grant money I get, support money that I get to just. Like most of the income.”*

Participant 9: *“Ma’am, what I need is a job, an income. Because if I have an income, I can provide for the health of the child.”*

Participant 8: *“So if I had a garden, I would have something. Most of the vegetables I would sell so that I could have an income.”*

However, the low level of education amongst the participants was identified as another subtheme as it limits the types of jobs that the participants would be able to qualify for, and thus the level of income that they could generate should they find employment.

One participant mentioned wishing for earning income outside of formal employment:

Participant 8: *“So, if I had a garden, I would have something. Most of the vegetables I would sell so that I could have an income.”*

Running out of funds in the households for food and amenities affected all the participants at various levels. It also had an impact on the type of foods that they bought:

Participants 1: *“No, not often, it does not happen often. Just sometimes. Like I said, maybe towards month-end, You know things get finished.”*

Participant 5: *“Like when it is 25 to 26 date of the month, we don’t have something to eat.”*

Participant 7: *“(She sighs), probably so twice in a month.”*

Participant 11: *“It happens during every time before the father is going to be paid. Maybe two weeks before.”*



Not having sufficient income forced them to make other plans to access money for food and amenities. Two participants reported using store credit to purchase food and electricity when they had none:

Participant 1: *"I go to the shop and say, please help me with this and this, just for the child. I will pay you when I have money, then they help me....Then I go to the shop and make a loan so that the child can eat until I get money."*

Participant 11: *"I'm just going to the shops, and then they can give me credit. And then month-end I can pay."*

Nine participants also reported borrowing money to purchase food and electricity from people they know, or from lenders (so-called "loan sharks"):

Participant 7: *"No, I go borrow money from the people who lend money. Or I go ask people who I know."*

Participant 10: *"If my money is not there anymore, then I go to someone and borrow."*

Participant 12: *"From the loan lenders, the ones who borrow me. The money I don't borrow for the food, because I used to have the garden..."*

However, they also reported that the lenders charged high-interest rates:

Participant 10: *"Sometimes I do have, when I borrow the money for electricity, to whoever, I must give that money with the interest. So that is giving me a problem."*

Participant 11: *"Or sometimes I go to someone to lend me money so that I can pay that person.... A loan shark.... Yes, with the interest or double."*

Participant 12: *"And when I give it (back), I give it with the interest."*

Having to borrow and then repay the money at the end of the month, often at high interest rates, further tapped into the little money that the participants had available for food. But, participants noted that borrowing money is something that they had no choice to do to ensure that their children had food to eat and that their household had electricity to store and cook food:

Participant 5: *"Then I have to go and find some money from someone so that they can eat."*

Participant 5: *"I have to go loan some money to buy some food."*

Participant 5: *“Then I will see later where I can go and find some money for electricity. So that we don’t sleep in the dark.”*

Participant 6: *“I lend money there. So I can buy electricity. Then I repay it the end of the month.”*

**Table 4.5: Theme 3 – Financial restraints that impact infant and child feeding practices**

Themes	Sub-themes	Illustrative responses
Financial restraints	Reliance on social grants	<p>“I am getting the government pension.” (P1)</p> <p>“I’m just only getting the SASSA grant (for the child)” (P2)</p> <p>“I just get the grant money for the child.” (P3)</p> <p>“Yes, just only the money (grant) for the child.” (P4)</p> <p>“Yes, just only the money for the child.” (P4)</p> <p>“I get grant money. I get three for three children. No, it’s not enough money.” (P5)</p> <p>“I get the same R450....Yes, the grant.” (P6)</p> <p>“But now the father is without work (werkloos). So we just live off the grant.” (P6)</p> <p>“I get money from the government. Yes, for all three the children. (P8)</p> <p>“She says it is because her husband got permanent work she doesn’t qualify for the grant.” (P9)</p> <p>“Pension.” (P10)</p> <p>“I’m living with the grant of the children...” (P12)</p>
	Wishing for employment	<p>“What I can say the only thing I will need is the job. Then I can get the money and buy the healthy food you see.” (P2)</p> <p>“I think I can get work and feed my child well. I’ll be fine.” (P4)</p>

Themes	Sub-themes	Illustrative responses
		<p>"Because I don't work now." (P5)</p> <p>"I don't work. Sometimes I feel if my money, if I maybe only I had a job I could add to the grant money I get, support money that I get to just. Like most of the income." (P8)</p> <p>"Ma'am, what I need is a job, an income. Because if I have an income, I can provide for the healthy of the child." (P9)</p> <p>"I'm a general worker at "that place" ... If I can get a better, better job that can give me a better salary so that I can look after my children, that will make me happy." (P12)</p>
	Level of education	<p>"That time when we were getting old, the standard was standard 6, in the late 70's, the late 70's. But then I attended private schools, I taught myself." (P1)</p> <p>"Ok, I did make matric, but I didn't pass it well. So I can say it's grade 11, because Matric I didn't pass." (P2)</p> <p>"Yes, I went until standard 4." (P3)</p> <p>"I've done grade 12." (P4)</p> <p>"I was; I leave school in grade 8." (P5)</p> <p>"Just on the farms until standard 1 (grade 3)." (P6)</p> <p>"Until standard 2 (grade 4)." (P7)</p> <p>"Until grade 12." (P8)</p> <p>"Until grade 12, but I failed it." (P9)</p> <p>"I never went." (P10)</p> <p>"Yes, I did school until Grade 12." (P11)</p> <p>"Grade 12." (P12)</p>

Themes	Sub-themes	Illustrative responses
	Wishing for income outside of formal employment	<p>"She says she also wants to get some chickens to raise in her yard. The she will have eggs and meat to eat and she can also sell it. But she does not know who to ask to help her to get chickens." (P1)</p> <p>"So, if I had a garden, I would have something. Most of the vegetables I would sell so that I could have an income." (P8)</p>
	Running out of funds for food	<p>"No not often, it does not happen often. Just sometimes. Like I said, maybe towards month end, You know things get finished. The salt is finished, the Colgate is finished, the washing soap is finished, this is finished, the sugar is finished, then you get stressed. The last week of the month, it happens many times, but I always have a plan." (P1)</p> <p>"We don't have money to buy healthy food. We can't afford, you see. Literally speaking, you can say that we are struggling. We can't afford to buy those things? Just if I receive some little of the money, I buy Russians, you see, yeah, like that. So I can't buy vegetables all the times." (P2)</p> <p>"But I can only buy them by the end of the month when I have money or have the grant." (P4)</p> <p>"Like when it is 25 to 26 date of the month, we don't have something to eat." (P5)</p> <p>"I think I need a little extra electricity to give this child proper food. Actually the problem is money. The money problem... I cannot say how to." (P6)</p> <p>"She sighs, probably so twice in a month." (P7)</p> <p>"At this moment, as things are a little... The income is not as it should be; we have some problems with it. For meat, for now, mostly eat chicken because it is the cheapest. But so once in a month when the "uncle" had "piece-job", we can have red meat, well actually white meat because it is pork and wors, is all I can say we eat. (She giggles) I can't afford mutton, so I leave that." (P8)</p>

Themes	Sub-themes	Illustrative responses
		<p>"Like now at this moment, we're living with a big hole. I don't have vegetables. So I have to wait until the end of the month when my husband is paid, then we will be able to buy food for the house again." (P9)</p> <p>"It happens during every time before the father is going to be paid. Maybe two weeks before."</p> <p>"It is stressful. Because like, other people they talk. Like "(her name), you're getting two grants, but you don't have...". They don't know how we struggle as people." (P11)</p> <p>"It is sometimes." (P12)</p>
	Earning money (outside of formal employment)	"So if I had a garden, I would have something. Most of the vegetables I would sell so that I could have an income." (P8)
	Store credit	<p>"I go to the shop and say, please help me with this and this, just for the child. I will pay you when I have money, then they help me....Then I go to the shop and make a loan so that the child can eat until I get money." (P1)</p> <p>"I'm just going to the shops, and then they can give me credit. And then month-end I can pay." (P11)</p>
	Money lenders	<p>"Then I have to go and find some money from someone so that they can eat." (P5)</p> <p>"I have to go loan some money to buy some food." (P5)</p> <p>"Then I will see later where I can go and find some money for electricity. So that we don't sleep in the dark." (P5)</p> <p>"I lend money there. So I can buy electricity. Then I repay it the end of the month." (P6)</p> <p>"No, I go borrow money from the people who lend money. Or I go ask people who I know."</p> <p>"If my money is not there anymore, then I go to someone and borrow." (P7)</p>

Themes	Sub-themes	Illustrative responses
		<p>"Sometimes I do have, when I borrow the money for electricity to whoever, I must give that money with the interest. So that is giving me a problem." (P10)</p> <p>"Or sometimes I go to someone to lend me money so that I can pay that person.... A loan shark.... Yes with the interest or double." (P11)</p> <p>"From the loan lenders, the ones who borrow me. The money I don't borrow for the food, because I used to have the garden.... And when I give it I give it with the interest." (P12)</p>

#### 4.3.3 Concern for the nutritional wellbeing of infants and children

The fourth major theme that was identified was participants' concern for the well-being of their children (Table 4.6: Theme 4 - Concern for the nutritional wellbeing of infants and children).

Where the biological mother was not available to care for the child, other women stepped in:

Participant 1: *"At this moment, just one lives with me. The others are away at school. So, it is just this one attending the crèche. She (the biological mother) is still at the school, she is...studying..."*

Participant 6: *"The mother is in school".*

Participant 10: *"When the mother came out of the hospital, she said she is going to go find a job. Then she left the child with me".*

The participants seemed aware of the importance of breastfeeding:

Participant 8: *"My mother always just said that the best medicine for the baby is the breast milk".*

The participants also seemed to prioritise the need to feed their children:

Participant 1: *"I can go bed hungry, but not the child".*

a Participant 4: *"Yes, I have (gone to bed without eating food), and feel bad because I am diabetes person. And sometimes I wake up very weak".*

Participant 7: *"sometimes we really don't have.... I go borrow money from the people who lend money. Or I go ask people who I know.... to buy little food (kossies)".*

Participant 11: *"I try by all the means my child must not go to bed without any food".*

Furthermore, it was clear from their comments regarding their nutrition knowledge that the participants displayed that they were aware of food groups and the importance of feeding their children healthy food:

Participant 1: *"Most of the time. I do not give the child gas cold drink. Because the gas is not good for the children. I give 100% cold drink, or I buy the cold drink that you mix with water and give them that to drink. And little sweets. And little of the chips..."*

Participant 1: *"There are some that gives them allergies, even sweets give them allergies...."*

Participant 1: *"..milk is nutritious, for child's bones to be strong."*

Participants 1: *"What they can eat more of is meat. And with meat, I use chicken meat, and the white meat parts, not the skin and the fat. Because that is not good, even for adults it is not good. Participant 1: But the vegetables I think are 100%"*

Participant 2: *"Because water is very important for the body. And pap makes her grow (she laughs). Most of the time, every time that I cook there must be cooking oil, it is the junk food. It is not the healthy food. Vegetables are the healthy food."*

Participant 8: *"The pap builds his body for weight gain and so on. The cereal is for energy and the Iron that the child needs. Because the vegetables and fruit is very healthy for the up-growing of the child. The "opkoms" of the child. Some vegetables gives Iron and vitamins and so on, and a lot of appetite. Then I don't need to go the clinic for medicine and so on."*

Participant 9: *"Like I understand the vegetables are to build her "immune system", so she can stay healthy. Most of the time the children, for example if I don't give her then she just eats the sweets and chips then she will yawn, she her stomach runs, and she will become sick. So I realized if I can give her more fruit and vegetables then I can her body is alright....so if I don't give vegetables, she*

*loses weight and she doesn't want to eat. Because if she gets more sweets, then she doesn't want to eat her usual food."*

Participant 11: *"Because the Weet-bix, it has those the things, the calcium, the iron, it has zinc, they are affect the growing of the child."*

Participant 12: *"Okay, pap and milk is to give the children calcium, the bones must grow, he must grow stronger. And he likes too much pap and milk, and he don't like meat. And he go to school and have that energy, and always carrots for the eyes, he must see clearly, yeah."*

As sources of their nutrition information, seven participants revealed that they had received nutrition advice from nurses at their local clinics, and seven participants also talked about receiving nutrition advice from family members, such as grandmothers, mothers and neighbours (the older women in their communities), the matrons at the ECD centres and television.

Participant 4: *"The clinic said I must not give, I must no more give the child thin porridge. The child must not eat light food. He must only eat the things that keep him strong".*

Participant 6: *"The clinic did say we must give him pumpkin, potatoes, cooked veg and thin porridge".*

Participant 12: *"In clinic they give some advice" .*

Participant 2: *"Yeah, there is someone who tells me I must give my child pap... It is my grandmother".*

Participant 3: *"Because she is the oldest person and knows how to raise the child. That is why I listen to her".*

Participant 4: *"It's the grandmother from next door. Because my mother has passed away".*

Participant 10: *"And here at the school. They say we must change the diet for the children. Today if they are eating this, then tomorrow the child must eat something else."*

Participant 1: *"There are sometimes the TV will discuss food, what the children must eat, and nutrition. I take the advice from the TV usually."*



Participant 5: *"I look at the TV. I watch the TV. How the people give their children food."*

However, the participants expressed some concerns related to the foods that they considered to be healthy for their children:

Participant 1: *"But the pap. Starch!"*

Participant 1: *"Usually, the doctor says you must not eat pap every day. But under the circumstances we are living now, we must eat pap. We can't afford the other food. So with my thinking, if you eat the pap with milk that starch will not be too much for the child."*

Participant 2: *"Even starch is not so healthy, but yeah. But the only things that is healthy is the water."*

Participant 2: *"Yes the pap and milk, but sometimes the meat is not healthy. Because I'm sometimes cooking with spices and the others have too much fat."*

Participant 5: *"Because pap and sugar is not healthy. At least pap and spinach. Yeah is healthy for the body, mind; everything for the body is good. And meat is not also good for the body. The sugar is going to make him sick at school, tired, they don't have energy to listen to the teacher. At least when I give her pap and milk in the morning, yeah, she will be like other children in the class. She won't get tired. Joh, it's not healthy the meat. It's too much fat. It's not right for the body".*

The participants were concerned that having insufficient funds influenced the types of foods that they fed their children, and when they were able to offer vegetables and fruits to their children:

Participant 3: *"I must give him vegetables. But, I only give vegetables at month-end. If I don't have, then we live like that until month-end. Potatoes, beetroot and apples. If I don't have, then I just leave it."*

Participant 8: *"Sometimes I get in a week, three weeks we didn't eat healthy food like spinach so on. Sometimes it's a month, and we just eat starch. But when the money is enough, then we eat those vegetables and fruit now and then. I can say when it comes to the food, I make sure that there is, even when there is not really money. But when it comes to vegetables, I have a bit of a shortage. But bedtime, they go to sleep their tummies are always full.";*

The amount of money that the participants had available also influenced the type of protein and how often protein was offered to their children:

Participant 8: *"Sometimes it's a month, and we just eat starch."*

Participant 2: *"Just if I receive some little of the money, I buy Russians, you see..."*

Participant 8: *"For meat, for now mostly eat chicken because it is the cheapest. But so once in a month when the "uncle" had "piece-job", we can have red meat, well actually white meat because it is pork and wors, is all I can say we eat. (She giggles) I can't afford mutton, so I leave that."*

At the times when there was insufficient money for food, participants reported skipping meals so that their children could eat:

Participant 5: *"Nooo! No, I make plan for them to eat. If they eat, I don't eat, I don't have supper; about them, I have stress. I make plan for them to sleep with no empty stomach."*

Participant 11: *"Never, I try by all the means my child must not go to bed without any food.";*

Participant 12: *"Even me I can sleep with the hunger, but only the child."*

However, not having sufficient funds for food was a very emotional experience for mothers, and they described feelings of sadness, failure and stress when they could not feed their children adequately:

Participant 2: *"I feel sad, too much. "*

Participant 3: *"Heartbroken. Because I must go lend for my children?"*

Participant 4: *"I don't feel good, I feel like I'm failing my child."*

Participant 5: *"I feel so hard. It's hard for me. Because sometimes they come from school and they say "we want pap." I say, "joh we don't have pap now, I will see later what I can do." Sometimes they are crying, it's not nice."*

Participant 7: *"Hurt, especially when I think my children must sleep with hunger. "*

Participant 8: *"I feel sad (heart sore). That I am not playing my role as a mother."*

Participant 9: *"I felt unhappy, because for myself, I don't feel like my child can stay healthy. I am... I am not satisfied Ma'am, I am really not satisfied. Even though there is a bit, I am prepared I will give the child food. I can go sleep with hungry. Just as long as the child can sleep and eat."*

Participant 11: *"I'm stressing, I'm feeling nervous because the child doesn't get what always normally get at that time."*

Participant 12: *"It is stressful..."*

One participant described how happy it made her when she was able to make a plan to give her child a fruit:

Participant 1: *"Because sometimes he sees another child with a banana then he want it too. And you do not have money at that time, how does the child feel. The child does not understand like me, like an adult when life is hard. But, I make sure that I must have R10 in the house so that the child can get fruit. Even if it is just once a week, I feel happy."*

**Table 4.6: Theme 4 - Concern for the nutritional wellbeing of infants and children**

Themes	Sub-themes	Illustrative responses
Child well-being	Standing in for biological mothers	<p>"She is still at the school; she is at UFS studying accountant. And she does part-time work at Steers. But you know the young people, they want to be beautiful, they want nails, they want hair, they want to wear beautiful clothes. She does not have time. When I tell her that the child does not have this and that, she says she does not have money, she will go to work on this day and that day and see how much money she can get." (P1)</p> <p>"I understand the children better than their own parents, because their parents don't raise them, I raise them. So I understand what is wrong if the child reacts like that. Until now when the children are no longer with me, their parents will phone me, they will say that the child reacted like that, now what must I</p>

Themes	Sub-themes	Illustrative responses
		<p>do? Then I tell their parents to do that not that, give them this not that.” (P1)</p> <p>“The mother is in school.” (P6)</p> <p>“When the mother came out of the hospital, she said she is going to go find a job. Then she left the child with me.” (P10)</p>
	Prioritizing the child’s feeding	<p>“I must give him vegetables. But I only give vegetables at month-end. If I don’t have, then we live like that until month-end. Potatoes, beetroot and apples. If I don’t have, then I just leave it.” (P3)</p> <p>“I make sure there is food.” (P3)</p> <p>“Nooo! No, I make plan for them to eat. If they eat, I don’t eat, I don’t have supper, about them I have stress. I make plan for them to sleep with no empty stomach.” (P5)</p> <p>“Sometimes I get in a week, three weeks we didn’t eat healthy food like spinach so on. Sometimes it’s a month and we just eat starch. But when the money is enough, then we eat those vegetables and fruit now and then. I can say when it comes to the food I make sure that there is, even when there is not really money. But when it comes to vegetables, I have a bit of a shortage. But bedtime, they go to sleep their tummies are always full.” (P8)</p> <p>“But it stress me, but as long as my child sleep with food, I feel... Even me I can sleep with the hunger, but only the child.” (P12)</p> <p>“Never, I try by all the means my child must not go to bed without any food. (P11)</p>
	Nutrition knowledge	<p>“Yes, I can say that. Although I am not 100%. But I can say but yes, because they select. They don’t eat anything. Even the cold drink, they do not drink just any cold drink. Most of the time I do not give the child gas-cold drink. Because the gas is not good for the children. I give 100% cold drink or I buy the cold</p>

Themes	Sub-themes	Illustrative responses
		<p>drink that you mix with water and give them that to drink. And little sweets. And little of the chips that sells for 50 cents. There are some that gives them Allergies, even sweets give them allergies.... yes, milk is nutritious, for child's bones to be strong. But the pap. Starch! (P1)</p> <p>Usually, the doctor says you must not eat pap every day. But under the circumstances we are living now, we must eat pap. We can't afford the other food. So with my thinking, if you eat the pap with milk that starch will not be too much for the child. Because rice, they like it but not like that. They will pick at it, then leave it. What they can eat more of is meat. And with meat, I use chicken meat, and the white meat parts, not the skin and the fat. Because that is not good, even for adults it is not good. But the vegetables I think are 100%, I don't have a pain with that. But you have to make a plan to get them to eat it. You need a manner, you can't cook with the same manner every day, because then they will not eat it, they will not want it. But when they are in the mood for the it, have their own time, they will eat it. He will say he does not eat marogo, but when I find him, he will be sitting with a bowl and eating the Morogo." (P1)</p> <p>"Yes the pap and milk, but sometimes the meat is not healthy. Because I'm sometimes cooking with spices and the others have too much fat." (P2)</p> <p>"Because water is very important for the body. And pap makes her grow (she laughs). Most of the time, every time that I cook there must be cooking oil, it is the junk food. It is not the healthy food. Vegetables are the healthy food. Even starch is not so healthy, but yeah. But the only things that is healthy is the water. Because she is drinking the water after eating the lollipops. She will drink lots of water." (P2)</p> <p>"Because pap and sugar is not healthy. At least pap and spinach. Yeah, is healthy for the body, mind, everything for the body is good. And meat is not also good for the body. The sugar is going to make him sick at school, tired, they don't have energy to listen to the teacher. At least when I give her pap and milk</p>

Themes	Sub-themes	Illustrative responses
		<p>in the morning, yeah, she will be like other children in the class. She won't get tired. Joh, it's not healthy the meat. It's too much fat. It's not right for the body." (P5)</p> <p>"Yes, it is healthy. Like he eats he gets bigger. Because he eats it, he has never said no to that food." (P6)</p> <p>"The pap, uhm, how can I explain. The pap builds his body for weight gain and so on. The cereal is for energy and the Iron that the child needs. Because the vegetables and fruit is very healthy for the up-growing of the child. The "opkoms" of the child. Some vegetables gives iron and vitamins and so on, and a lot of appetite. Then I don't need to go the clinic for medicine and so on." (P8)</p> <p>"Like I understand the vegetables are to build her "immune system", so she can stay healthy. Most of the time the children, for example if I don't give her then she just eats the sweets and chips then she will yawn, she her stomach runs, and she will become sick. So I realized if I can give her more fruit and vegetables then I can her body is alright.... the vegetables are healthy for the body. The vegetables can give us the... (she struggles to find her words). The vegetables, our bodies, we make vegetables in our bodies, so if I don't give vegetables, she loses weight and she doesn't want to eat. Because if she gets more sweets, then she doesn't want to eat her usual food." (P9)</p> <p>"Because the Weet-bix it has those the things, the calcium, the Iron, it has zinc, they are affect the growing of the child." (P11)</p> <p>"Yeah, I think so; it is healthy." (P12)</p> <p>"Okay, pap and milk is to give the children calcium, the bones must grow, he must grow stronger. And he likes too much pap and milk, and he don't like meat. And he go to school and have that energy, and always carrots for the eyes, he must see clearly, yeah." (P12)</p>

Themes	Sub-themes	Illustrative responses
	Mothers' feelings when they cannot feed their children properly	<p>"I feel stressed, I feel unwell.... Then I feel relived, as long as the child had something to eat, I feel satisfied. I can just drink water and sleep, I don't have a problem, but not the child." Because sometimes he sees another child with a banana then he want it too. And you do not have money at that time, how does the child feel. The child does not understand like me, like an adult when life is hard. But I make sure that I must have R10 in the house so that the child can get fruit. Even if it is just once a week, I feel happy." (P1)</p> <p>"I feel sad, too much. " (P2)</p> <p>"Heart broken. Because I must go lend for my children?" (P3)</p> <p>"I feel so hard. It's hard for me. Because sometimes they come from school and they say "we want pap." I say, "joh we don't have pap now, I will see later what I can do." Sometimes they are crying, it's not nice." (P5)</p> <p>"Hurt, especially when I think my children must sleep with hunger. " (P7)</p> <p>"I feel sad (heart sore). That I am not playing my role as a mother." (P8)</p> <p>"I felt unhappy, because for myself, I don't feel like my child can stay healthy. I am... I am not satisfied Ma'am, I am really not satisfied. Even though there is a bit, I am prepared I will give the child food. I can go sleep with hungry. Just as long as the child can sleep and eat." (P9)</p> <p>"I'm stressing, I'm feeling nervous because the child doesn't get what always normally get at that time." (P11)</p> <p>"It is stressful..." (P12)</p>

#### 4.3.4 Theme 5 – Access to household amenities

The household facilities (utilities and resources) available to the participants influenced the foods they fed their children (Table 4.7: Theme 5-Household amenities). Only five of the participants had access to tapped water in or outside the household. The other seven participants explained their challenges with access to water, including the frequent unavailability of municipal water even when they had the facilities for tapped water and the frustrations and challenges of having to collect water elsewhere.

Participant 4: *“Yes, I do have water, but I don’t have water in the yard. I’m fetching from another place. I use four buckets.”*

Participant 5: *“No, we don’t have water. We go down, we go to get water.”*

Participant 6: *“Yes, there is water. Sometimes there isn’t water, then I must go far to the “spruit” (spring) to fetch water.”*

Participant 8: *“I um, collect water because we get water twice a day at home. So when the pumps open I fill the buckets and boil most of the water we drink, I boil it.”*

Participant 11: *“Sometimes we do have water, and sometimes the water is not there. So we and go and fetch water...”*

Participant 12: *“The water is the problem of the farming, hence they told us the whole (the name of the town) is the problem with water. Sometimes, you know you have water, sometimes you don’t have water. It’s a problem of Kopanong.”*

Participant 12: *“Sometimes the water is out, sometimes it’s not out and then the garden is dying.”*

Collecting water leads to the increased electricity needs to boil the water to ensure that it was safe to drink. The participants explained their perception of the expense of electricity:

Participant 1: *“You buy R300 today, not even a week it is finished, because the electricity is little. Then you have to buy again... I think within a month, if I add up those receipts, then I bought R1000 electricity. Because the end of the month I leave some money to in between.”*



The necessity for electricity was linked once again to having to borrow money:

Participant 4: *"Yes, and if I don't have, I go ask for next door, and I'll ask for money."*

Participant 6: *"No, when I don't have electricity, I go and lend at someone, the backdoor. Then she lends to me." ... "I lend money there. So I can buy electricity. Then I repay it the end of the month."*

Participant 9: *"Sometimes, if I don't have, I can go to the other side to borrow money to buy electricity."*

Participant 10: *"Sometimes I don't have, but I make plan."... "No, because when I don't have money for electricity, I borrow the money."*

Participant 11: *"When the electricity is short or is not there, I go to borrow the money to buy electricity."*

Participant 12: *"I borrow the money maybe for electricity, then it's finished."*

Participants reported cooking multiple meals on certain days in an attempt to save water and electricity.

Participant 5: *"I'm cooking more food to save electricity."*

Six participants explained that having a vegetable garden would improve their access to healthy foods. The lack of access to water hindered the participants from maintaining vegetable gardens.

Participant 12: *"I used to have garden but it's just because of water now, I'm struggling. Sometimes the water is out, sometimes it's not out, and then the garden is dying."*

Regarding vegetable gardens, participants seemed to appreciate the value thereof to add diversity and healthy food to the household diet but reported that they lacked access to seeds:

Participant 4: *"Yes, I have, but now it's no longer growing. I don't have any more seeds. I was doing spinach there... I was cooking it for us, if we don't have food. The other one I give my neighbours, because sometimes they help me. So when I have, I give them.";*

Participant 5: *"I think I will need something like gardening so that they can eat healthy food."*

Participant 8: *“Um, most of my problem is vegetables. So if I had a garden I would have something. For the vegetable garden, I need plants, I need the seeds.”*

Participant 9: *“But, even if can’t work, then a vegetable garden in the yard. Then I can at least cook the vegetables for the house.”*

Participant 11: *“I need someone who can supply me with the seed, the planting so that I can plant in the garden. So that every time I need to cook and I can go there and just take things.”*

Participant 12: *“Then I will just grow there, get spinach and cook it. And then my children just eat.”*

As a household appliance or facility, televisions were reported as a source of information about feeding their children.

Participant 1: *“There are sometimes the TV will discuss food, what the children must eat, and nutrition. I am very interested by the TV, then I take advice from the TV.... When I use the advice that I got from the TV, I see it works for me, I don’t know about the other people. But when I see it works for me, and I see other people with their children, then I tell them I read this and that from the TV, so do this and that and then they do it. Then it works.”*

Participant 5: *“I watch the TV. How the people give their children food. I see they give them oats, in the morning, porridge, bread. Then in the afternoon they give them pap and milk. Then they will play, then they will give them some food to eat, milk to drink. Something like that. And vegetables.”*

**Table 4.7: Theme 5-Household amenities**

Themes	Sub-themes	Illustrative responses
Household amenities	Water	<p>“I always have water.” (P2)</p> <p>“Yes I do have water, but I don’t have water in the yard. I’m fetching from another place. I use four buckets.” (P4)</p> <p>“No we don’t have water. We go down, we go to get water.” (P5)</p>

Themes	Sub-themes	Illustrative responses
		<p>"Yes there is water. Sometimes there isn't water, then I must go far to the "spruit" to fetch water." (P6)</p> <p>"I um, collect water because we get water twice a day at home. So when the pumps open I fill the buckets and boil most of the water we drink, I boil it." (P8)</p> <p>"Sometimes we do have water, and sometimes the water is not there. So we and go and fetch water..... Sometimes early in the mornings or during the day, the whole day and then we get water the following day. So when there is no water I usually go, we in the community, we all go and fetch water." (P11)</p> <p>"The water is the problem of the farming, hence they told us the whole (the name of the town) is the problem with water. Sometimes, you know you have water, sometimes you don't have water. It's a problem of Kopanong." (P12)</p> <p>"Sometimes the water is out, sometimes it's not out and then the garden is dying." (P12)</p>
	Electricity	<p>"No, because when I don't have money for electricity, I borrow the money."</p> <p>"I borrow the money maybe for electricity, then it's finished."</p> <p>"You buy R300 today, not even a week it is finished, because the electricity is little. Then you have to buy again... I think within a month, if I add up those receipts, then I bought R1000 electricity. Because the end of the month I leave some money to in between. Because sometimes it is loadshedding, when the load shedding is done, whoops the electricity is gone. How I do not know. Now a person must always have electricity. The electricity is a problem for all of us, not just me." (P1)</p> <p>"Sometimes I'm using fire outside. And then when I'm using electricity, I'm using electricity." (P2)</p>

Themes	Sub-themes	Illustrative responses
		<p>"Yes, and if I don't have I go ask for next door and I'll ask for money." (P4)</p> <p>"I have to go to her, I tell I don't have electricity, can you please help me. She help me. She gives me some money to buy electricity. If I don't have, then I will cook outside." (P5)</p> <p>"I'm cooking more food to save electricity"(P5)</p> <p>"No, when I don't have electricity I go and lend at someone, the backdoor. Then she lends to me." (P6)</p> <p>"I lend money there. So I can buy electricity. Then I repay it the end of the month." (P6)</p> <p>"I use electricity." (P8)</p> <p>"Sometimes if I don't have I can go to the other side to borrow money to buy electricity." (P9)</p> <p>"Sometimes I don't have, but I make plan"</p> <p>"When the electricity is short or is not there, I go to borrow the money to buy electricity." (P10)</p> <p>"I borrow the money maybe for electricity..." (P12)</p>
	Vegetable gardens	<p>"I stop recording, and ask her if she has a vegetable garden. She says no, she has no one to help her with the vegetable garden. I ask if she would like to have a vegetable garden. She says no." (P3)</p> <p>"Yes I have, but now it's no longer growing. I don't have any more seeds. I was doing spinach there. There's a big grow sometimes. During the lockdown, Yes I was growing some spinach. Now it's not good because of the rain. I was cooking it for us, if we don't have food. The other one I give my neighbours, because sometimes they help me. So when I have I give them." (P4)</p> <p>"Eish, I think I will need something like gardening so that they can eat healthy food. I will cook for them. I will get some veg. When we don't have something to</p>

Themes	Sub-themes	Illustrative responses
		<p>eat, I will go get some veg and I will cook them and then we will eat in the house.” (P5)</p> <p>“If I can plant for myself, well I always used to plant for myself. But now we struggle with water. I stopped it.” (P7)</p> <p>“Um, most of my problem is vegetables. So if I had a garden I would have something. For the vegetable garden I need plants, I need the seeds.” (P8)</p> <p>“But, even if can’t work, then a vegetable garden in the yard. Then I can at least cook the vegetables for the house.” (P9)</p> <p>“...the yard is too small.” (P10)</p> <p>” I need someone who can supply me with the seed, the planting so that I can plant in the garden. So that every time I need to cook and I can go there and just take thing.” (P11)</p> <p>“I used to have garden but it’s just because of water now, I’m struggling. Sometimes the water is out, sometimes it’s not out and then the garden is dying. Then I will just grow there get spinach and cook it. And then my children just eat.” (P12)</p>
	Farm animals (small farming)	<p>“She says she also want to get some chickens to raise in her yard. The she will have eggs and meat to eat and she can also sell it. But she does not know who to ask to help her to get chickens.” (P1)</p> <p>“I will look after them Ma’am.” (P9)</p>
	Television	<p>“No, because I watch too much TV. The TV programs. There are sometimes the TV will discuss food, what the children must eat, and nutrition. I am very interested by the TV, then I take advice from the TV. When the child is like this, then I must do this. Also these types of sickness that I do not know that are mentioned. Then I don’t know how the child become like that, why is the child aggressive, why is the child like this, what must I do when the child is like that. I</p>

Themes	Sub-themes	Illustrative responses
		<p>take the advice from the TV usually.... When I use the advice that I got from the TV, I see it works for me, I don't know about the other people. But when I see it works for me, and I see other people with their children, then I tell them I read this and that from the TV, so do this and that and then they do it. Then it works." (P1)</p> <p>"I look at the TV. I watch the TV. How the people give their children food. I see they give them oats, in the morning, porridge, bread. Then in the afternoon they give them pap and milk. Then they will play, then they will give them some food to eat, milk to drink. Something like that. And vegetables." (P5)</p>

## **CHAPTER 5: DISCUSSION**

### **5.1 Introduction**

This study used the qualitative approach to gain a nuanced insight into the factors that affect the feeding practices of mothers of children that attend ECD centres in a rural community. In this chapter, an in-depth discussion of the study findings regarding the mothers' in feeding their young children are provided in the context of the existing literature. The semi-structured interviews with the mothers and primary caregivers of the young children were valuable to co-construct (Denzin & Lincoln, 2018:98; Ponterotto, 2005:128) their lived experiences and to understand the factors that affect their feeding practices. The strengths and limitations of the study are also discussed.

### **5.2 Study setting and characteristics of the women who participated in the study**

This study was conducted in a rural area in the southern part of the Free State Province in 2021. The participants were mostly taking care of their own biological children (between one and three children), except for three grandmothers who were taking care of their grandchild(ren), were unemployed and could not consistently rely on financial support from their partners, and were dependent of social grants. Electricity and water are important facilities to prepare food and while some had facilities for electricity in their homes, some did not. Most did not have access to tapped water in or at their homes.

Rural communities in South Africa are mostly poor, and have limited access to social and economic resources to improve their circumstances, resulting in poor health outcomes. In rural areas, the public health care system is equally under-resourced, with inadequate access to high-quality healthcare in marginalized rural communities (Mpanza & Govender, 2017). A mixed-method study design that explored the affordability, availability and acceptability barriers to obstetric care in South Africa from the perspectives of 1,231 women in two urban and two rural health sub-districts in South Africa using quantitative exit interviews and qualitative in-depth

interviews between June 2008 and September 2009, reported that the women from rural areas encountered the longest travel times, highest costs associated with delivery, and lowest levels of service acceptability as the main barriers, when compared to the urban participants. Women are reported to experience negative provider-patient interactions, including staff inattentiveness, turning away women, shouting at patients, and insensitivity towards those who had experienced stillbirths, also inhibited access and compromised quality of care (Silal et al., 2012). Another qualitative study explored strategies used to navigate and respond to health care barriers in a rural district in the Eastern Cape, South Africa by 26 pregnant women and new mothers who were interviewed between February-March 2018 about their experiences of accessing formal maternal and child health services. Most of the participants reported facing resource shortages, inconsistent communication, and long travel times to clinic; as well as feelings of frustration and misery with the health services (Laurenzi et al., 2020). Wilkenson et al. (2017) used quantitative and qualitative methods to examine factors associated with youth employment in rural South Africa found that the majority of the youth are unemployed and that more women than men are unemployed (Maluleke, 2021).

### **5.3 Theme 1: Infant and young child feeding practices**

The researcher co-constructed (Denzin & Lincoln, 2018:98; Ponterotto, 2005:128) with the participants to explore the foods offered to their children as infants and young children. Their breastfeeding practices and the types of foods given to infants and young children were identified subthemes.

#### **5.3.1 Breastfeeding practices**

Introducing complementary foods before the age of four months, may increase the childhood risk for overweight and obesity (Pearce et al., 2013). A longitudinal pre-birth cohort of mother-offspring pairs conducted in eastern Massachusetts found an approximately sixfold increase in



the risk of obesity among three-year-old formula-fed infants who received complementary foods before four months, were never breastfed or stopped breastfeeding before the age of four months (Huh et al., 2011). Using data from the 2013 Demographic and Health Survey of Nigeria for children between 6 and 24 months with their mothers between 15 to 49 years living in specifically in rural areas (Fadare et al., 2019) reported that 76% of the mothers continued breastfeeding their babies after six months of age. In the current study, the majority of participants reported breastfeeding their infants, although mixed feeding and formula feeding were also reported by the participants (Table 4.3: Theme 1- Infant and child feeding practices).

In the case of grandmothers caring for the children, only one child was breastfed, the other two grandmothers reported that the children were fed infant formula and thin porridge due to the absence of the mother (Table 4.3: Theme 1- Infant and child feeding practices).

The 2016 SADHS reported that only 32% of infants younger than six months were exclusively breastfed, which is still far below the target to meet the Global Nutrition 2025 target of increasing the rate to at least 50% (Matsoso, 2019). Thus, the majority of South African infants are receiving complementary foods before six months of age, and these complementary foods are poor in dietary diversity, providing minimal nutritional value (salty snacks or foods with added sugars), which may contribute to the upward trend in overweight and obesity (May et al., 2020). This is a concern since nutrition during the first 1,000 days of life provides an irreplaceable chance to ensure thriving futures. Poor nutrition in the first 1,000 days hinders the optimal growth and development of children and denies the children from thriving and learning well at school (May et al., 2020). Hence, children in the first 1,000 day period would benefit the most when their mothers have basic health and nutritional care knowledge as the consequences of undernutrition especially stunting, are difficult to reverse in children after two years of age (Fadare et al., 2019).

### 5.3.2 Types of food offered to young children

The participants reported most feeding their children maize porridge, milk, “juice” (cordials mixed with water) and water.

Most meals consisted of cooked maize porridge and milk. The participants only offered meat and vegetables to their children on Sundays:

The meat products were mostly chicken and processed meats, followed by beef, lamb and mutton were perceived as too expensive to feed their children (Table 4.3: Theme 1- Infant and child feeding practices).

When no meat was available, the children were fed cooked maize porridge with the leftover oil used to cook meat:

Participant 10: *“Sometimes, if we don’t have any meat. I will just put a little fat, the fat that was left from the meat. Then I just put in the pap, and we eat it. Only when I get paid, I cook veggies.”*

The participants reported purchasing fruit when they had funds available, usually at the beginning of the month. The fruit would last for one to two weeks. The participants considered the fruit as treats for the children.

Since the “juice” the participants described was cordials mixed with water, it did not contribute to the children's fruit intake, but it did contribute to the total amount of energy.

National representative data from SANHANES 2012 showed that the highest prevalence of South Africans with low fruit and vegetable intakes were from rural formal areas (small rural towns) (Shisana et al., 2013). A recent desktop review of the South African’s nutritional status and food consumption based on studies published from 1997 to 2019 found that, while maize porridge and bread were the most consumed foods among Black South African adults, the intake of maize meal porridge and bread was higher in participants from rural areas than from urban areas while their fat intake was lower (Walsh & van den Berg, 2021). Similarly, maize porridge and bread

were among the ten most commonly consumed foods among children under two years of age (Kruger et al., 2021). The 2016 SADHS also indicated that unhealthy foods such as salty snacks, sweets, confectionery and sugar-sweetened beverages are consumed regularly from a very young age (Matsoso, 2019). Indeed, salty snacks (e.g. crisps) were among the ten most commonly consumed foods for pre-school and primary school children (Kruger et al., 2021). Therefore, according to the 2016 SADHS, 51.7% of children aged 6–23 months did not meet the minimum dietary diversity requirement (at least four of the seven food groups). Also, only 22.9% of children in this age group consumed a minimum acceptable diet (Kruger et al., 2021).

A study conducted in 2011 in rural areas in the Limpopo Province (De Cock et al., 2013) indicated the rural dietary patterns. De Cock et al. (2013) reported that out of the nine food groups, the homes had an average Household Dietary Diversity Score of 4.5. This is similar the WHO recommendation for minimum dietary diversity of four or more of the food groups (breast milk, grains, roots and tubers, legumes and nuts, dairy products, such as milk, cheese and yoghurt; flesh foods such as meat, fish, poultry, liver or other organs; eggs; vitamin A-rich fruits and vegetables and other fruits and vegetables for young children (WHO, 2022a). Maize products were the most frequently consumed, with an average of 6.7 in 7 days, owing to the fact that maize is the province's basic food, while pork (for religious reasons) and venison (due to high cost) were the least. These statistics on consumption frequency were backed up by information on household food budget allocation. Maize goods (R205.80 per month) received the most money, followed by other cereal products such as bread (R118.70 per month) and poultry (R117.20 per month). Venison or wild game (R2.30 per month), pork (R3.92 per month), and edible insects were the food classes with the lowest average monthly expenditure (R6.35) (De Cock et al., 2013).

The low dietary diversity and the exclusion of vegetables and fruit are a concern as these practices are associated with micronutrient deficiencies and hidden hunger.

In rural Central Uganda, Nahalomo et al. (2018) analyzed qualitative data acquired from duty-bearers and land evictees to examine the misuse of the human right to adequate sustenance among land evictees. They discovered that nearly two-thirds of the rural evictees reported restricting their food variety and eating less desired meals including maize porridge, maize meal (locally known as posho), cassava, sweet potatoes, and tea without milk. The majority of the participants (69.4 %) had a low dietary diversity score (range 1–4), with their diet consisting of nutrient-dilute staple foods and relishes, cereals (maizemeal, maize porridge, and rice), legumes and nuts such as beans and milled groundnuts, and white roots and tubers such as white sweet potatoes and cassava; 23 % had a medium dietary diversity score (5–6); and 7.3 % had a low dietary diversity score because they excluded milk. These participants also said they bought outdated and mouldy maize flour that was insect-infested, smelled and tasted unpleasant, and was of poor quality. Fats and oils, vegetables, fruits, and some animal-sourced items (milk, eggs, meat, and fish) were all included in the diets of the households with the highest dietary diversity (Nahalomo et al., 2018).

In the current study, the participants were aware that they fed their children a diet with low dietary diversity, but they explained that they fed their children foods they could afford. Feeding their children a more diverse diet would contribute towards food waste which is detrimental to the amount of money they have available to purchase food.

The participants in this study reported offering the children chips and sweets as snacks when they had funds available to purchase them. The snacks and sweets did contribute towards the total energy but were not a source of micronutrients for the children.

As a driver of poor child feeding practices in rural populations, food insecurity and poor dietary diversity are not unique to South African or even to developing countries. A recent study in Washington state, in the US (Sano et al., 2019) found that while mothers' had a high intent to promote healthy child eating habits, they experienced many barriers that led to

counterproductive food parenting behaviours. Among these barriers were household food insecurity and a lack of public transportation or access to affordable grocery stores.

#### **5.4 Theme 2 - Social support for infant and child feeding practices**

In order for a child to thrive and reach their development goals, attention should be giving to their health, nutrition and learning, along with responsive caregiving, safety and security (Black et al., 2020), therefore social support is needed. The second theme is the social support that participants accessed for feeding their young children, the support from spouses/partners, family and neighbours were identified as the subtheme.

##### **5.4.1 Support from the local clinic**

During April and September 2021, more than 500 000 children under the age of 5 years globally were expected to be acutely malnourished, while 110 000 of them expected to be severely malnourished, requiring urgent life-saving treatment (Mentions & Filters, 2021).

A study conducted amongst 29 social workers, psychiatric nurses, occupational therapists and medical officers in a rural district of the KwaZulu Natal, which aimed to explore how these service providers experienced the service they were delivering to the rural community found that the geographical isolation of the district was a major barrier that denied individuals in the area access to the basic services (Mpanza & Govender, 2017). Studies by Laurenzi et al.,(2020) and Silal et al., (2012) reported that the negative experiences of women when of accessing health services in rural areas. The access to healthcare is recognised in the South African Constitution as a basic human right and the onus is on the state to apply the principle of justice and distributive justice is essential when allocation resources. Most rural populations in South Africa are poor and have limited access to social and economic resources to improve their conditions, which, in turn, result in worse health outcomes. Moreover, the public health care system in rural areas is are mostly

under-resourced. As a result, marginalised rural communities have access severely limited access to quality healthcare (Mpanza & Govender, 2017).

In this study, the mothers relied on the staff at the local clinic for breastfeeding initiation support and advice regarding the types of food to feed their children, as reported by the participants (Table 4.4: Theme 2 - Social support for infant and child feeding practices).

However, the geographical location of the mothers in the towns of the Xhariep District might explain why the breastfeeding initiation was adequate; since mothers are supported at the institution where they give birth to initiate breastfeeding immediately after giving birth. However, the mothers discontinue breastfeeding or introduce complementary feeding too early when at home due to the absence of home visits by community health workers:

Although the staff at the local clinic provided the mothers with advice regarding the types of foods to feed their children, the advice could not always be implemented due to lack of access to the foods and insufficient funds to purchase the foods. This shows that the staff at the clinics are unaware of the living conditions of the mothers, and that the information provided to the mothers were not practical.

#### **5.4.2 Support from spouses or partners**

Only two of the participants in the current study were married and had spouses/partners who were employed. Which in turn determined the type of supported the fathers provided to the mothers and children (Table 4.4: Theme 2 - Social support for infant and child feeding practices).

However, in this study, regardless of whether the household had a male head that was working or not, they all reported periods of food insecurity.

A descriptive study that used semi-structured questionnaires and Focus Group Discussions to assess household food security and coping mechanisms employed by households in the rural

Kuinet Ward, Kenya (Kemuntoogega et al., 2020), showed very similar socio-demographics compared to the current study. Males headed 66.6% of the households, while the average size of the households was  $4.0 \pm 1.3$  with 38.5% comprising fewer than three members. The study found that age, gender and marital status of household head were not associated with food security status of the households. The results did, however, show that households with many members had a higher probability of being food insecure and vice versa. Also, households with less income were significantly more likely to be food insecure than households with more income (Kemuntoogega et al., 2020). Thus, the more members that are in the household, the more at risk the household is of food insecurity as the limited funds must be stretched to feed more everyone. In the current study, most of the households relied on social grants as the only sustainable source of income and this would have to feed more than just the child for which it is intended. In a study conducted in 2016 in the Dihlabeng Local Area of the Thabo Mofutsanyana District, in the Eastern Free State among 242 infants, 6 to 23 months, who attended clinics in the area with their primary caregiver, found that 100% of them were reliant on a child grant and 40% had one to three unemployed adults staying with the mother/primary caregiver and the infant in the household (Symington et al., 2018).

#### **5.4.3 Support from family members and neighbours**

The study that assessed the abuse of the human right to adequate food among land evictees by analyzing qualitative data gathered from the duty-bearers and the land evictees; 85.2 % of the participants reported that borrowed food or asked for help from others to mitigate food shortages (Nahalomo et al., 2018).

The study to adapt the Coping Strategies Index for implementation in the four sub-districts of iLembe, which are peri-urban and rural areas in KwaZulu-Natal, South Africa, Focus-group discussions were held with community members during March 2017, to discuss and rank twelve different coping strategies. The two coping strategies implemented earliest with the lowest severity scores were buying less preferred foods and purchasing food on credit. However the

participants reported the less preferred use of loan sharks because of the consequences of defaulting on payments; if they did not repay loans, the loan sharks would confiscate their identity documents, so to ensure that it did not happen they used money from their child grants to repay the loan sharks (Drysdale et al., 2019).

Similarly in this study, the participants reported that they relied on neighbours to assist them during times of food insecurity for additional food or money.

The participants also relied on the advice of the older woman in their community regarding types of food to feed their children.

This indicates that despite the under-resourced living conditions in the rural area, the mothers do have some form of support and are able to seek advice from the older women in their communities.

The qualitative descriptive phenomenological study was done among social workers, psychiatric nurses, occupational therapists, and medical officers, with the goal of learning about the experiences of service providers working in a rural part of the South African province of Kwa-Zulu Natal. In dyads, triads, and focus groups, participants were interviewed. The 29 participants were chosen using non-probability purposive heterogeneous selection. According to the findings of this study, cultural practices have an impact on community support (Mpanza & Govender, 2017).

However, it is important to recognize that in South Africa, communities are built around their particular cultural beliefs, which shapes the behaviour of those who adhere to that culture, which is acceptable and acknowledged cultural traditions (Mpanza & Govender, 2017). As a result, moms who follow the cultural norms advocated by older women in their community will be eligible for community social support. These cultural customs include, but are not limited to, discontinuing breastfeeding if the mother has engaged in sexual activity, as her breastmilk will be considered "unclean" (May et al., 2020). Refraining from cultural customs may jeopardize



community and family support, which could be harmful, particularly for unmarried mothers who already have minimal support from their spouses/partners.

## **5.5 Theme 3 – Financial restraints**

Financial restraints were identified as the third theme, as they seemed to affect all the participants and influenced their access to food for their children. As mentioned before, only two participants' partners had jobs. The heavy reliance on social grants was therefore identified as the first sub-theme.

### **5.5.1 Social grants**

In this study, 9 of the participants received child care grants and 2 participants received pension grants as a source of income (Table 4.5: Theme 3 – Financial restraints that impact infant and child feeding practices).

A study conducted in 2011 in the rural areas in the Limpopo province found that, when asked about their main sources of monthly income, 75% of households said they received government social payments, while 31% said they had a formal job. Farming income and remittances were the primary sources of income for 15% and 13% of households, respectively. As a result, social handouts were the most common source of income in all districts (De Cock et al., 2013).

On the contrary, the study that was conducted about the perceptions of the communities regarding their food security status out in three medium-sized towns in South Africa, namely Richards Bay, Dundee and Harrismith, with interviews and focus groups conducted face to face, reported that only a quarter (25%) of the households were receiving any of the grants (although the majority were receiving the child support grant). Participants in this study indicated that the social grants were perceived as being very little to cater for all households needs as food and other necessities are becoming expensive. One person mentioned that “households with members that are unemployed struggle to get food and some are below the receiving age for the elderly grant. Most who are getting the child support grant are carrying the burden of feeding

and educating the orphaned children and their grandchildren which may not be enough for buying food also.” Another person said that “we are not employed so we don’t have enough money to buy food”. Households who received social grants were found to be more food insecure, have lower dietary diversity, lower mean monthly food expenditure and lower mean wealth index than those who did not (Chakona & Shackleton, 2019).

Another study conducted in the Thabo Mofutsanyana District, in the Eastern Free State among infants, 6 to 23 months, found that 100% of the children conveniently sampled at three clinics were reliant on a child grant, and all of the mothers/primary caregivers indicated that the grant was insufficient. Moreover, Symington et al. (2018) found that the mothers’ ranked food only fourth, with toiletries, clothes and medicine for the child were ranked as the three top priorities that they paid monthly from the child grant towards the child’s needs. They ranked the items that incurred the highest monthly expenditure to be clothes, toiletries and formula milk. Moreover, for children attending ECD centers, the monthly fees also had to be paid from the child grant (Symington et al., 2018).

Similarly, in the current study, the participants reported that the money from the social grant was not enough:

Participant 10, explained that she was too old to get a job and that the pension grant she received was not enough money.

Participants receiving the social grants explained that the grant was used to purchase other household necessities such as disposable nappies and electricity. Thus, despite receiving support from the state in the form of a social grant, the participants still reported periods of food insecurity; and coping strategies to mitigate these periods of food insecurity.

### **5.5.2 Employment and level of education**

A study was conducted about the perceptions of the communities regarding their food security status out in three medium-sized towns in South Africa, namely Richards Bay, Dundee and

Harrismith, with interviews and focus groups conducted face to face. The participants responded that: “Unemployment is the main problem; we are struggling to make ends meet.” (Chakona & Shackleton, 2019).

Similarly, in this study, only one participant was employed, less than half (5) of the participants reported that they wanted employment. The participants described that employment would improve their lives and assist them to feed their children nutritious meals more often (Table 4.5: Theme 3 – Financial restraints that impact infant and child feeding practices).

The Quarterly Labour Force Survey (QLFS) results for the second quarter of 2021 showed that the South African labour market is more favourable to men than it is to women, regardless of race. The rate of unemployment in the second quarter of 2021 among women (37 %) was more than among men (32 %). Furthermore, the unemployment rate among black African women was 41,0% during this period compared to 8,2% among white women, 22,4% among Indian/Asian women and 29,9% among coloured women (STATS-SA, 2021: online).

This corresponds with the study by Wilkenson et al. (2017) that used both quantitative and qualitative methods to examine factors associated with youth employment in rural South Africa; indicated that the majority of the youth are unemployed and that more women than men are unemployed (Maluleke, 2021). This could be because more men reported having skills or training that reflected the common opportunities in the area, such as construction and physical labour; and fewer opportunities for more formal employment as women were more likely to pursue further education than men. Further education did not seem to increase the odds of employment for women. The majority (70 %) of the women in the study were mothers and were unmarried, and thus were responsible for providing for themselves and their children, which in turn, meant that the mothers in the study had nearly 3.5 times better odds of employment compared with childless women. The financial literacy was very low in the study which resulted that funding for entrepreneurial projects should be preceded by financial education (Wilkinson et al., 2017).

In this study, the type of employment of the spouses/partners was manual labour. Furthermore, none of the participants had a tertiary level of education, even though more than half of the participants had attended high school. The median level of education of the participants was grade 9. Two of the participants who were grandmothers only had primary school level of education. This is evidence of the disparities caused by the Apartheid era in South Africa, and the further lack of resource allocation in the rural areas to improve adult education.

Similarly, in the study conducted in Limpopo, it was discovered that the household heads have a poor level of education. Although the majority of household heads have completed junior or senior elementary school or have some secondary education, 32.4 % have never attended school. The elder generation is disproportionately affected by low levels of education, as they grew up during the apartheid era and had restricted access to formal education; thus the household heads have a generally low level of education. Some 32.4 % have had no schooling, although most of the household heads have either completed junior primary or senior primary or have had some secondary education. The low levels of education are skewed towards the older generation, as they grew up in the apartheid era and had limited access to formal education (De Cock et al., 2013).

This shows that the opportunities for employment are related to the policymaking and political domains of the 2020 UNICEF Determinants of Maternal and Child Nutrition framework for preventing malnutrition in all its forms (Figure 2.2). Policies should be focused on creating an open, viable and dynamic rural labour market with sustainable and equal opportunities for employment (De Cock et al., 2013) to further education and develop skills.

Since education leads to a better household food security status (probably the combined effect of better knowledge on nutrition and better access to food due to a higher income) (De Cock et al., 2013). “Food poverty”, which refers to “the inability to afford, or to have access to, food to make up a healthy diet” (UK Department of Health, 2005:cited by Sonnino & Hanmer, 2016); experienced by the mothers in this study is, may also be related to underlying factors. Midgley

(2012: 301) identified educational deficiencies, cultural practices that reflect inabilities to budget money and purchase food, as well as lack of skills to prepare and cook food as such underlying drivers of food poverty. Moreover, food poverty is influenced by the increase of food prices, which has increased the share of household income spent on food, causing households in the lowest income group to purchase and consume less fruit and vegetables and more processed products. One must acknowledge that in this study, the food poverty of the mothers results from the financial, social, cultural and political factors in their lives (Sonnino & Hanmer, 2016).

### **5.5.3 Running out of funds**

In this study, the participants reported running out of funds to purchase food and thus had to use coping strategies such as skipping meals, borrowing money from money-lender, and using store credit; to mitigate the periods of food insecurity and to ensure that their children had food to eat (Table 4.5: Theme 3 – Financial restraints that impact infant and child feeding practices).

This is similar to the results of STATS-SA (2016), which indicated that female-headed households (25%) with young children are more likely to reduce meal sizes than male-headed households (17.3%) (STATS-SA, 2016:13). Another study conducted in Bophelong, a low-income peri-urban neighbourhood in the Vaal area of Southern Gauteng, in 2013, indicated that as Coping Strategy Index Scores/Household Food Insecurity Access Scale Scores of households increased, households relied statistically significantly more on so-called consumption soothing strategies (rationing and dietary change). These strategies included buying cheaper food, purchasing food on credit, limiting portions sizes at mealtimes, skipping meals, and adults consuming less to provide more food for smaller children (Grobler, 2014).

Similarly, information gathered on intra-household food distribution during times of food shortages in the Limpopo province in 2011 found that female adults (18 years and older) would be the ones to eat less if there was a food scarcity, making them the most vulnerable category to food insecurity. Children under the age of five were the most likely to have enough food to eat, followed by children aged five to eighteen (De Cock et al., 2013).

In a study in rural Central Uganda assessing the abuse of the human right to adequate food among land evictees by analyzing qualitative data gathered from the duty-bearers and the land evictees, 6.3% of mothers/caregivers of young children reported not eating food for the whole day and night at least once in the last four weeks prior to participating in the study. Coping strategies to mitigate periods of food insecurity included relying on less preferred and less expensive foods, reducing the number of meals, and food portions being used. Less than a quarter (18 %) of the participants reported that they sold their belongings, while 4.2% sold the land they owned to cope with food insecurity (Nahalomo et al., 2018).

In another cross-sectional study that assessed the food security and the double burden of malnutrition, with individual assessments during 2015 in urban households using the systematic cluster sampling methods in Surabaya, Indonesia, 3.2% of the participants reported that they or a member of their household did not eat for a whole day and night in the last 30 days before participating in the study (Mahmudiono et al., 2018).

These findings are of concern as the mother is vulnerable to malnutrition in the form of hidden hunger and micronutrient deficiencies and increases their risk for NCDs.

#### **5.5.4 Store credit and money lenders**

Furthermore, in this study, most of the participants in the current study were unemployed and reported the coping strategies they used during periods of food insecurity. Two participants reported that they used store credit to purchase food and electricity (Table 4.5: Theme 3 – Financial restraints that impact infant and child feeding practices).

This corresponds with the positive association reported in a study in Bophelong, a low-income neighbourhood in the Vaal area of Southern Gauteng. The objective was to determine the food insecurity status of households in a low-income urban neighbourhood and identify the coping strategies used to mitigate food shortages. Positive associations were found between the level of food insecurity measured by the Household Food Insecurity Access Scale Scores and mitigation

strategies like relying on less expensive food, purchasing food on credit, skipping meals and limiting portions at mealtimes as coping strategies reported (Grobler, 2014).

Furthermore, in the rural Central Uganda study among mothers/caregivers and their children who were evicted from the land they had been occupying, qualitative data reported that the participants also asked other family members for food or money to buy food (Nahalomo et al., 2018).

In the current study, two participants reported that they asked family or neighbours for food, while the majority of the participants loaned money from loan sharks to purchase food and electricity when they did not have any.

This indicates that the limited amount of funds received from the government in the form of a social grant will also be used to pay interest on the amount of money borrowed, further limiting the amount of funds available to purchase food, electricity and other household necessities.

## **5.6 Theme 4 – Concern for the nutritional well-being of their children**

The fourth major theme that was identified was participants' concern for the well-being of their children. The participants' nutritional knowledge in the current study seemed adequate, as evidenced by their descriptions of the importance of the development and growth of their children and how that was a motivator for the foods they fed their children. Furthermore, the mothers prioritized feeding their children above their own by skipping meals during periods of food insecurity.

### **5.6.1 Standing in for biological mothers**

In this study, the grandmothers explained that the biological mothers left their children in the care of the elderly person because they left to seek employment in cities (Table 4.6: Theme 4 - Concern for the nutritional wellbeing of infants and children).

In South Africa, it is not uncommon for the youth to leave rural areas for urban areas to seek better employment opportunities. Wilkenson et al. (2017), using both quantitative and qualitative methods to examine factors associated with youth employment in rural South Africa, found that the majority of the youth are unemployed and that more women than men are unemployed (Maluleke, 2021). However, the study did not include youth who had out-migrated for employment-related reasons due to the inability to study factors associated with finding employment outside the study area (Wilkinson et al., 2017); thus, out-migration from rural areas remains under-researched in South Africa. The study conducted in Limpopo reported that 43 % of households had members who had migrated for work or to find employment, but only 25.5 % of all migrants sent money to their household of origin (De Cock et al., 2013).

However, in the current study, the grandmothers also perceived that the biological parents did not care for the children financially either.

The 2021 State of the World's Children report (UNICEF, 2021) focused on promoting, protecting and caring for children's mental health. The report explains that primary influences for mental health exist in the child's world from birth through adolescence. For children, adequate nutrition, stable and safe homes, knowledgeable and engaged caregivers, and caring and enriching environments are essential for physical and mental development. Furthermore, children require personal safety and security and healthy attachments in preschools, schools, and communities to nurture mental health. Social determinants such as poverty, discrimination, migration, disaster, conflict, and pandemics play a critical role in modelling the mental health of individuals. Mothers, fathers, and caregivers play a crucial part in the lives of children as they develop into adolescents and adults and have a direct effect on their mental health and futures (UNICEF, 2021). Mothers who were forced to leave their children as infants in the care of someone else contributes to the low rates of continued breastfeeding beyond six months and the early introduction of complementary foods, which may also contribute to the risk for childhood overweight and obesity. The current study did not look at mental health issues *per se*, and further research on this issue is needed in the study area and the rest of South Africa.



### 5.6.2 Prioritising child feeding

The mothers prioritised feeding their children; thus the mothers acted as shock absorbers during periods of food insecurity to ensure that their children had food to eat (May et al., 2020) (Table 4.6: Theme 4 - Concern for the nutritional wellbeing of infants and children).

These results are similar to the findings of STATS-SA (2016), which indicated that female-headed households with young children are more likely to reduce meal sizes than male-headed households (17.3%) (STATS-SA, 2016:13).

This is similar to the information gathered during 2011 on intra-household food distribution during food shortages to determine whether this affected food distribution within the household in the Limpopo province. Female adults (18 years and older) are the most vulnerable category to food insecurity, with 48% of respondents indicating that they would eat less if faced with a food shortage. Those under the age of five were the most likely to be hungry, followed by children between five to eighteen years old. Most adults ate two to three times each day, with 54.6 % of households eating two meals and 35.4 % eating three meals per day (De Cock et al., 2013).

The study on land evictees in Uganda found that mothers of young children would not eat food for the whole day and night, eat less preferred and cheaper foods, eat fewer daily meals and ration their food portions to mitigate periods of food insecurity. Almost 20% of the participants reported that they sold their belongings, and 4.2% sold the land that they owned to cope with food insecurity (Nahalomo et al., 2018).

Another cross-sectional study that assessed food security and the double burden of malnutrition, during 2015 in urban households in Surabaya, Indonesia, found that 3.2% of participants reported that they or any member of their household did not eat food for a whole day and night in the last 30 days before participating in the study (Mahmudiono et al., 2018).

The mothers are thus putting themselves at risk for micronutrient deficiencies, NCD and mental health issues to let their children eat, but in doing so, she also puts the next child at risk, should she fall pregnant again.

### **5.6.3 Nutritional knowledge**

The mothers had adequate nutritional knowledge in terms of being able to describe the need for all food groups to be included in the diet of their children.

The study by Fadare (et al., 2019) used the most recent 2013 Demographic and Health Survey of Nigeria for children between 6 and 24 months with their mothers between 15 to 49 years living in rural areas. The study reported that the mothers with some education had higher knowledge of the importance of colostrum, family planning and immunization than those mothers with no education. Furthermore, the nutrition-related knowledge of the mothers had a significant and positive association with child height-for-age z-score and weight-for-height z-score (Fadare et al., 2019). Thus, young children would benefit the most when their mothers have basic health and nutritional care knowledge. This is very important, as the consequences of undernutrition, particularly stunting, are difficult to reverse in children after two years (Fadare et al., 2019).

A study in Limpopo reported that promoting rural education can improve food security levels to a large extent, as education is significantly correlated with food security (De Cock et al., 2013). Since the inability to afford or to have access to food to make up a healthy diet experienced by the mothers in this study is also a result of their level of education, upbringing and cultural practices that motivate the types of food they purchase and how they prepare and cook food (Midgley, 2012 cited by Sonnino & Hanmer, 2016). The increase of food prices affects the amount of the household income spent on specific foods (Sonnino & Hanmer, 2016).

### **5.6.4 Feelings of mothers**

The participants reported the melancholic emotions they had experienced during periods of food shortage (Table 4.6: Theme 4 - Concern for the nutritional wellbeing of infants and children).

The cross-sectional study assessed food security and the double burden of malnutrition, with individual assessments during 2015 in urban households in Surabaya, Indonesia. More than 50 % of the participants reported worrying about their household food availability, 47.4 % of households were concerned that they would not be able to eat the foods that they preferred, 36.4 % ate less of a variety of foods, and 35.5 % ate foods they really did not prefer to eat (Mahmudiono et al., 2018).

The rural Ugandan study among land evictees found that more than 75 % of the households were worried about their families not having enough food to eat, and 78.4 % reported stressful emotions about their availability of food for their household (Nahalomo et al., 2018).

A study about the perceptions of the communities regarding their food security status in three rural medium-sized towns, namely Richards Bay, Dundee and Harrismith, conducted interviews and focus groups. Participants responded that: “Most who are getting the child support grant are carrying the burden of feeding and educating the orphaned children and their grandchildren which may not be enough for buying food also.” Another person mentioned that “We are not employed so we don’t have enough money to buy food. But, if we do not get the grant, then we go hungry even more although the money is not enough.” A female from one of the communities also said “The grant money is too little to buy food for the month, it won’t last us for days” (Chakona & Shackleton, 2019).

The stress of poverty can cause mothers to limit their ability to consistently provide positive parenting, in the form of loving care and soothing their children; which is important for the cognitive development and mental health of their children (UNICEF, 2021). It is of concern that the mothers have these feelings of failure and disappointment in their lives regarding the provision of food for their children, in the absence of community support centres and under-resourced government clinics in the rural population; along with their calorie restrictions can result in poor parenting and increased their risk for suicide (UNICEF, 2021).

## **5.7 Theme 5 – Household amenities**

Food insecurity is a major contributing factor to the nutritional status of young children, followed by poor access to sanitation facilities and safe drinking water (Mentions & Filters, 2021). The household amenities available to the participants influenced the foods they fed their children. Only five of the participants had access to tapped water in or outside the household. The other seven participants explained their challenges with access to water, including the frequent unavailability of municipal water even when they had the facilities for tapped water and the frustrations and challenges of having to collect water elsewhere.

### **5.7.1 Electricity and water**

More than half (7) participants had access to electricity but reported that electricity was expensive and did not last for the month. The participants attempted to save electricity by cooking with electricity less by preparing more food (Table 4.7: Theme 5-Household amenities).

In the study in Richards Bay, Dundee and Harrismith, participants explained that: “Electricity rates are very high and they are taking a huge chunk of our income which is the social grant. The grant is not enough for everything like buying food, paying electricity bills and school fees” (Chakona & Shackleton, 2019).

In the current study, the mothers reported that they perceived electricity to be expensive.

Which in turn meant that when they did not have electricity, they borrowed money from the money-lender to purchase electricity.

Similar results were indicated in the study in Limpopo, when households were asked if they were connected to the electricity supply and 92 % of houses said they were linked to the power grid. In addition, roughly 64% of houses utilized wood for cooking and boiling, while 28% used electricity from the grid. For cooking and boiling water, a small fraction of the families (8%) were employed alternative energy sources such as dung, electricity from a generator, charcoal, gas,

and/or paraffin oil. Only a small percentage of houses use other sources of energy for lighting, while 89 % of households use electricity from the grid for illumination (candles 4 %, wood 3 %, paraffin oil 1 % and electricity from a generator 1 %) (De Cock et al., 2013).

Thus the availability of electricity for refrigeration influences the storage of foods, which in turn determines what types of foods the mothers can purchase, as well as the form in which the food is purchased, for example, ultra pasteurised milk in cartons versus fresh milk.

Less than half (5) of the participants had access to water for their household and garden, and the lack of access to water hindered their ability to keep a vegetable garden.

The lack of water available and the practice of collection of water from springs and fountains also increased their electricity use. Because the water had to be boiled first in order to make it safe to drink, furthermore, the practice of collecting water may increase the risk of infection in their children.

Almost all the households surveyed in Limpopo (99.8 %) by De Cock et al. (2013) were black African households. The majority of residents in the province drank and cooked with piped water, which came from a backyard tap (36 %) or a public kiosk (33 %). The rest of the homes got their water from a water carrier or tanker, rainwater tanks, rivers, dams, wells, or springs, among other places. In terms of sanitation, 95 % of people use a toilet, with the three most common varieties being pit latrines (48.9%), improved ventilated pit latrines (38.7%), and flush toilets (6.7 %).

Two research assistants working under supervision produced a narrative review to compare and evaluate peer-reviewed articles published between 1994 and 2016. According to the study, girls and boys born in the Free State province have life expectancies of 54.7 and 53.0 years, respectively, which is more than a decade shorter than girls and boys born in the Western Cape province, which have life expectancies of 66.0 and 63.7 years, respectively; and child poverty is highest in rural provinces. Child poverty was highest in the rural province of Limpopo (78.7%),

while it was lowest in the Western Cape (28.4%), where a far larger proportion of the population resides in cities (SSA, 2015).

South Africa is one of the world's most unequal societies, with significant rates of child poverty (van der Berg, 2014). As a result, poor-quality housing, insufficient access to safe water and sanitation, and air pollution caused by the use of polluting fuels for home cooking can all contribute to children's poor development (UNICEF, 2011).

In a context of deep and chronic poverty, underdevelopment contributes to preventable illnesses like diarrhoea and pneumonia, which are among the top five causes of death in children in South Africa (Bradshaw et al., 2003). The causes of diarrhoea and pneumonia are strongly related to environmental conditions, such as unsafe water common in rural areas. Most of the deaths related to diarrhoea and pneumonia were avoidable. It is the responsibility of the state to provide sufficient and safe water, sanitation and energy to the living environments of children so that they may grow up to be healthy and reach their full potential in life (Mathee et al., 2018).

#### **5.7.2 Vegetable gardens**

The participants in the study reported that they did not have their own vegetable garden to supplement their households with food due to not having water, space or seeds to grow vegetables. The lack of water hindered the participants from keeping a vegetable garden. The participants had explained having a vegetable garden before and using the crops from the garden to supplement the foods they fed their children. The inability to keep a vegetable garden increased their food purchases which also contributed to their money lending practices (Table 4.7: Theme 5-Household amenities).

In a very dry area like the Southern Free State, where the agro-ecological potential is low, it is difficult to plant and maintain a vegetable garden, and success depends on the ability to manually water the garden on a very regular basis. A study in three rural medium-sized towns in South Africa (Richards Bay, Dundee and Harrismith) that were specifically chosen on a gradient from

wet to dry and from high to low potential for agri-production found that food insecurity and child wasting was greatest at the site with the lowest agro-ecological potential (Chakona & Shackleton, 2019).

Urban agriculture has gained popularity as the global food crisis persists, whereby community organizations, local councils, universities and charities are organizations for food growing initiatives as a tool to address food rights, individual and communal health, urban environmental quality and socio-environmental justice (Sonnino & Hanmer, 2016).

However, the study in Bophelong, a low-income neighbourhood in the Vaal area of Southern Gauteng, a province in South Africa, where the objective was to determine the food insecurity status of households in a low-income urban neighbourhood and to identify the coping strategies used to mitigate food shortages; found a non-statistically significant correlation with maintaining a food garden and sticking to a budget (Grobler, 2014).

A study about communal food gardens in South Wales targeted the most vulnerable in the community and taught volunteers from the local area to grow food in the raised beds and borders. Food provision is widely seen as an important vehicle for reaching out to the most marginalized individuals. For many participants, though, the benefits of these growing spaces are more immaterial and have to do with the acquisition of new skills and liberating feelings of ownership, independence, and freedom. The opportunities for empowerment and inclusion provided by the gardens were the mindfulness of eating healthy food and using healthy cooking practices, combined with a desire of not wasting food that took time and effort to grow (Sonnino & Hanmer, 2016).

Although households did not record or recall crop production in the Limpopo study, 273 households reported having arable land with an average of 2.35 ha in their back yards, making it impossible to determine the true contribution of personal food production. The Limpopo research also confirmed the following: Communal land is the most popular type of land tenure, and communal grazing land is where cattle are kept. More than half of the households in the

research (57%) were involved in agricultural production, with maize (31%) being the most common crop planted, followed by mangos (24.2%), spinach (15.4%), pawpaws (15.4%), and tomatoes (14.2 %). Tomatoes (305 kg) had the highest average home output in the previous year, followed by mangos (212 kg), maize (170 kg), cabbage (117 kg), and avocados (21 kg). The average subsistence ratio (amount of produce consumed/total production) was high in all crops. The fruit had the highest subsistence ratios (87 %), followed by basic crops (55 %), and vegetables (54 %). This suggests that people grow fruit primarily for their own consumption, whereas households consume half of the staple crops and vegetables produced, and the other half is sold. The crops of tomatoes (7.7%), spinach (7.7%), other leafy vegetables (4.7%), maize (4.5%), and cabbage (4.4 %) were sold in local informal markets, at the farm gate, or along the road. Despite having a greater area for farming, they did not have the highest energy intake from their own production. As a result, it appears that home food production does not contribute to improved food security. As a result of these findings, it is obvious that promoting rural education can help to improve food security to a substantial extent, as education is strongly linked to food security (De Cock et al., 2013).

In this study, none of the participants reported to exercise farming with animals to improve their food access or as a source of income. However, they did report that they would like to keep chickens and sell the eggs as a source of income.

Poultry, goats, cattle, and pigs are the most significant livestock kept by most households in rural Limpopo Province, according to the study. More than 30% of families have poultry, and about 43% have goats or cattle, whereas only 8% of homes have pigs, sheep, or fish. In Vhembe 68.3 % of families own livestock at the district level, compared to only 21% in Waterberg. Chicken-owning households have an average of 16 animals, whereas cattle-owning households have an average of 11 heads, and goat-owning households have an average of ten goats. This suggests that raising animals is an investment decision made by the household. Cattle sell for around R3,450 on average, goats for R714, sheep for R700, and piglets for R412. Poultry has an average selling price of roughly R25 (De Cock et al., 2013).



A study conducted in Kuinet Ward, Kenya (Kemuntoogega et al., 2020) showed a significant link between household size, income, farmland size, livestock ownership, degree of education and work status, and household food insecurity. Food insecurity was less common in households with more acres of land than in those with access to more land, and vice versa. Households with animals were also less likely than those without livestock to be food insecure (Kemuntoogega et al., 2020).

### **5.8 Limitations of the study**

The data in the study was gathered from a relatively small group of people with similar living conditions, economic situations and educational backgrounds. The participants might not fully represent the population of the rural area of Trompsburg, Springfontein and Jagersfontein concerning the socio-economic status, educational background and living conditions of the populations.

Although data saturation was reached with 12 participants from three different towns, the sample was homogenous since the participants were from a rural setting. A heterogeneous sample could have served more useful in comparing the rural and urban groups. Furthermore, the participants were aware of the researcher's professional title as a dietitian. This could have influenced the participants to respond with answers they thought the researcher would favour. However, the researcher did ask the participant opened-ended questions and probing questions that could alter the responses.

## **CHAPTER 6: RECOMMENDATIONS AND CONCLUSION**

### **6.1 Introduction**

Even before the Covid pandemic, inequalities existed both within and between countries, which hindered nutrition interventions. Despite recent global health gains, people everywhere continue to face a complex blend of interconnected threats to their health and well-being. Many of these threats are rooted in social, political, economic and gender inequalities and other determinants of health (WHO Global Health Report, 2021). Malnutrition is a cruel cycle of inadequate food, health, care and infectious diseases that is worsened by poverty, with the most detrimental effect on maternal health and the growth and development of children, leaving their future health to hang in the balance since the first 1 000 days after conception (WHO, 2018) of their lives. Malnourished children, especially those stunted and wasted, are more likely to die than children with a normal nutritional status (Black et al., 2013). Children who survive malnutrition often suffer severe long-term consequences that track into adulthood (Black et al., 2013). These consequences include, but are not limited to the decreased cognitive and mental roles, poor academic performance and education levels, decreased work capacity, low productivity, earning a lower income, which in turn, will result in poor economic growth and overall poor health, causing a burden on the health care system and government (Black et al., 2013). The published literature that has served as the foundation for policies and frameworks to treat malnutrition globally describes malnutrition by and large from a quantitative perspective. The current study was the first qualitative study that explored the feeding practices of mothers of children aged two to six years in the Xhariep District, Free State.

In this chapter, conclusions and recommendations are summarised in terms of the research objectives: the types of foods fed to infants and children; the reasons for the choice of foods given to infants and children; the factors that influence feeding practices; and the recommended feeding practices of children aged two to six years who live in the Xhariep District.

## **6.2 The types of foods fed to infants and children**

Even though the mothers report breastfeeding their infants, breastfeeding rates were not sufficient as mothers and grandmothers also reported formula feeding and mixed feeding. This is concerning as the funds from the social grant are limited, and money could have been used to purchase other necessities if the mothers breastfed their children. Furthermore, introducing complementary foods before the age of four months increases the risk of overweight and obesity in childhood (Pearce et al., 2013).

The mothers reported feeding the children mostly pap, milk and water the most. The diets were insufficient in vegetables and fruit, which places the children at further risk of overweight and obesity and micronutrient deficiencies, as seen in the concept of hidden hunger.

## **6.3 The reasons for the choice of foods given to infants and children**

Mothers' education is connected to their socioeconomic status, as educated mothers are more likely to find profitable employment. Socioeconomic status also explains the effect of education on child malnutrition. Although the connection between education and health knowledge is clear, it is less supported by research, considering that the effect of health knowledge on child health outcomes is significant in some quantitative research (Casale & Espi, 2017:8). Children born to mothers with primary education are 94% less likely to be stunted than those born to mothers without primary education (Casale & Espi, 2017:10). Furthermore, children of mothers with a high education level had reduced odds of being underweight, while children of mothers with employment and mothers with a high income had reduced odds of being wasted, while maternal income reduced the risk of stunting and being underweight (Madiba et al., 2019:8); (Fadare et al., 2019). Thus it is important that the state allows opportunities for employment (De Cock et al., 2013), to further education and develop skills related to the area the population resides in since mothers' education is linked to their employment and linked to the nutritional status of their children.

#### **6.4 The factors that influence feeding practices**

From the study, the level of education, employment status, support from the community influenced the feeding practices of the mothers. Thus nutrition education interventions should also aim to educate the older woman in the community since the mothers rely on these older women for advice. The perceived expense of electricity further limited the funds available for the household to purchase electricity. The unavailability of water in the communities hindered the mothers from keeping a vegetable garden that could supplement the foods for the household. Furthermore, the social grant was not just used to purchase food and necessities for the child but used to sustain all the household members. Thus the more members in a household, the more at risk the household is for food insecurity. In this study, it was even more exacerbated because of the unemployment of the adults in the household. The use of store credit and borrowing money from money-lenders at interest placed an even greater burden on the financial restraints of the mothers. If the mothers were better educated and had more financial literacy skills, they would understand that the use of credit is detrimental to the long-term financial wellbeing of their household.

#### **6.5 Recommendations regarding feeding practices of children aged two to six years who live in the Xhariep District**

Agriculture programmes can shape food environments, improve access to affordable, healthy diets, and improve nutrition outcomes, especially where market access to nutritious foods are inadequate. Support for local production of nutritious foods (i.e., fruits, vegetables, dairy, and eggs) is recommended to mitigate economic effects related to the COVID-19 pandemic on low-income households. Nutrition-sensitive agricultural programmes could positively affect household production, maternal and child diet diversity, consumption of target foods, and micronutrient intake and status. These nutrition-sensitive agricultural programmes, which could include training to keep a vegetable garden facilitated by the Department of Agriculture, could include mental health support for mothers, nutrition behaviour change communications, and

women's empowerment skills; since the mothers require skills such as food preparation and budgeting that are lacking from their level of education and upbringing to improve their child feeding practices. So far, positive effects on child linear growth were achieved in a few interventions that provided children with micronutrient supplements.

## **6.6 Conclusion**

The rate of childhood malnutrition is still an ongoing issue in South Africa due to the existing challenges of unemployment amongst mothers. This study aided in exploring the experiences of the feeding practices of mothers and primary caregivers of young children and identifying the challenges they face.

The challenges of unemployment due to limited opportunity and resources greatly impacted both the availability of funds to purchase foods and other household necessities such as electricity, further leading to a snowball effect of challenges as evidenced by the other challenges identified. The unavailability of water affected the mothers' ability to keep a vegetable garden to supplement their household with food, further exacerbating the household funds available for food and electricity. Food poverty, which refers to the inability to afford, or to have access to food to make up a healthy diet (UK Department of Health, 2005: cited by Sonnino & Hanmer, 2016), as experienced by the mothers in this study, is also as a result of the underlying educational deficiencies and underlying cultural practices that reflect their inability to budget money and purchase healthier food, as well as their lack of skills to prepare and cook food (Midgley, 2012 cited by Sonnino & Hanmer, 2016). Food poverty is influenced by the increase in food prices, which, in turn, increases the share of household income spent on food. As a result, households in the lowest income group purchase and consume less fruit and vegetables and more processed products (Sonnino & Hanmer, 2016). The unavailability of electricity due to the high cost of electricity also motivated mothers to cook food in bulk, but this then influenced their need for refrigeration that also requires electricity to maintain food safety.

The poor service delivery and unavailability of water in the communities leave the mothers feeling discouraged and helpless, adding to the emotional stress and anxiety they already experience due to poor social circumstances. Without support and mental health services available in the communities to give mothers a space where they can talk about the problems they face, it can lead to poor parenting morale, which will influence the physical and mental growth and development of the children they raise.

The participants were unable to implement the nutritional advice from staff at the local clinics, which is concerning as it suggests that the community are unaware of the mothers' challenges. Thus, the staff at the local clinics were unaware that the nutritional advice should be adapted to the circumstances of the mothers. This may indicate a need for services to be decentralised from hospital-based intervention to community-based interventions (Mpanza & Govender, 2017) to assist the mothers in rural areas who have limited access to health care services.

It was interesting that, when the participants experienced food insecurity, they used similar coping strategies, such as skipping meals, limiting portion sizes, buying food on credit and borrowing money from money lenders to purchase food and electricity. This could be because the data in the study was gathered from a relatively small group of people with similar living conditions, economic situations and educational backgrounds.

## **6.7 Recommendations**

The following recommendations were made based on the results of the study:

Recommendations for policymakers:

- Consider the circumstances of the mothers, such as their level of education and the effects of unemployment in the policies before implementing, as mothers with less education will require more support and less complicated interpretation of policies.

- Recipients of social grants should be taught to budget their funds and thus discourage using loan sharks and store credit; as in this study, these practices created a vicious circle and were detrimental to the amount of money available due to the interest incurred.
- Provide the older women in the community with factual nutrition knowledge since young mothers rely on the older women in the community as a source of nutritional advice. Moreover, the older women in the community could mentor the young mothers who have questions concerning child-rearing. Examples include using cloth nappies instead of disposable nappies, which could save the mothers money, and when to begin potty-training toddlers to spend less money on nappies.
- The findings of this study can also serve as motivation for skills development and job creation for unemployed mothers, such as agriculture, food preservation, cooking and sewing skills where there is a dire need, as identified in this study. The products could be sold at farmers markets in Bloemfontein or festivals hosted by neighbouring towns nearby; for example, the festivals in Smithfield and Kimberley or tourist attractions such as the “Gariep Forever Resort”.

#### Recommendations for future studies:

- Future studies can focus on a wider sample of mothers and primary caregivers from rural and urban areas from different provinces in South Africa to compare the different experiences regarding the feeding practices of young children.
- A future intervention study can explore the impact of communal agricultural practices on household food security among households headed by unemployed mothers who live in rural areas.





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## APPENDICES

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## Appendix A: Ethics approval letter



Health Sciences Research Ethics Committee

02-Feb-2021

Dear Mrs Angelique Carson -Porter

**Ethics Clearance: FEEDING PRACTICES OF MOTHERS WITH CHILDREN ATTENDING EARLY CHILDHOOD DEVELOPMENT CENTRES IN THE KHARIEP DISTRICT**

Principal Investigator: Mrs Angelique Carson -Porter

Department: Human Nutrition Department (Bloemfontein Campus)

[Submission Page](#)

**APPLICATION APPROVED**

Please ensure that you read the whole document

With reference to your application for ethical clearance with the Faculty of Health Sciences, I am pleased to inform you on behalf of the Health Sciences Research Ethics Committee that you have been granted ethical clearance for your project.

Your ethical clearance number, to be used in all correspondence is: **UFS-HSD2020/1821/2302**

The ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the HSREC for approval to ensure we are kept up to date with your progress and any ethical implications that may arise. This includes any serious adverse events and/or termination of the study.

A progress report should be submitted within one year of approval, and annually for long term studies. A final report should be submitted at the completion of the study.

The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act, No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

For any questions or concerns, please feel free to contact HSREC Administration: 051-4017794/5 or email [EthicsFHS@ufs.ac.za](mailto:EthicsFHS@ufs.ac.za).

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely

Prof. A. Sherriff

Chairperson: Health Sciences Research Ethics Committee

Health Sciences Research Ethics Committee  
Office of the Dean: Health Sciences  
T: +27 (0)51 401 7795/7794 | E: [ethicsfhs@ufs.ac.za](mailto:ethicsfhs@ufs.ac.za)  
IRB 00011992, REC 230408-011; IORG 0010096; FWA 00027947





## Appendix B: Letter of permission



**social development**

Department of  
Social Development  
FREE STATE PROVINCE

### OFFICE OF THE HEAD OF DEPARTMENT

University of the Free State  
Department of Nutrition and Dietetics  
**Attention: Dr. Lucia Meko**  
Nelson Mandela Drive  
BLOEMFONTEIN

Per email: carsonportera@ufs.ac.za

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#### REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT EARLY CHILDHOOD DEVELOPMENT CENTRES IN TROMPSBURG, SPRINGFONTEIN AND JAGERSFONTEIN

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Dear Dr. Meko

1. Your letter dated 01/12/2020 was received and is hereby acknowledged.
2. I hereby permit all members of the study group to conduct the study to mothers of children in the mentioned towns.
3. The Department of Social Development wishes those who will be doing the research all the best and to note that compliance to COVID-19 regulations should be adhered to at all times and that level 3 alert level restrictions are applicable.
4. Kindly take note this permission is granted on the provision that the subject matters are not going to be children in which case there would have been a requirement on the screening in terms of the Child Protection register. The Department is looking forward to the positive outcome of the study which could assist with planning for future interventions.
5. Any further questioning can be done through the Director: Children, Mr LT Tladi @ 066159086.

Regards

ADV. T.J. PHAHLO  
ACTING HEAD: DEPARTMENT OF SOCIAL DEVELOPMENT

01/02/2021  
DATE

Office of the Head of Department  
Private bag X20616, Bloemfontein, 9300  
Standard Bank Building, 2<sup>nd</sup> Floor, Cnr West Burger & Charlotte Maxeke Streets, Standard Bank Building  
Email: hodpa@fssocdev.gov.za

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## **Appendix C: Information letters**

### **INFORMATION LETTER**

Dear Mother/Caregiver

Study title: Feeding practices of mothers of children attending Early Childhood Development centres in the Xhariep District.

My name is Angelique Carson-Porter, a master's degree student in Dietetics at the University of the Free State. I am doing a study on the feeding practices of mothers of children aged 2-6 years in the Xhariep District.

I am inviting you as a mother/caregiver, to take part in this study because you will be helping us to understand how young children are being fed.

The researcher will do interviews at the Early Development Centre that your child(ren) attend. Your information will be kept private. A voice recording will be made of the interview. The information you provide will be stored and locked away and only known to the researcher.

The purpose of the study is to understand the feeding practices of mothers and the results will be communicated to the Free State Department of Health according to the information collected, and hopefully, make recommendations about feeding young children.

Risks: there are no associated risks for participating in this study.

Confidentiality: Your name and the names of your children will not be mentioned. Your personal details will be protected at all times.

Costs: participation in this study is free from any cost. You will receive R50 for transport.

Results: the results of this study may be published and/or presented at meetings or congresses.

Time: the interview will take approximately 1 hour to 1 hour and 30 minutes.

## **INLIGTINGSBRIEF**

Geagte potensiële deelnemer

Studietitel: Voedingpraktyke van moeders van kinders tussen die ouderdomme van 2-6 jaar by sentrums vir vroeë kinderontwikkeling in die Xhariep-Distrik.

My naam is Angelique Carson-Porter, 'n meestersgraadstudent in dieetkunde aan die Universiteit van die Vrystaat. Ek doen 'n studie oor die voedingpraktyke van moeders van kinders van 2-6 jaar in die Xhariep-Distrik.

Ek nooi u as moeder uit om aan hierdie studie deel te neem omdat u ons sal help om te verstaan hoe jong kinders gevoed word.

Die navorser sal onderhoude by die sentrums vir vroeë kinderontwikkeling voer waar u kind(ers) ingeskryf is. U inligting sal privaat gehou word. 'n Stempopname word gemaak van die onderhoud. Die inligting wat u verskaf, sal gestoor en toegesluit word en slegs aan die navorser bekend wees.

Die doel van die studie is om die voedingpraktyke van moeders te verstaan. Die resultate sal aan die Vrystaatse Departement van Gesondheid gekommunikeer word volgens die inligting wat versamel is, en sal hopelik aanbevelings oor die voeding van jong kinders maak.

Risiko's: daar is geen gepaardgaande risiko's vir deelname aan hierdie studie nie.

Vertroulikheid: u naam en die name van u kinders sal nie genoem word nie. U persoonlike besonderhede sal te alle tye beskerm word.

Koste: deelname aan hierdie studie is gratis. U sal R50 vir vervoer ontvang.

Resultate: die resultate van hierdie studie kan tydens vergaderings of kongresse gepubliseer en / of aangebied word.

Tyd: die onderhoud sal ongeveer 1 uur tot 1 uur en 30 minute duur.

Indien u verkies om deel te neem, neem asseblief kennis dat:

- U deelname aan hierdie navorsing is heeltemal vrywillig (u eie keuse); u het die reg om te kies om deel te neem of nie. U kan ook enige tyd aan die studie onttrek.
- Alle inligting sal met die grootste vertroulikheid behandel word. Slegs die navorser het toegang tot u inligting.
- Die tendense vir onderhoude beteken dat ons slegs oor inligting in groepe sal kommunikeer en nie net oor een persoon se inligting nie. U individuele reaksie bly hierdeur vertroulik binne die studie. Alhoewel woord-vir-woord-antwoorde gebruik kan word by die publikasie van die resultate.
- U deelname aan hierdie navorsing is vrywillig, en u sal nie gepeenaliseer word of voordele verloor as u weier om deel te neem of enige tyd aan die studie wil onttrek nie.
- Deelnemers sal geen kostes dra nie en vergoeding vir vervoer sal ontvang word.

U kan mej. Mulondo, die sekretariaat van die Navorsingsetiekkomitee vir Gesondheidswetenskappe, UV, kontak by telefoonnommer (051) 401 7794 indien u vrae het oor u regte as navorsingsdeelnemer. U kan ook vir dr. Lucia Meko kontak by telefoonnommer (051) 401 2894 indien daar vrae oor die studie is.

Stuur asseblief 'n "Please Call Me" aan 064 517 0779 indien u bereid is om deel te neem aan hierdie studie.

## **TSEBISO LETSAKA**

Mme / Mohlokomedi ya Ratehang

Sehlooho sa thuto: Mekhoa ea ho fepa bo-mme ba bana ba kenang litsing tsa Nts'etsopele ea bongoana seterekeng sa Xhariep.

Lebitso la ka ke Angelique Carson-Porter, moithuti oa degree ea master ho Dietetics Univesithing ea Free State. Ke etsa boithuto ka mekhoe ea phepo ea bo-mme ba bana ba lilemo li 2-6 ho Setereke sa Xhariep.

Ke o mema joalo ka mme / mohlokomeli, ho nka karolo thutong ena hobane o tla be o re thusa ho utloisisa hore na bana ba banyenyane ba feptjoa joang.

Mofuputsi o tla etsa lipuisano Setsing sa Nts'etsopele ea Pele seo ngoana oa hau a kenang ho sona. Lintlha tsa hau li tla bolokoa e le lekunutu. Ho tla rekota lentsoe ka hlahlobeloa. Tlhalisoleseling eo u fanang ka eona e tla bolokoa ebe e notleloa ebe e tsejoa ke mofuputsi feela.

Morero oa phuputso ke ho utloisisa mekhoe ea phepo ea bo-mme mme liphetho li tla tsebisoa ho Lefapha la Bophelo la Free State ho latela tlhaiso-leseling e bokelletsoeng, mme ka ts'epo, e tla etsa likhothaletso mabapi le ho fepa bana ba banyenyane.

Likotsi: ha ho na likotsi tse amanang le ho nka karolo phuputsong ena.

Lekunutu: Lebitso la hau le mabitso a bana ba hau a ke ke a boleloa. Lintlha tsa hau li tla sirelletsoa ka linako tsohle.

Litsenyehelo: ho nka karolo thutong ena ha ho lefelloe. O tla fumana R50 bakeng sa sepalangwang.

Liphetho: liphetho tsa thuto ena li ka phatlalatsoa le / kapa tsa hlalisoa libokeng kapa likonkong.

Nako: lipotso li tla nka hora e le 1 ho isa ho hora le metsotso e 30.

Haeba u khetha ho nka karolo, ka kopo hlokomela hore:

- Ho nka karolo ha hao lipatlisisong tsena ke ha boithatelo (boikhethelo ba hao); u lokolohile ho khetha ho nka karolo kapa ho se nke karolo. U kanna oa ikhula thutong nako efe kapa efe; mme o ke ke wa otlwa kapa wa lahlehelwa ke melemo haeba o hana ho nka karolo kapa o batla ho ikhula thutong nako efe kapa efe.
- Lintlha tsohle li tla sebetsoa ka lekunutu. Ke mofuputsi feela ea tla fumana leseli la hau.
- Re tla tlaleha litaba re le sehlopha feela eseng ka litaba tsa motho a le mong re le bang. Karabo ea hau ka bo mong e lula e le lekunutu nakong ea boithuto, leha ho le joalo, likarabo tsa lentsoe bakeng sa lentsoe li ka sebelisoa ha ho phatlalatsoa sephetho.
- O ka ikopanya le Mofumahali Mulondo Bongoli ba Komiti ea Boitsoaro ea Patlisiso ea Saense ea Bophelo, UFS ho nomoro ea mohala (051) 401 7794 haeba u na le lipotso mabapi le litokelo tsa hau joalo ka monka karolo oa lipatlisiso. U ka ikopanya le Ngaka Lucia Meko ka nomoro ea mohala (051) 401 2894 haeba ho na le lipotso tse amanang le thuto.

Ka kopo romella "Ke kopa o ntetsetse" ho 064 517 0779 ha o lakatsa ho nka karolo phuputsong ena.

## Appendix D: Informed consent

### INFORMED CONSENT

Study title: FEEDING PRACTICES OF MOTHERS WITH CHILDREN ATTENDING EARLY CHILDHOOD DEVELOPMENT CENTRES IN THE XHARIEP DISTRICT

I, \_\_\_\_\_, confirm that Angelique Carson-Porter from the Department of Nutrition and Dietetics at the University of the Free State, is asking my consent to voluntarily participate in this research. I have read the information letter and I understand the purpose, procedure, potential benefits and anticipated inconvenience of my participation. By signing this document I confirm that Angelique Carson-Porter may contact me to arrange an interview.

Tick (☑) if the following has taken place.	
I have read the information sheet.	<input type="checkbox"/>
I understand the information sheet.	<input type="checkbox"/>
I have had sufficient opportunity to ask questions.	<input type="checkbox"/>
I am prepared to participate in the study.	<input type="checkbox"/>
I understand my participation is voluntary.	<input type="checkbox"/>
I understand that I am free to withdraw at any time without penalty.	<input type="checkbox"/>
I understand that the interview will be digitally recorded.	<input type="checkbox"/>
I am aware that my identity and the identity of the child(ren) in my care will be protected in the data capturing and data processing of the research report, journal publications or conference proceedings.	<input type="checkbox"/>

Full name of participant:

\_\_\_\_\_

Contact number: \_\_\_\_\_

\_\_\_\_\_

(Signature of participant)

\_\_\_\_\_

(Date)

Full name of researcher:

Mrs Angelique Carson-Porter

\_\_\_\_\_

(Signature of researcher)

\_\_\_\_\_

(Date)



### INGELIGTE TOESTEMMING

Studietitel: **VOEDINGSPRAKTYKE VAN MOEDERS MET KINDERS WAT VROEGE KINDERONTWIKKELINGSENTRUMS IN DIE XHARIEP-DISTRIK BYWOON**

Ek, \_\_\_\_\_, bevestig dat Angelique Carson-Porter van die Departement Voeding en Dieetkunde aan die Universiteit van die Vrystaat my toestemming vra om vrywillig aan hierdie navorsing deel te neem. Ek het die inligtingsbrief gelees en ek verstaan die doel, prosedure, potensiele voordele en die verwagte ongerief van my deelname. Deur hierdie dokument te onderteken, bevestig ek dat Angelique Carson-Porter my mag kontak om 'n onderhoud te reël.

Merk (☑) as die volgende plaasgevind het.

Ek het die inligtingsdokument gelees.	<input type="checkbox"/>
Ek verstaan die inligtingsdokument uiteengesit.	<input type="checkbox"/>
Ek het voldoende geleentheid gehad om vrae te vra.	<input type="checkbox"/>
Ek is bereid om aan die studie deel te neem.	<input type="checkbox"/>
Ek verstaan dat my deelname vrywillig is.	<input type="checkbox"/>
Ek verstaan dat ek vry is om enige tyd sonder penalisasie te onttrek.	<input type="checkbox"/>
Ek verstaan dat die onderhoud digitaal opgeneem sal word.	<input type="checkbox"/>

Ek is bewus daarvan dat my identiteit en die identiteit van die kind(ers) wat in my sorg is beskerm sal word met die vaslegging van data en die verwerking van die navorsingsverslag, tydskrifpublikasies of konferensieverrigtinge.	<input type="checkbox"/>
--	--------------------------

Volle name en van, van deelnemer:

\_\_\_\_\_

Kontak nommer: \_\_\_\_\_

_____	_____
(Handtekening van deelnemer)	(Datum)

Volle naam van navorser :

Me. Angelique Carson-Porter

_____	_____
(Handtekening van navorser)	(Datum)

## TUMELITSOE KETSO

Sehlooho sa thuto: Mekhoa ea ho fepa bo-mme ba bana ba kenang litsing tsa Nts'etsopele ea bongoana seterekeng sa Xhariep.

Ke, \_\_\_\_\_, ke tiisa hore Angelique Carson-Porter oa Lefapha la Phepo e Ntle le Dietetics Univesithing ea Free State, o kopa tumello ea ka ho nka karolo ka boithatelo patlisisong ena. Ke balile lengolo la tlhaiso-leseling mme ke utloisisa sepheo, ts'ebetso, melemo e ka bang teng le tšitiso e lebelletsoeng ea ho nka karolo ha ka. Ka ho saena tokomane ena ke netefatsa hore Angelique Carson-Porter a ka ikopanya le nna ho hlophisa lipuisano.

Tshwaya (☑) haeba tse latelang di etsahetse.

Ke balile leqephe la tlhaiso-leseling. ☐

Ke utloisisa leqephe la tlhaiso-leseling. ☐

Ke bile le monyetla o lekaneng oa ho botsa lipotso. ☐

Ke ikemiselitse ho nka karolo thutong. ☐

Ke utloisisa hore karolo ea ka ke ea boithatelo. ☐

Kea utloisisa hore ke lokolohile ho ikhula ka nako efe kapa efe ntle le kotlo. ☐

Kea utloisisa hore lipotso li tla hatisoa ka dijithale. ☐

Kea tseba hore boitsebiso ba ka le boitsebahatso ba ngoana (ren) ba  
tlhokomelong ea ka li tla sireletsoa ha ho nkuoa data le ho sebetsanang le  
litaba tsa tlaleho ea lipatlisiso, lingoliloeng tsa koranta kapa mohato oa  
kopano.



Lebitso ka botlalo la motho ea nkang karolo:

\_\_\_\_\_

Nomoro ea ho ikopanya: \_\_\_\_\_

\_\_\_\_\_

(Tshaeno ya monkakarolo)

\_\_\_\_\_

(Letsatsi)

Lebitso ka botlalo la mofuputsi:

Mofumahadi Angelique Carson-Porter

\_\_\_\_\_

(Tshaeno ya mofuputsi)

\_\_\_\_\_

(Letsatsi)

## Appendix E: Interview schedule

### TEMPLATE OF INTERVIEW SCHEDULE

Study title: FEEDING PRACTICES OF MOTHERS WITH CHILDREN ATTENDING EARLY CHILDHOOD DEVELOPMENT CENTRES IN THE XHARIEP DISTRICT

#### Purpose of instruction

In our letter requesting this interview, we mentioned to you that we are currently busy with a research project about the feeding practices of mothers of young children attending ECD centres in the Xhariep District. You have consented to this interview. We would like to remind you that the aim of this interview is to obtain your ideas and opinions regarding the feeding practices of your children in your primary care. The information obtained will only be used for research purposes. No names of participants or any identifying data regarding this interview will be made known in the report. Do you have any questions before we start the interview?

May I digitally record the interview, as it will help us to listen to it later and make a transcript of the interview for data-analysis purposes?

Name of participant: \_\_\_\_\_ Participant No.: \_\_\_\_\_

Contact No.: \_\_\_\_\_ Number of Children: \_\_\_\_\_

Age of children: \_\_\_\_\_ Marital Status: \_\_\_\_\_

Source of income: \_\_\_\_\_ Highest Level of Education: \_\_\_\_\_

1. Will you please tell me what do you feed your child and why?
2. Probing questions:
  - 2.1 What did you feed your child since birth?
  - 2.2 *Would you say that the food you give to your child is nutritious? Please give a reason for your answer.* Why do you consider these foods as nutritious?
  - 2.3 Have you ever received advice about feeding your child?
  - 2.4 Why did you implement or not implement the advice?
  - 2.5 How do you feel when you cannot give your child nutritious foods?
  - 2.6 What have you done when you could not feed your child?
  - 2.7 How does the amount of money, cooking facilities, availability of water influence what you food you serve your children?

## TEMPLAAT VAN ONDERHOUDSKEDULE

Studietitel: VOEDINGSPRAKTYKE VAN MOEDERS MET KINDERS WAT VROEGE KINDERONTWIKKELINGSENTRUMS IN DIE XHARIEP-DISTRIK BYWOON

### Doel van instruksie

In ons brief waarin ons hierdie onderhoud versoek, het ons aan u genoem dat ons tans besig is met 'n navorsingsprojek oor voedingpraktyke van moeders van jong kinders wat sentrums vir vroeë kinderontwikkeling (ECD-sentrums) in die Xhariep-distrik bywoon. U het ingestem tot hierdie onderhoud. Ons wil u daaraan herinner dat die doel van hierdie onderhoud is om u idees en opinies oor die voedingpraktyke van u kinders in u primêre sorg te kry. Die inligting wat verkry is, sal slegs vir navorsingsdoeleindes gebruik word. Geen name van deelnemers of enige identifiserende inligting rakende hierdie onderhoud sal in die verslag bekend gemaak word nie. Het u vrae voordat ons met die onderhoud begin?

Mag ek die onderhoud digitaal opneem, want dit sal ons help om later daarna te luister en 'n rekord van die onderhoud vir data-ontledings doeleindes te maak?

Naam van deelnemer: \_\_\_\_\_ Deelnemer Nr.: \_\_\_\_\_

Kontak Nr.: \_\_\_\_\_ Aantal kinders : \_\_\_\_\_

Ouderdom van kinders: \_\_\_\_\_ Huwelikstatus: \_\_\_\_\_

Bron van inkomste: \_\_\_\_\_ Hoogste vlak van onderwys: \_\_\_\_\_

1. Sal u vir my asseblief vertel wat u vir u kind gee om te eet en drink en waarom?

2. Vraende vrae:

2.1 Wat voer u u kind sedert geboorte?

2.2 Sou u sê dat die voedsel wat u vir u kind gee voedsaam is? Gee asseblief 'n rede vir u antwoord? Waarom beskou u hierdie kosse as voedsaam?

2.3 Het u al raad ontvang oor die voeding van u kind?

2.4 Waarom het u die advies geïmplementeer of nie?

2.5 Hoe voel u as u nie voedsame kos vir u kind kan gee nie?

2.6 Wat het u gedoen toe u nie u kind kos gehad het om vir u kind te gee nie?

2.7 Hoe beïnvloed die hoeveelheid geld, kookgeriewe en die beskikbaarheid van water die voedsel wat u aan u kinders bedien?

## TEMPLATE EA PUISANO LENANEO

Sehlooho sa thuto: HO Fepa MEKHOA EA BOMME LE BANA BA KENANG LITLHAKISO TSA BOPHELO TSA BOPHELO TSA BOPHELO SETEREKENG SA XHARIEP

Morero oa taao

Lengolong la rona re kopa puisano ena, re u boeletse hore hajoale re phathahane ka projeke mabapi le mekhoe ea phepo ea bo-mme ba bana ba banyenyane ba kenang litsing tsa ECD Seterekeng sa Xhariep. U lumellane le puisano ena. Re rata ho u hopotsa hore sepheo sa puisano ena ke ho fumana maikutlo le maikutlo a hau mabapi le mekhoe ea phepo ea bana ba hau tlhokomelong ea hau ea mantlha. Tlhalisoleseling e fumanoeng e tla sebelisoa feela molemong oa lipatlisiso. Ha ho mabitso a bankakarolo kapa data efe kapa efe e khethollang mabapi le lipotso tsena e tla tsebisoa tlalehong. O na le lipotso pele re qala lipuisano?

Na nka rekota lipuisano ka dijithale, kaha li tla re thusa ho li mamela hamorao le ho ngola sengoloa sa lipotso bakeng sa ho sekaseka lintlha?

Lebitso la monkakarolo: Nomoro ea bankakarolo.: \_\_\_\_\_

Nomoro ea Lebitso: \_\_\_\_\_ Palo ea Bana: \_\_\_\_\_

Lilemo tsa bana: Boemo ba Lenyalo: \_\_\_\_\_

Mohloli oa lekeno: \_\_\_\_\_ Boemo bo phahameng ka ho fetisisa ba thuto: \_\_\_\_\_

1. Ke kopa u mpoelle hore na u fepa ngoana oa hau ka lebaka lefe?
2. Ho botsa lipotso:
  - 2.1 U fepile ngoana oa hau eng ho tloha ha a hlaha?
  - 2.2 U ka re lijo tseo u li fang ngoana oa hau li na le phepo? Ka kopo fana ka lebaka la karabo ea hau. Hobaneng u nka lijo tsee li na le phepo?
  - 2.3 Na o kile oa fumana likeletso mabapi le ho fepa ngoana oa hau?
  - 2.4 Hobaneng ha o sebelisitse likeletso kapa o sa li sebelise?
  - 2.5 U ikutloa joang ha u sa khone ho fa ngoana oa hau lijo tse matlafatsang?
  - 2.6 U entseng ha u sitoa ho fepa ngoana oa hau?
  - 2.7 Chelete, litsi tsa ho pheha, phumaneho ea metsi li susumetsa lijo tseo u li fang bana ba hau joang?

## Appendix F: Field notes

### TEMPLATE FOR FIELD NOTES OF INTERVIEW SESSIONS

Study title: FEEDING PRACTICES OF MOTHERS WITH CHILDREN ATTENDING EARLY CHILDHOOD DEVELOPMENT CENTRES IN THE XHARIEP DISTRICT

Purpose of instruction:

When recording your observations you should capture two dimensions:

(1) Your description of what you observed and (2) your reflections about what happened.

Your rich detailed descriptions should describe what actually takes place with no judgements.

Your reflections are your thoughts or ideas about the meaning of what you observed.

By using the template below, record what you see, hear and experience as if you are seeing it for the first time.

Remember:

- Your field notes should be as accurate as possible.
- Always write the field notes as you make your observation.
- You may make a digital recording of your field notes, but please ensure that you are clear about the where and when it was recorded (specify the context and the participants).
- Please ensure that you record both verbal and non-verbal behaviours of the participants.
- Reflections of your observations should be done as soon as possible after the event. Your reflections may include your hunches or intuitions as “it appears” or “seems to be”.



Interview : \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_ Participant No.: \_\_\_\_\_

Time	Situation	Question asked	Reflection
e.g. 07:45	Sitting opposite researcher	What do you think is a nutritious meal?	

## Appendix G: Covid screening tool

### SCREENING TOOL FOR COVID -19

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Cellphone Number: \_\_\_\_\_

Please conduct a **daily self-screening assessment as per the criteria mentioned in the below table:**

No.	CONDITION / SYMPTOM	YES	NO
<b>A</b>	<b>SYMPTOM CHECK</b>		
1	Are you suffering from fever / high temperature or temperature fluctuations?		
2	Do you have a dry cough?		
3	Do you have a sore throat?		
4	Do you have redness of eyes?		
5	Do you experience shortness of breath / difficulty in breathing?		
6	Have you got unusual body aches / muscle pain?		
7	Do you experience a loss of smell / taste?		
8	Are you nauseous and/or do you experience unusual vomiting?		
9	Have you got diarrhoea?		
10	Do you suffer from fatigue / physical weakness / tiredness?		
<b>B</b>	<b>CONTACT / EXPOSURE RISK</b>		
1	Have you been exposed to someone diagnosed with Covid-19 or had recent contact with someone who is self-isolating whilst waiting for a Covid-19 test result?		
2	Have you been in quarantine / self-isolation for the past 14 days?		
<b>C</b>	<b>OTHER RISK FACTORS</b>		
1	Do you suffer from any pre-existing medical condition / chronic illness that may have compromised your immune system, i.e. respiratory disease, diabetes, heart disease, or any other chronic illness that could compromise one's immune system?		
2	Are you 65 years of age or older?		

- Please complete this daily self-screening questionnaire before leaving home / residence and before consulting with the dietitian.
- If any symptoms mentioned in questions **A1** to **A10** are experienced then:
  - ✓ Don't attempt to see the dietitian.
  - ✓ Consult your Healthcare Worker to find out if testing / self-quarantine will be necessary.
- If you experience any symptoms mentioned in questions **A1** to **A10** then this does not mean that you definitely have Covid-19. This screening questionnaire is used as precautionary indicator to establish whether you should be quarantined and if tests are required to make a definite diagnosis.
- If you answered "**YES**" to any of the questions in **B1**, **B2**, **C1** and **C2** (but have none of the symptoms mentioned in **A1** to **A10**), then this does not mean that you will not be permitted to see the dietitian (a decision may be necessary whether your response requires any further intervention).
- If you are tested positive for Covid-19 isolate for 14 days. Follow your Healthcare Worker's advice.

I hereby attest that the information provided above is a true reflection of my screening results.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix H: Example of transcripts of an interview

Participant 1

11 March

Location: C1

Interviewer:

You said you agree to participate in this study, Feeding practices of mother with children attending Early Childhood Development centres in the Xhariep District.

In our letter requesting this interview, we mentioned to you that we are currently busy with a research project about the feeding practices of mothers of young children attending ECD centres in the Xhariep District. You have consented to this interview. We would like to remind you that the aim of this interview is to obtain your ideas and opinions regarding the feeding practices of your children in your primary care. The information obtained will only be used for research purposes. No names of participants or any identifying data regarding this interview of you or your children will be made known in the report. Do you have any questions before we start the interview?

Participant: No, not right now. Maybe as we continue with the details I may ask questions.

Interviewer: May I digitally record the interview?

Participant: Yes you can.

Interviewer: as it will help me to listen to it later and make a transcript of the interview for data-analysis purposes?

Interviewer: Ma'am, how many children are in your primary care?

Participant: At this moment, just one lives with me. The others are away at school. So, it is just this one attending the crèche.

Interviewer: How old is the child?

Participant: five years

Interviewer: Tell me, are you married, single, living with a partner?

Participant: He is gone a long time ago, resting in peace.

Interviewer: Ma'am, what is your source of income, how do you get money?

Participant: I am getting the government pension.

Interviewer: And until which standard did you attend school?

Participant: That time when we were getting old, the standard was standard 6, in the late 70's, the late 70's. But then I attended private schools, I taught myself.

Interviewer: Ma'am, please tell me what do you give your child to eat and drink at home?

Participant: Usually, he drinks milk a lot. If not milk, then he wants cold drink, but I buy the 100% cold drink, because he like it, any flavor. And rooibos tea, that is the thing I use a lot in the house. Because I know that rooibos tea is very healthy for children and you can even give it to adults too.

And the food, usually we eat pap and milk, or pap and amazi, sometimes pap and cabbage. Sometime we cook the rainbow colours, but we are not the people of the rainbow colours. And meat also, we don't eat a lot, there are times we eat meat. We don't usually eat meat.

Further, then we eat brown bread at home, white bread is too much starch.

We eat brown bread, maybe with jam or peanut butter.

Interviewer: Would you say that the food and beverages that you give to the child to eat is nutritious, is it healthy?

Participant: Yes, I can say that. Although I am not 100%. But I can say but yes, because they select. They don't eat anything. Even the cold drink, they do not drink just any cold drink. Most of the time I do not give the child gas-cold drink. Because the gas is not good for the children. I give 100% cold drink or I buy the cold drink that you mix with water and give them that to drink. And little sweets. And little of the chips that sells for 50cents. There are some that gives them Allergies, even sweets give them allergies. I understand the children better than their own parents, because their parents don't raise them, I raise them. So I understand what is wrong if the child reacts like that. Until now when the children are no longer with me, their parents will phone me, they will say that the child reacted like that, now what must I do? Then I tell their parents to do that not that, give them this not that.

Interviewer: Have you received advice from someone about the type of nutrition, or food or beverages to feed the children?

Participant: No, because I watch too much TV. The TV programs. There are sometimes the TV will discuss food, what the children must eat, and nutrition. I am very interested by the TV, then I take advice from the TV. When the child is like this, then I must do this. Also these types of sickness that I do not know that are mentioned. Then I don't know how the child become like that, why is the child aggressive, why is the child like this, what must I do when the child is like that. I take the advice from the TV usually.

Interviewer: So you get advice from the TV, now you implement this advice. Why do you implement the advice from the TV?

Participant: Because I saw that it works, it is good advice and it helps too. With the help of that advice, the child does not become sick so easily, I do not have to take the child to the clinic or hospital often. The child is fine and normal. But when I see the there is something small, something I am not sure about, I take the child to the doctor or the clinic, but not easily.

When I use the advice that I got from the TV, I see it works for me, I don't know about the other people. But when I see it works for me, and I see other people with their children, then I tell them I read this and that from the TV, so do this and that and then they do it. Then it works.

Interviewer: Can you tell me specifically about this advice you got from the TV about the feeding of the child?

Participant: It is a while ago, I can't remember exactly, I don't want to lie to you. Because I don't write it down. But sometimes they will discuss the mentality of the child, if a child is aggressive or if the child get fits or whatever. What must you do, why does the child react like that. Then I take it and put it away. But when I am alone and I saw it and I don't have something to do then I will write it down. But sometimes I don't write it down. But I can't remember everything.

But I know that it is good advice, like the baby TV, that always on with lots of advice about how to handle the child, how to raise the child, what must the child eat, what is good for the child and what is not good for the child. It plays in the morning mostly.

Interviewer: You told me that you give the children pap and cabbage, and pap and amasi. Do you feel that this food that you give to the child is nutritious for the child?

Participant: Yes, milk is nutritious, for child's bones to be strong. But the pap. Starch!

Usually, the doctor says you must not eat pap every day. But under the circumstances we are living now, we must eat pap. We can't afford the other food. So with my thinking, if you eat the pap with milk that starch will not be too much for the child. Because rice, they like it but not like that. They will pick at it, then leave it. What they can eat more of is meat. And with meat, I use chicken meat, and the white meat parts, not the skin and the fat. Because that is not good, even for adults it is not good. But the vegetables I think are 100%, I don't have a pain with that. But you have to make a plan to get them to eat it. You need a manner, you can't cook with the same manner every day, because then they will not eat it, they will not want it. But when they are in the mood for the it, have their own time, they will eat it. He will say he does not eat marogo, but when I find him, he will be sitting with a bowl and eating the Morogo.

Interviewer: Was there ever a time that you did not have food to give to the child?

Participant: Yes (pause) there was.

Interviewer: And when it happened, how did you feel when there was not food to give to the child?

Participant: I feel stressed, I feel unwell. I can go bed hungry, but not the child. But what I do at that stage, is I go to the shop and say, please help me with this and this, just for the child. I will pay you when I have money, then they help me. Then I feel relieved, as long as the child had something to eat, I feel satisfied. I can just drink water and sleep, I don't have a problem, but not the child.

Interviewer: does it happen often?

Participant: no not often, it does not happen often. Just sometimes. Like I said, maybe towards month end, You know things get finished. The salt is finished, the Colgate is finished, the washing soap is finished, this is finished, the sugar is finished, then you get stressed. The last week of the month, it happens many times, but I always have a plan. Then I go to the shop and make a loan so that the child can eat until I get money.

Interviewer: Is that the pension money that you get?

Participant: Yes.

Interviewer: Do the parents of the child give you money?

Participant: She is still at the school, she is at UFS studying accountant. And she does part-time work at Steers. But you know the young people, they want to be beautiful, they want nails, they want hair, they want to wear beautiful clothes. She does not have time. When I tell her that the child does not have this and that, she says she does not have money, she will go to work on this day and that day and see how much money she can get. Things like that. But luckily my child never goes to bed without food. Even though I struggle, I make a plan to ensure that he does not go to bed without food.

Interviewer: What do you do with fruit? How do you get fruit?

Participant: Fruits, I have a R10. If the child asks for bananas, then I buy him bananas. If he says he wants this, then I will get it for him. I make sure that I have a R20 in the house for him, if he asks me for something. I cannot have nothing, nothing. Because sometimes he sees another child with a banana then he wants it too. And you do not have money at that time, how does the child feel. The child does not understand like me, like an adult when life is hard. But I make sure that I must have R10 in the house so that the child can get fruit. Even if it is just once a week, I feel happy.

Interviewer: How does your financial situation, the cooking facilities at your house and availability of water influence the food you give the child?

Participant: Influence towards the food? I really do not know how to answer that one.

Interviewer: So tell me, for example the amount of money you have means you can just buy certain food?

Participant: Yes,

Interviewer: So you cannot buy a big variety of food?

Participant: No, and secondly I do need see a reason to buy a variety of food that will expire, because we are only two at the house. If we cook a pot of pap, we eat that for three days. When we done eating it, we store it in the fridge, tomorrow I will reheat it and eat it again, because we try to save. Because life is expensive, food is expensive and there is not money. So a person must make an effort to save. Even the fruit and vegetables when I buy it, I peel them and cut them, make it into packets and store in the

freezer. When I need it I take it out and cook it. Because I see what she likes the most is carrots, and want to eat it raw. Then she says the teacher said she must eat carrots so that she can see well.

Interviewer: How do you cook your food at home? What cooking facilities do you have at home?

Participant: I cook with the stove, but what I usually do with my vegetables is I don't overcook it soft. Because when it is overcooked soft, the proteins and whatever is there are dead. Because it needs to build your body. Especially cabbage, I just cook it for 15 minutes then I take it off the heat, a little salt, no fat. Just like that. We eat it.

Interviewer: And do you struggle with electricity at the house?

Participant: That thing. Don't even speak of it. You buy R300 today, not even a week it is finished, because the electricity is little. Then you have to buy again.

I think within a month, if I add up those receipts, then I bought R1000 electricity. Because the end of the month I leave some money to in between. Because sometimes it is loadshedding, when the load shedding is done, whoops the electricity is gone. How I do not know. Now a person must always have electricity. The electricity is a problem for all of us, not just me.

Interviewer: Is water available?

Participant: Water is available, but there are times when you find that the water is gone for the whole day, you will only get water tomorrow. And when the water returns, you first have to boil it before you use it. Because the water is dirty. Then you have to leave it for the dirt to sink to the bottom. Then you can use it or boil it. But if the electricity is too little, then I add a lid of JIK in 20 litres to kill the germs. Then I can use the water.

Interviewer: Do you do anything when cooking the food the save electricity and water?

Participant: To save electricity I use the gas, with the gas bottle. Or I make fire and cook with the black pot outside. We grew up with black pots cooking outside to save electricity. The water, I store it in 20litres and keep it there. I use the water in the bath and toilet and to wash. In case there is no water, then we have water to drink. Because we cannot afford to buy water. The water that you buy is too little, it is just to drink. You cannot use it to wash or cook. Because it is a 5litre.

Interviewer: Ma'am, I just want to go back to the food that you give the children. Do you give the food to the children because you can afford it or because you think it is healthy?

Participant: I can say both. It is cheaper. And that is what I can afford that time with the few cents that I have. Because when you are done paying what you must, then sit with the little money you have left. This that is past is over, but this 5 cents that I have left, I must use it to buy this, and this, and this. These cents I must save for electricity in the middle of the month. Because, like I said, the life is expensive. Especially here by us. Everything is expensive. Prices increase in a few hours. You can now go into that caffe and buy a bottle of cold drink. If I go then I will pay more than that what you bought

it. Then you ask yourself, how? Then they tell you about the COVID. Since COVID is in our lives, everything increases every day. This is how we live here. So we must try to save, like we can.

## **Appendix I: Example of field notes of an interview**



Interview: 1 Date: 11/03/2021

Location: C1 Participant No.: 1

Time	Situation	Question asked	Reflection
10:45	<p>Participant is sitting across from me.</p> <p>We are sitting inside the Manager/matrone's office. It is a small office.</p> <p>We can hear the children talking and laughing in the next room.</p> <p>There are goats walking outside of the ECD centre eating the grass and vegetation.</p>	<p>May I digitally record the interview?</p> <p>Ma'am, how many children are in your primary care?</p> <p>Interviewer: How old is the child?</p> <p>Interviewer: Tell me, are you married, single, living with a partner?</p> <p>Interviewer: Ma'am, what is your source of income, how do you get money?</p> <p>Interviewer: And until which standard did you attend school?</p> <p>Ma'am, please tell me what do you give your child to eat and drink at home?</p> <p>Would you say that the food and beverages that you give to the child to eat is nutritious, is it healthy?</p> <p>Interviewer: Have you received advice from someone about the type of nutrition, or</p>	<p>She sounds sure, but guarded.</p> <p>She laughs when she uses her way of saying that she is a widow. She says it in such a way that I am under the impression that her spouse must have passed away a very long time ago.</p> <p>She tells me she is a pensioner, but when I did the COVID screening, she said that she was older than 65 years.</p> <p>She laughs when she tells me that she watches a lot of TV.</p>

		<p>food or beverages to feed the children?</p> <p>Interviewer: So you get advice from the TV, now you implement this advice. Why do you implement the advice from the TV?</p> <p>Can you tell me specifically about this advice you got from the TV about the feeding of the child?</p> <p>You told me that you give the children pap and cabbage, and pap and amasi. Do you feel that this food that you give to the child is nutritious for the child?</p> <p>Was there ever a time that you did not have food to give to the child?</p> <p>Does it happen often?</p> <p>Is that the pension money that you get?</p> <p>Do the parents of the child give you money?</p> <p>What do you do with fruit? How do you get fruit?</p> <p>How does your financial situation, the cooking facilities at your house and availability of water</p>	<p>I repeated the foods she listed, because she did not mention giving the child fruit.</p> <p>She paused when she said "yes".</p> <p>She did not have anything nice to say about the child's mother. I could see the frustration in her hand movements when she mentioned that nails, hair and clothing.</p> <p>She sounded happy when she said she makes a plan for the child.</p> <p>She did not understand this question, I had to ask it in sections.</p>
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		<p>influence the food you give the child?</p> <p>So tell me, for example the amount of money you have means you can just buy certain food?</p> <p>So you cannot buy a big variety of food?</p> <p>How do you cook your food at home? What cooking facilities do you have at home?</p> <p>And do you struggle with electricity at the house?</p> <p>Is water available?</p> <p>Do you do anything when cooking the food the save electricity and water?</p> <p>Ma'am, I just want to go back to the food that you give the children. Do you give the food to the children because you can afford it or because you think it is healthy?</p>	<p>She seems frustrated about the electricity being so expensive, not lasting and loadshedding.</p> <p>She seems irritated by the increase in food prices.</p> <p>She is happy that her plan works.</p>
	I hand the sandwich and beverage	After the interview when she stop recording.	She thanks me for the sandwich and beverage, but says she will save it to give it to the child after school.

	<p>I hand the R50 for transport.</p>	<p>She says thank you, but says she did not use transport to attend the interview. I tell her it is fine, she can use it for something else.</p> <p>She then tells me that she will use it for her garden. She used to have a vegetable garden at her home. But after the recent heavy rains, her garden is overgrown with weeds. She needs a young person to clean the weeds (skoffel) for her, then she will grow vegetables again. I tell her that I will send seeds for the garden next week, although I am not sure what she can plant now since it will be winter soon. She replies that there are vegetables that she grows in winter. So they eat from the garden and sells the rest to the people living near her.</p> <p>She says she also want to get some chickens to raise in her yard. The she will have eggs and meat to eat and she can also sell it. But she does not know who to ask to help her to get chickens.</p> <p>I thank her for her participation. She tells me that she is a curious person, that is why she sent me the "please call me".</p>
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