

**DEVELOPMENT OF STRATEGIES FOR CAREGIVERS ON FEEDING  
PRACTICES OF CHILDREN AGED 6 TO 24 MONTHS IN A TOWNSHIP IN  
GAUTENG**

by

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## DECLARATION

I, Dina Betty Matlala, hereby declare that the study entitled, *Development of strategies for caregivers on feeding practices of children aged 6 to 24 months in a township in Gauteng*, is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. I further declare that this work has not been submitted for any other degree at any other institution.

Dina Betty Matlala

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SIGNATURE

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DATE

## DEDICATION

I dedicate this study to my children, **Phegello Simon** Choma and **Brastasia Athens Choma**, who endured my absence as a mother and their cousin, **Molamo**, who acted as a surrogate parent during that period. My sisters, **Paula Phora**, who spiritually supported me and **Salome Moyo** who spent sleepless nights proof reading my work.

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## ABSTRACT

Nutrition of children is crucial for normal physical, mental, and social development especially in the 6 to 24 months age group, as they are in the fast growing phase. Literature has reported under-nourishment as one of the causes of child mortality, which implies that addressing under-nourishment in children is one way of reducing child mortality. Nutrition guidelines for infants and children have been formulated by the World Health Organisation and the National Department of Health in South Africa. In spite thereof, there is a concern about the children between the ages of 6 to 24 months from a particular township in Gauteng who suffer from under-nourishment. The aim of this study was to develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months residing in the particular township. Method: The researcher followed a qualitative paradigm that was explorative and descriptive.

The first phase was to collect and describe current caregivers feeding practices (including cultural practices) of children 6 to 24 months. Data collection was done by means of two focus groups with purposively selected caregivers of children aged 6 to 24 months admitted in paediatric ward and diagnosed with under-nourishment alone or under-nourishment accompanied by other diseases. Caregivers' suggestions on how they can nourish their children aged 6 to 24 months was explored and described. The collected data was transcribed and coded into themes and sub-themes, followed by literature control. Caregivers suggested the following measures to improve their children's nutritional status: discarding old habits and adding new habits; introducing feeding pattern; the need to be provided with knowledge regarding factors associated with nutritional status; having access to information regarding financial management.

The strategies were then based on the following themes: (1) educating and training caregivers regarding (food groups, nutrition and malnutrition, preparation of food, hygienic maintenance of utensils and hands, Introducing and adhering to a certain feeding pattern and frequency, creation of small gardens, subsistence farming and the use of recyclable water and proper financial planning and budget (2) to motivate caregivers to enhance nutrition.

The second phase was to refine the strategies with the inputs from purposively selected healthcare professionals based on their knowledge regarding nutrition of children. The completeness of the strategies were disconfirmed by healthcare professionals based on the fact that educating caregivers on food groups alone without simple meal plans and augmentation of available funds to buy those food groups was inadequate. Furthermore, drought, which leads to water restriction and lack of funds to buy seeds, hamper the sustainability of subsistence farming.

The significance of the study was that the caregivers, being responsible for nutrition of the children and being co-contributors of these strategies, buy-in was expected to improve the nutrition of the children and to improve nutritional health status. It is further expected that the strategies will be relevant and useful to other caregivers in the township.

**Key terms: strategies, caregivers, under-nourishment, children**

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## LIST OF ABBREVIATIONS / ACRONYMS

| <b>ABBREVIATION / ACRONYM</b> | <b>MEANING</b>                                                 |
|-------------------------------|----------------------------------------------------------------|
| <b>CBD</b>                    | Central business district                                      |
| <b>MUAC</b>                   | Mid upper arm circumference                                    |
| <b>NIPN</b>                   | National Integrated Nutrition Programme                        |
| <b>SANHANES</b>               | South African National Health and Nutrition Examination Survey |
| <b>WFH</b>                    | Weight for height                                              |
| <b>WFL</b>                    | Weight for length                                              |
| <b>WHO</b>                    | World Health Organization                                      |

## CHAPTER 1: ORIENTATION TO THE STUDY

### 1.1. INTRODUCTION

Good nutrition during childhood is crucial for the normal physical, mental, and social development of children. Especially in the 6- to-24 month age group – which is the rapid growing phase – a properly balanced diet enhanced by high-quality complementary food macronutrients (carbohydrates, proteins and lipids) and micronutrients (vitamins and minerals) given timely and appropriately is critical (Rivera, Hotz, GonzálezCossiό, Neufeld, Garcíá-Guerra, 2003:4010-4020; Singh, 2004:59; World Health Organization (WHO), 2014:14). Globally young children are still not well-nourished and according to WHO (2014:5) 1 in every fourth child is still affected by chronic under-nutrition.

Over-nourishment and under-nourishment are subdivisions of the concept commonly known as ‘malnutrition’. This has been a longstanding and serious problem among children in the world; especially in developing countries (Ramakrishnan, Goldenberg & Allen, 2011:2066-2075; Muller & Krawinkel, 2005:279). Under-nourishment is present in a large proportion of children admitted to South African hospitals (Marino, Goddard & Workman, 2006:994).

It has been observed that many young patients who suffer from under-nourishment are admitted to a particular hospital in Gauteng, one of the nine provinces in South Africa. From 2009 to 2013 hospital records reflect a total admission of 56 children who had been admitted with under-nourishment coupled with some other diagnoses (Statistics from selected hospital, 2009-2013). All of these young patients resided within the setting of the study context.

Part of the responsibilities of caregivers (mothers, grandmothers [‘grannies’], nannies or other dedicated persons responsible for taking care of the young children) is to ensure the nutritional needs of the children in their care are met. High prevalence of under-nourishment in children admitted to hospitals suggests they are unable to do so (Marino et al., 2006:993-995; Krug, Patrick, Pattinson & Stephen, 2006:1471). Various previous research studies attributed this to caregivers’ lack of knowledge regarding good nutrition practices

(Vereecken & Maes, 2010:44-51; Haidar, Abate, Kogi-Makau, & Sorensen, 2005:629).

As part of the implementation of the National integrated Nutritional Programme of South Africa (National Department of Health [NDoH], 2008:4) the South African Government provides food parcels, fortification of food, a child grant, and free healthcare services for children under five years old. Furthermore, guidelines that focus on health education regarding nutrition of children is included in the NDoH's Road to Health Booklet which all mothers are supposed to receive at discharge after delivery of their babies. The South African government also included nutrition education for health professionals as a preventative strategy stated in the South African Nutrition Report (2000:n.p.) and followed it up with Development Bank of South Africa (2005:12) which addressed nutrition in children.

The WHO recently produced a document on nutrition guidelines for the first 1 000 days of life in which actions required to reduce infant and child mortality are highlighted (WHO, 2013:1). According to this document, breastfeeding should be initiated within the first half-an-hour after birth; breastfeeding should continue for 2 years and should be exclusive for the first 6 months. Moreover, nutrition guidelines are also available from the WHO (2002:4-5) for children including the group between 6 to 24 months.

In spite of the availability and accessibility of all these guidelines, at the time of study young children were still admitted due to under-nourishment in the particular hospital where the study was done. Furthermore, it appeared as if the caregivers in the particular hospital whose children were admitted with undernourishment were not aware of the principles of good nutrition.

A study to determine the caregivers' knowledge or practice regarding nutrition could be of value to highlight the extent of under-nourishment in young children; but the assumption underlying this study was to focus on a solution on how to improve the well-nourishment of young children. It was further assumed that the caregivers should participate in finding a solution, as people are more likely to implement something if they have been involved in the development thereof as asserted by Sternin and Choo (2000:14-15).

The developed strategies could be used to contribute to the implementation of the NDoH's Roadmap for Nutrition in South Africa 2013-2017 (NDoH, 2013:1-50) through educating caregivers on the guidelines of nutrition as discussed in the Road to Health Booklet. It was believed that such education and knowledge acquired by caregivers might improve the nutrition of their young children.

## **1.2. BACKGROUND**

This section will discuss the meaning of undernourishment, its diagnosis, consequences of undernourishment, factors contributing to under-nourishment and the reality of under-nutrition in children aged 6 to 24 months.

### **1.2.1. Meaning of under-nourishment**

Nourishment is explained as the provision of food necessary for life and growth, and the term is synonymous with nutrition. Under-nourishment is defined as either inadequate or improper intake of food and may be divided into under-nourishment and over-nourishment (Kar, Rao & Chandramouli, 2008:31).

Under-nourishment refers to the inadequate intake of food which includes both macronutrients (carbohydrates, proteins and lipids) and micronutrients (vitamins and minerals) (Shetty, 2006:524). It is the most common type of malnutrition in poor or developing countries (Grantham-McGregor, Cheung, Cueto, Glewwe, Richter, Strupp, 2007:6; de Onis Blössner, Borghi, Frongilo & Morris, 2004:2600; Mamabolo, Alberts, Steyn, Delemmare-van de Waal & Levitt, 2005:501). It should be noted here that often when the term 'malnutrition' is made, it is perceived or understood as meaning only 'under-nourishment' whereas 'over-nourishment' is, in fact, also a form of malnutrition (Saunders, Smith & Stroud, 2010:45). In the present study, however, the term 'under-nourishment' will pertain specifically to the particular type of malnutrition that is common in developing countries (the inadequate intake of food) and which was commonly present in children admitted to the hospital in the setting at the time of the study.



Under-nourishment is divided into acute and chronic forms. Acute under-nourishment occurs when there is inadequate food intake without the presence of any clinical symptoms of under-nourishment whereas chronic under-nourishment occurs when inadequate intake of food is accompanied by clinical symptoms of under-nourishment (Kar et al., 2008:n.p.). Severe forms of chronic under-nourishment include marasmus caused by the inadequate intake of food in general (children do not eat enough) and kwashiorkor caused by the inadequate intake of proteins and carbohydrates (children eat enough, but the wrong type of food) (Kar et al., 2008:n.p.).

### **1.2.2. Diagnosis of under-nourishment**

Chronic under-nourishment is often diagnosed by the clinical picture supported by specific deviations such as general body swelling, pale skin, skin desquamation, angular stomatitis, apathy, sparsely or fluffy hair, and wasting (Shetty, 2006:524) as well as non-standard anthropometric measurements (DeNysschen, Hemler, Aronoff & Zafron, 2016:63; Cross, Holden, MacDonald, Pearmain, Stevens & Booth, 1995:61). Acute under-nourishment is generally diagnosed by the deviations of anthropometric measurements; however, as noted by DeNysschen, Hemler, Aronoff & Zafron (2016:63) and Cross et al. (1995:61), anthropometric measurements can detect both acute and chronic under-nourishment.

Particularly in developing countries under-nourishment in children remains a problematic issue (de Onis et al., 2004:2600). In the WHO Millenium Development Goals Report 2014, Wu Hongbo, the Under-Secretary-General for Economic and Social Affairs, comments on the fact that in 2012 “a quarter of all children under the age of five years were estimated to be stunted – having inadequate height for their age” and adds it is “unacceptable that 162 million young children are still suffering from chronic undernutrition” (WHO 2014:5).

In a South African study done by Zere and McIntyre (2003:7-8) the prevalence of under-nourishment in African children was explained in terms of underweight (17%), stunting (24.5%), and wasting (8.9%). In the same study these values in Gauteng were found to be as follows: underweight (15.2%), stunting (18.2%)

and wasting (10.8%). Kimani-Murage, Kahn, Pettifor, Tollman, Dunger, Gómez-Olivé and Norris (2010:6) conducted a study in another province, Mpumalanga, and their findings indicate underweight as 9%, stunting as 18% and wasting as 4%. There is a lack of more recent statistics available with regard to under-nourishment in eight provinces of South Africa excluding Mpumalanga.

### **1.2.3. Consequences of under-nourishment**

Under-nourishment in children is considered as a serious health and social burden with unfavourable complications and consequences. These consequences are classified into early consequences (in the infancy and toddler age group) and late consequences (primary school age, adolescent age, and adulthood). Early health consequences of under-nourishment in children include growth retardation and an increased risk for pneumonia and gastrointestinal infections. If under-nourishment is not treated at this age, it may lead to increased infant and child mortality rates (WHO, 2013:2) or to late consequences in school age, adolescence and adulthood (Bryce, Boschi-Pinto, Shibuya & Black, 2005:1147-1152; Caulfield, Stephanie, Black & Black, 2004:55; Rice, Sacco, Hyder & Black, 2000:1214).

The late consequences of under-nourishment include impaired mental and physical development (Kar et al., 2008:n.p; Victoria, Adair, Fall, Hallal, Martorell, Richter & Sachdev, 2008:343-350). According to Kar et al. (2008:n.p) and Victoria et al. (2008:343), under-nourished children reportedly do not perform well in school and other activities (visual perception and working memory) and these cognitive deficits persist until adulthood. Galler, Waber, Harrison and Ramsey (2005:1760) further report other unacceptable social behaviors that are associated with under-nourishment include aggressive behavior and poor socialization skills during the adolescent stage. Under-nourishment during the infancy and toddler age may also lead to under-development of essential organs such as the liver, kidneys and pancreas which will increase the risk of these children developing chronic diseases such as diabetes, hypertension, and cardiovascular diseases later in life (Victoria et al., 2008:348-350).

#### **1.2.4. Factors contributing to under-nourishment**

Literature highlights a number of factors that contribute to failure to comprehend and apply nutritional education (Vereecken & Maes, 2010:44-51; Oyekale & Oyekale, 2009:118; Turyashemererwa, Kikafunda & Agaba, 2009:983; Haidar et al., 2005:625-630). These include factors integral to the healthcare system in that healthcare workers should provide nutritional education or counselling on factors essential to children's nutritional needs to caregivers who are responsible for the feeding of children. On the other hand, if the children's caregivers do not comprehend and apply health information regarding the nutrition of their children correctly, this may result in under-nourishment of children.

Factors integral to the healthcare workers are mainly a lack of training in nutrition and the lack of time to provide nutrition education (Penny, Creed-Kanashiro, Robert, Narron, Caulfield & Black, 2005:1863-1872; Kushner, 1995:546), lack of skills to identify under-nourishment, and not being aware of guidelines for clinical nutrition (Mowe, Bosaeus, Rasmussen, Kondrup, Unosson, Rothenberg & Irtun, 2008:200). The factors associated with caregivers can be classified into modifiable and non-modifiable factors. Modifiable factors such as nutritional knowledge, attitude and daily practices have been reported to be determinants of under-nourishment. The non-modifiable factors include the caregiver's level of education, socioeconomic status, parity, and literacy level (Vereecken & Maes, 2010:44-51; Oyekale & Oyekale, 2009:118; Turyashemererwa, et al., 2009:983; Haidar et al., 2005:625-630).

Vereecken et al. (2010:44-51) assessed the relationship between children's dietary intake and their mothers' nutritional attitudes such as healthy food, price, taste, convenience, weight control, prevention of disease, general healthiness, and reading of food labels in Belgium subjects. Their findings showed a positive association between children's dietary score and the mothers' nutritional attitudes. Turyashemererwa et al. (2009:983) assessed the association between under-nourishment and child feeding practices in the Kabarole District, Western Uganda. They found that two-thirds of mothers of children aged 6-59

months introduced complementary feeding before the age of 6 months. Haidar et al. (2005:625-630) reported in selected rural areas of Ethiopia, under-nourishment in children was associated with feeding practices such as weaning age and feeding frequency.

### **1.2.5. Reality of under-nutrition in children aged 6 to 24 months**

As mentioned, good nutrition is crucial for the normal development of children (Rivera et al., 2003:4010-4020; Singh, 2004:59). Infants' and young children's dependency on others is absolute – from the moment of birth up to about the age of 2-3 years all of their basic needs (food, water, warmth and rest) as well as psychological needs (safety, security, and sense of belonging) are in the hands of the mother or other adults. In the context of this study, 'other adults' mainly referred to caretakers. A caregiver in this study was identified as the person responsible for taking care of the overall well-being of a child or children, usually the mother). A caregiver could be a parent mother or father or both), a nanny, grandmother ('granny') or other family member or friend taking care of the child. According to Korevaar (2009:21), in some cases the caregiver is an older child in a child-headed family. An example of older children being left as the caregiver of younger ones is found in the study conducted by Mthobeni and Peu (2013:2) in Hammanskraal, South Africa. These authors found in many households adolescents were left orphaned due to the loss of both parents to HIV- and AIDS-related diseases; in such cases, the older child or children would become the caregiver of the younger ones.

Childhood under-nourishment can be addressed through activities such as supplementation interventions (Grantham-Macgregor, Walker, Chang & Powell, 1997:247-253), food fortification interventions (Faber, Kvalsvig, Lombard & Spinnler-Benade, 2005:623-649), educational interventions (Penny et al., 2005:1863-1872) and behavioural interventions (Engle, Bentley & Pelto 2000:29). The South African Government developed an Infant Feeding Policy (NDoH, 2007:1-44), the National Integrated Nutrition Programme, which is a comprehensive strategy that includes non-specific child feeding schemes and disease-specific nutrition support. In addition, the South African Government in

collaboration with the Development Bank of SA developed nutrition education promotion and advocacy (Developmental Bank of SA, 2008:22-28) and a Roadmap for Nutrition 2013-2017 (Department of Health [DoH], 2013) to scale up the interventions to improve child nutrition in South Africa. These interventions focused specifically on addressing childhood under-nourishment by directing it to the caregivers as they are the ones responsible for children's nutrition. All mothers receive a Road to Health Booklet when discharged after delivery. The booklet includes feeding guidelines for infants from 6- to 24-months-old.

Unfortunately, despite the availability and accessibility of these strategies and guidelines, too many under-nourished young children are still being admitted to hospital. The context of this study was a township consisting of formal and informal settlements where numerous households were run by unemployed mothers, older siblings or children. In general, it is common knowledge in the district that the residents are impoverished; most of them have a low educational status and are unemployed. Maforah (1994:87) states poverty often results in an increase in preventable diseases such as under-nourishment.

According to the researchers' observations, activities regarding childhood nutrition in the hospital include provision of nutrition for the under-nourished children and childhood nutrition education for the caregiver on admission and throughout the child's hospitalisation. On discharge, the child is placed on followed-up according to an outpatient programme with provision of nutrition until the weight is in line with the child's height. In spite of this effort, the researcher realised there was still an increase in the number of admissions of under-nourished children to the hospital suggesting that there was an urgent need for strategies to be developed and implemented to enhance the nutritional status of the young children in the township.

Preventative strategies which target caregivers have been shown to work elsewhere in the world (Belgium and Bangladesh) but not in South Africa. (Vereecken et al., 2010:44-51; Saha, Frongillo, Alam, Arifeen, Persson & Rasmussen, 2008:1383-90). Saha et al. (2008:1383-90) indicate that instilling

good child or infant feeding practices among caregivers as recommended by the WHO (1999) and UNICEF (2007:1) was associated with improvements in child height and weight in Bangladesh while the findings of Vereecken et al. (2010:44-51) show that caregivers who have a positive attitude towards good nutrition were associated with better nutritional outcomes in children.

At the specific hospital, the caregivers (mainly mothers) who accompany young children who are admitted are viewed as representative of the caregivers in the townships. The assumption was therefore made that caregivers in the township face similar challenges with regard to the nutrition of young children in their care. The study's aim was to develop strategies for caregivers who are admitted to this specific hospital and also residing in the area within the context of the study on how children aged 6 to 24 months could be fed with nutritional food in spite of the lack of financial resources. It was decided that by involving caregivers who experienced the problem on a daily basis, their input would assure a relevant and suitable solution would be found for the particular context. This decision was based on the guidelines provided in the Road to Health Booklet. It was assumed that caregivers would find it easier to learn and understand if a familiar tool such as this booklet, which it was assumed they all had, was used as the basis for developing strategies which would promote good feeding practices for young children among the caretakers in this context.

### **1.3. PROBLEM STATEMENT**

Childhood under-nourishment is a common occurrence in South Africa (Kimani-Murage et al., 2010:6). In its National Integrated Nutrition Programme (NINP), *Combating Undernourishment in South Africa: Input Paper for Health Road Map 2008*, the Development Bank of SA (2008:8) states the national prevalence of underweight and stunting was 9.3% and 18% respectively. Marino et al. (2006:994) report the prevalence of under-nourishment in hospitalised paediatric children in a South African hospital was 34%. In their study, *'Childhood death auditing to improve paediatric care'*, Krug et al. (2006:1470) found that under-nourishment accounted for 69% of hospital

deaths in children under the age of five years in several South African hospitals. The Medical Research Council of SA (MRC-SA) Technical Report South African National Burden of Disease Study 2000, Estimates of Provincial Mortality (2012:55) states under-nourishment is one of the most common causes of death in children in South Africa.

The researcher observed an increase in the admissions of under-nourished children aged between 6 to 24 months to a particular hospital in Gauteng. The hospital records for the period 2009 – 2013 showed a total of 56 children residing in the study context area had been admitted with under-nourishment or under-nourishment coupled with another disease. (The data from the records was made accessible to the researcher after approval had been obtained from the Ethics Committee of the Faculty of Health Sciences, University of Pretoria and the Ethics Committee and Management of the hospital to conduct the study in this hospital. See Annexure E).

In response to the high prevalence of under-nourishment among children, the South African Government included nutrition education for health professionals as one of the preventative strategies for under-nourishment. As mentioned before, details of the nutrition education guidelines are distinctly outlined in the South African Nutrition Policy Report (2000:n.p.), the Infant and Young Child Feeding Policy (NDoH, 2007:1-44), and the Roadmap for Nutrition in South Africa 2013-2017 (NDoH, 2013:1-50).

Despite the concerted efforts made by the South African Government and other stakeholders to curb under-nourishment in the country, the South African National Health and Nutrition (SANHANES) report of 2013 (SANHANES 2013:1-361) indicates that under-nourishment is still a major concern among South African children with the prevalence of stunting, underweight and wasting being 15%, 5% and 2.9% respectively. Notably, the prevalence was the highest among 0 to 3 year olds, children in rural areas, and among those in urban informal settlements. This suggests that although information and guidelines are indeed available and accessible, caregivers simply do not apply it.

Considering that literature reveals the relationship between childhood under-nourishment and caregivers' knowledge of proper nutritional regimens, their attitude towards it, the reasons why it is not practiced, caregivers' lack of nutrition education as well as a poor educational level among the children's caregivers have been investigated by many researchers over the past decade (Vereecken & Maes, 2010:44-51; Oyekale & Oyekale, 2009:118; Turyashemererwa et al., 2009:983; Haidar et al., 2005:625-630). The obvious question arising is why under-nourishment in young children remains such a critical problem in South Africa if so much effort is made by government and other institutions to eradicate or at least control it.

In this regard, Kruger and Gericke (2003:217-223) are of the opinion that some cultural beliefs or practices in the preparation of food and nutrition transition may be one of the reasons behind poor feeding practices. Moreover, some modifiable factors integral to the caregivers' characteristics are known, and intervention programmes addressing these factors have been initiated that could be helpful. But, despite such efforts under-nourishment remains a contributing primary and underlying cause of child mortality in South Africa (Vereecken & Maes, 2010:44-51; Oyekale & Oyekale, 2009:118; Turyashemererwa et al., 2009:983; Haidar et al., 2005:625-630). This echoes the following statement made by Dearden, Quan, Do, Marsh, Schroeder, Pachón and Lang (2002:34-43) early in the 21st century: "The care giving behaviors that contribute to good nutritional status are well understood; but it is not clear why some caregivers perform these behaviors while others do not." Studies on nutritional knowledge, nutritional education comprehension, and perceived obstacles for provision of good child nutrition could provide valuable information to understand under-nourishment in children, but the purpose of this particular study was not to describe the exact cause of the problem (under-nourishment), but to seek a solution to the problem by assessing caregivers' input and actively engaging them in decision making about developing strategies to promote good nutrition for young children in this context. The Road to Health Booklet which contains feeding guidelines and is supposedly familiar to caregivers was used to guide this inquiry.



The question which needed to be addressed was how feeding guidelines for the age group 6 to 24 months could be implemented in the particular context of the specific township to minimise under-nutrition among children in this age group.

#### **1.4. SIGNIFICANCE OF THE STUDY**

It was envisaged that the findings of the study would contribute towards the improvement of the nutritional status of children in the study context. A further belief was that if caregivers were to be engaged as co-contributors to the strategies, they would possibly be more likely to buy-in and implement the guidelines which they had contributed to formulate. The developed strategies would be made available to the hospital to implement methods to avert re-admission of the under-nourished children. Additionally, it was the researcher's belief that the strategies would assist other caregivers in the context to address and prevent under-nourishment in a manner suitable to their unique circumstances since their individual contributions and experiences would be incorporated into the development of appropriate strategies.

#### **1.5. RESEARCH QUESTION**

The research question which guided this study was:

*Childhood under-nourishment: Moving from challenges to strategies. What are the caregivers from the township in Gauteng saying?*

#### **1.6. AIM AND OBJECTIVES**

The aim of the study was to develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months in a township in Gauteng. In order to achieve the aim and answer the research question, this study was done in two phases each with its own objectives as set out next.

## PHASE 1:

### Description of caregivers' suggestion regarding nourishment of children aged 6 to 24 months

This phase had two objectives:

- Objective 1:** To explore and describe caregivers' current feeding practices of children aged 6 to 24 months.
- Objective 2:** To explore and describe caregivers' suggestions on how they could nourish the children aged 6 to 24 months.

## PHASE 2:

### Formulation and refinement of strategies to improve caregivers' practices regarding nourishment of children aged 6 to 24 months

- Objective 3:** To formulate strategies for caregivers on feeding practices of children aged 6 to 24 months.
- Objective 4:** To refine strategies for caregivers with regard to the nutrition of children aged 6 to 24 months in a township in Gauteng.

## 1.7. CONCEPT CLARIFICATIONS

In this study the following concepts are applicable.

**Caregiver:** A 'caregiver' is considered as any person who is responsible for taking care of and providing in the needs of another human being (*Concise Oxford English dictionary*, 2006:213). In this study the concept 'caregiver' refers to a home-based parent which includes both mother and father, a family member, grandmothers ('grannies'), nannies, guardians and any other dedicated person responsible for the care, including nutrition, of the children in this context (including an older child in a child-headed family (Korevaar, 2009:19) or a friend taking care of one's child or children between 6 – 24 months old. This caretaking specifically concerns how the caretaker approaches and

takes care of the child's or children's nutrition. Caregivers in this study referred to mothers as they were the ones that were interviewed.

**Childhood:** The concept of 'childhood' refers to the human developmental period which starts from birth until the stage when puberty is reached (Anderson, Anderson & Glanze, 1994:314). For the purpose of this study 'childhood' refers only to children in the age group 6 to 24 months.

**Children:** 'Children' can be any girl person or boy person from birth till puberty stage (Anderson et al., 1994:313). In this study the concept 'children' means a male or female child from the age of 6 to 24 months.

**Feeding practices:** Habits that caregivers do/follow in terms of menu frequency and feeding style when feeding their children.

**Healthcare professional:** A 'healthcare professional' is an individual who has acquired knowledge and skills in diagnosis or treatment of illnesses. The healthcare professional has to provide preventative, curative and rehabilitation healthcare services to families and the community (WHO, 2010:1). In this study 'healthcare professional' refers to any practitioner who has either registered with South African Nursing Council (SANC) as a professional nurse or Healthcare Practitioners' Council of South Africa (HPCSA) for example, physiotherapist, dietician, occupational therapist or medical doctor registered or social worker who worked in the paediatric ward at the time of admission.

**Nutrition:** 'Nutrition' is explained as the provision of food materials necessary for life and growth (mental and physical) in order to promote immunity and reduce morbidity (National Nutrition Strategy, 2011-2016:n.p). In this context the concept 'nutrition' includes proteins, vitamins, carbohydrates, minerals and oils (National Nutrition Strategy, 2011-2016:n.p.).

**Under-nourishment:** The concept 'under-nourishment' is defined as inadequate or excessive intake of food, which includes both macronutrients (carbohydrates, proteins and lipids) and micronutrients (vitamins and minerals). Under-nourishment is further divided into acute and chronic forms (de Onis et al., 2004:1;Kar et al., 2008:2;National Nutrition Strategy, 2011-2016:n.p.).

'Under-nourishment in the current study refers to inadequate intake of both macronutrients and micronutrients.

**Strategy:** Stevenson and Waite (2011:1425) define a strategy as “a plan designed to meet a certain long term aim”. For the purpose of this study, the concept 'strategy' implies coming up with a plan – in collaboration with the caregivers – on how to make caregivers more aware of which food children between the ages 6 and 24 months need to prevent them being under-nourished.

**Nutrition strategy:** 'Nutrition strategy' is an action plan aimed at addressing nutritional related issues with the aim of correcting or overcoming nutritional related issues. In this study the concept 'nutrition strategy' refers to a plan aimed at involving caregivers to identify the obstacles they encounter which prevents them from giving the children in their care nutritious food. Secondly, the concept implies preventative methods/ways need to be developed which would assist them to feed the children in their care nutritious food.

## **1.8. PHILOSOPHICAL ASSUMPTIONS**

Philosophical assumptions refer to the ontological, epistemological and methodological assumptions underlying a research study. Polit and Beck (2008:748) define an assumption as a “principle that is accepted as being true based on logic or reason, without proof”.

### **1.8.1 Ontological assumptions**

The nature of reality in the ontological assumption is that reality is multiple, subjective and is mentally constructed by individuals (Polit & Beck, 2008:14). In the context of this study, children and caregivers were viewed as the multiple subjective entities within a subjective and multidimensional reality. The reality which was sought after in this study related to the fact that childhood nutrition is not essentially about the nutrients that children should take in on daily basis; however, the reality in this study had to do with the subjective characteristics associated with the caregivers responsible for the children. The researcher was aware that the caregivers were supposedly expected to know how best to

nourish the children under their care, but the reality of the situation was that they did not do it (Dearden et al., 2002:34-43). Instead, the caregivers were contributing (whether consciously or unconsciously) to the under-nourishment of the children – but they were also the ones who could find a solution to it. It was therefore deemed necessary to understand their situation and obtain their perspective in order to contribute to childhood nutrition. The researcher therefore believed it was essential to involve the caregivers to make a difference in the implementation of strategies.

### **1.8.2 Epistemological assumptions**

The relation of the inquirer with those who are being studied forms the basis of the epistemological assumptions (Polit & Beck, 2008:14). Interaction is important to find solutions for subjective human-related problems such as the under-nourishment of children. The researcher interacted with caregivers to obtain their inputs. The assumption was that although they were responsible for the under-nourishment of the children, they were also in the best position to find solutions to overcome the problem.

Knowledge creation is a collaborative, inductive process (Polit & Beck 2008:14). The strategies needed to be distributed to healthcare professionals to refine them to confirm or disconfirm the researcher's attempt to explain the reality based on their knowledge and skills of the topic. To learn about people is to interact with them. Mosley, Bobadilla, and Jamison (1993:623-649) state providing information, knowledge and skills with social support is critical for the promotion of health and disease prevention. Therefore, interaction between the researcher and the participants during the research process is expected to contribute immensely to the findings of a study. According to Sternin and Choo (2000:14-15), attitudes are influenced by the positive and negative consequences that participants (in the case of this study the caregivers) think may result from performing a behaviour. In this regard, the positive deviant behaviour theory suggests that people will have positive and favourable attitudes toward a particular behaviour if the outcome of performing the behaviour is considered to lead to the expected outcome (Sternin & Choo,

2000:14-15). Therefore, interaction between the researcher and the participants during the course of this study was viewed as critical because it would contribute significantly to the findings of the study.

### **1.8.3 Methodological assumptions**

The methodological assumption provides an answer to the question, “How is evidence best obtained?” (Polit & Beck 2008:14). The researcher used a qualitative approach as it was deemed the most appropriate to gain a better understanding of the participants’ human characteristics. Since they had first-hand experience and were considered to be responsible for the children’s nutrition in the study context, focus group discussions were held with caregivers to gain an in-depth understanding and deeper insight through their narratives. Their inputs were used by the researcher to describe strategies which were then distributed to healthcare professionals for refinement.

## **1.9. DELINEATION**

The study was done in a particular hospital in a township east of Pretoria. The results may be transferrable, although it was not the purpose of the study. The study was contextual in nature. The purpose was not to determine the content that any individual child or group of children should be fed as that was the responsibility of dieticians. The assumption was that the guidelines in the Road to Health Booklet have been developed by experts and are adequate to serve as a basis for good nutrition for the particular age group. The purpose of the study was to find workable and acceptable ways for the caregivers to improve nourishment of this group using these guidelines.

## **1.10. QUALITATIVE RESEARCH DESIGN**

The qualitative research design used is discussed in terms of the type of design and the methodology.

### **1.10.1 Type of qualitative research approach**

The study design was qualitative, exploratory, descriptive and contextually done in two phases. Phase 1 comprised of developing strategies from the

results of focus groups with caregivers and then having it refined by healthcare professionals.

Qualitative research, according to Polit and Beck (2008:763), is “the investigation of a phenomenon, typically in a holistic fashion, through the collection of rich narrative materials using a flexible approach”. An explorative descriptive design is defined as a study done to discover general information about a phenomenon and factors that influence that phenomenon in order to understand that phenomenon (Offredy & Vickers, 2010:48). In this study the researcher explored caregivers’ suggestions on how they thought they could improve the nutritional status of the children in the particular context because they were the only ones able to explain what resources were possible for them not only when the study was conducted, but also in their day-to-day feeding of the young children. Data aimed at the formulation of strategies that might improve healthcare practices was collected until data saturation was reached.

## **1.11. METHODOLOGY**

The methodology is discussed in terms of the context of the study and the data collection.

### **1.11.1 Context of the study**

The hospital in which the study was conducted is located in Pretoria in a particular township. It is approximately 15 kilometres from the central business district (CBD). The township consists of formal and informal settlement areas. Huchzermeyer (2003:592) defines a township as a legal, formal area, with permanent structured houses made of bricks while an informal settlement (also known as a squatter camp) is an unplanned, illegal area, with temporary structures in the form of a shack (Huchzermeyer, 2003:592).

The dominant area of the township is formed by an urban section. Reconstruction and Development Programme (RDP) houses also form part of this township and are located on the eastern side of the township where the informal settlement starts.

The township was one of the tidy areas prior to the development of informal settlements. It is currently under the local authority and administration of the City of Tshwane Metropolitan Municipality which supplies it with piped water and provides waste removal and electricity services. Although electricity supply is available to the majority of the houses, some do not have access to electricity and paraffin and gas are used for light, cooking and heating water. In some instances and in the spirit of humanity (“ubuntu”), an informal agreement exists between neighbours in that a household obtains electricity illegally from its neighbours (known as “Izinyoka” in local nomenclature).

The township has primary and secondary schools as well as adult school facilities including two libraries which cater for both the eastern and western parts of the township. Not any of the schools require school fees. At primary level during the main break time at 11h00 children are provided with food carbohydrate-stamp and protein-meat or soya. Day care centres are also available. The children are provided with meals three times a day consisting of a form of starch (cereal), starch (porridge), proteins (meat soup) and vegetables (pumpkin or carrots) and in between those less than two years of age receive bottle feeds. Some children stay till 18h00 as the caregivers might either be at school, work or en-route home.

The healthcare facilities available comprise four clinics situated in a  $\pm$  five kilometres radius from each household, one district hospital, and a regional hospital in the township. Healthcare professionals report that caregivers are reluctant to listen to health talks because they have no time or are in a hurry to meet other commitments. Hence, healthcare professionals provide talks or advice on health matters in the consultation room if the patient requests it. There is an abundance of general practitioner surgeries spread over the township.



Various means of public transport like buses, legal taxis and non-registered taxis are available. People also use their own private cars to commute in, around and outside of the township.

Communication is available in the form of landline telephones, cellular phones, internet cafés, and two postal offices. Close to the schools and hospitals people have access to a free internet service provided by the government which is available to individuals for 30 minutes per person daily.

Although some subsistence exists on or around riverbank areas (Food Security by South African Agriculture Forestry and Fisheries [NDoAFF], 2011:15) it is mostly an activity enjoyed by the senior citizens. The yards are reported to be too small for laying out gardens, but some households manage small vegetable gardens or patches in the backyard.

Some major brand supermarkets are available. There are also informal shopping areas (known as 'spazas' in local nomenclature) where one can buy groceries and other household products. Some of the 'spaza' shops issue food on credit meaning the customer can pay at the end of each month.

Various ethnic groups reside in the township including Pedi, Batswana, Xhosa, Ndebele, Tsonga and Zulu while recently people from Mozambique, Zimbabwe and Somalia have taken up residence in the township.

The township from which the young children admitted to the particular hospital patients came is quite close to Pretoria. The caregivers came from poor socioeconomic backgrounds and some were illiterate and unemployed. Some of the caregivers were younger than 18 and included adolescents (teenagers) from child-headed families. Of the caregivers, some reported they lived in 'the township in their parents' house which comprised of four rooms while others said they stayed in a shack room at the backyard of their parents' home.

In view of the above detailed information provided on the setting of this study, the assumption was made that many challenges existed in the living conditions

and environments of young patients who were admitted to the hospital which influenced their nutritional status. Potential contributory factors to the under-nourishment of the children could be the lack of supervision concerning nutrition, caregivers' inability to comprehend nutritional knowledge probably due to illiteracy, indifference on the part of the caregivers, and socioeconomic challenges.

The study was carried out in the paediatric ward in a particular hospital in a specific township in Gauteng. The researcher observed the admission of two to three children monthly who showed symptoms and signs of under-nourishment or under-nourishment coupled with another diagnosis. After discharge, the children apparently returned to the same circumstances where the problem initially occurred because the researcher noticed some of these children were readmitted with the same diagnosis.

The study was contextual as it took place in a particular natural setting; in this case the paediatric ward of a particular public hospital in a township in Gauteng.

### **1.11.2 PHASE 1: Description of caregivers' suggestions regarding nourishment of children aged 6 to 24 months**

#### ***1.11.2.1. Objectives 1 and 2***

The following objectives followed the same methodological process.

**Objective 1:** To explore and describe caregivers' current feeding practices of children aged 6 to 24 months.

**Objective 2:** To explore and describe caregivers' suggestions on how they could nourish the children aged 6 to 24 months.

### **1.11.2.2. Population and sampling**

Population is defined as “a group of people/elements that are eligible to meet certain criteria or requirements required by a study” (Polit & Beck, 2008:338). (Refer for a detailed discussion in chapter 3).

A purposive sampling procedure was used to select study participants as suggested by Polit and Beck (2008:356). In purposive sampling the participants are selected to address a particular research objective. Since the first two objectives were to explore and describe current caregivers’ feeding practices and to explore and describe caregivers’ suggestions on how they could nourish their children, the caregivers were the most appropriate participants as they had real life experiences and were responsible for the nutritional status of the children. (Refer to chapter 3)

In the first phase the *inclusion criteria* for caregivers to be selected as participants from whom to gain information which related to the *first two objectives* was discussed in chapter 3.

Next, *the exclusion criteria* for the *first two objectives* of the study included the following aspects which were outlined in chapter 3.

### **1.11.2.3. Data collection**

The researcher used a semi-structured interview for the focus group discussions. (Refer to Annexure B). A focus group discussion is a qualitative research data collection method where people of similar experiences or backgrounds are gathered in order to discuss a specific topic of interest (Hollander, 2004:606-608). The researcher chose this method as it allowed her to obtain in-depth information or elicit specific data from the participants. ( Refer chapter 3).

A pilot testing –a mini sample of a study used by researchers to test methods that will be used in a larger study (Polit & Beck, 2012:195) –was done. (This is discussed in detail in Chapter 3).

The pilot testing was carried out before the main study with the aim to detect and rectify any problems with the data collection method or tool before commencing with the main study (Polit & Beck, 2012:729). Feedback of the pilot study was given to the participants and the tool was adjusted where it was found not appropriate for the current study’s purpose. Neither the findings of the discussion from the pilot test nor the participant was included in the main study.

Two focus group discussions were held on to collect data for the purpose of the mentioned objectives. The advantages of focus group discussions include that responses from participants are open or broad and not limited to questions asked or space allocated for responses. Focus group discussions are also not limited to the ideas of the researcher but provide an opportunity for different and varied ideas, views and arguments of participants on a particular topic to emerge in a private and neutral setting (Hollander, 2004:606-608). In addition, this method of data collection is less time-consuming than conducting individual interviews with participants if the sample size is large (Hollander, 2004:606-608). According to de Vos, Strydom, Fouché and Delport (2011:360), conducting a focus group interview is a solid and thorough way to obtain a deeper understanding of how people feel and/or think about an issue (in this case, the current feeding practices of children aged 6 to 24 and how it could be bettered to ensure that these young children receive well-balanced nutrition).

Botma, Greeff, Mulaudzi and Wright (2010:211) define a focus group as consisting of 6 – 8 individuals who voluntarily agree to be part of a group of experts or other participants who have experience on the topic being investigated in a research study. Focus groups discussions include participants who have all been exposed to the same environment; therefore, the various perceptions and opinions expressed may trigger others in the group to share their personal experiences and perspectives or elaborate on what others have

said. This enables the researcher to gather large amounts of rich information which may lead to a better understanding of the topic (de Vos et al., 2011:360). Burns and Grove (2011:317) advise that a small sample size can lead to inadequate depth or richness which may reduce the quality of the findings.

In the current study the two independent focus groups comprising of 3 and 4 caregiver participants respectively discussed and made suggestions on how children aged 6 to 24 months could be nourished. The focus group discussions were held within the paediatric ward due to logistical problems. (Refer to Chapter 3 for further details). The researcher facilitated at both group discussions. She used neutral and nondirective probing questions, reflection, clarification, listening skills and paraphrasing to extract additional information, elicit more details or to get clarity from participants (Polit & Beck, 2008:429). She took field notes of participants' nonverbal responses, for example, their body language (when a participant nodded her head to indicate that she agreed with what another was saying). The duration of both group discussions was approximately 90 minutes each to attain data saturation (Discussed in detail in Chapter 3). A tape-recorder was used to record the audio data. All the caregiver participants in both groups gave consent for a tape-recorder to be used.

The Road to Health Booklet was regarded as an integral part of the solution sought. The principles thereof were explained to the participants using the booklets that were available from the NDoH and which are also given to mothers at discharge after delivery. Only the researcher had the booklet that was given to her temporarily specifically for the group discussions by the neonatal unit manager as the caregivers had left theirs at home. (It was not necessary for them to carry it with them because the information contained in it was used when preparing the child's nutrition at home.) This was followed by a group discussion to determine which questions were based on ways that the information in the Road to Health Booklet could be implemented in practice. Because of the nature of the study, the study was piloted as the questions were linked to the document provided by the NDoH. (Refer to Annexure B).

### **1.11.3. Data organisation, analysis and interpretation**

Field notes in the form of observations of verbal and non-verbal communication from the focus group discussion with caregivers, analytical, and reflective notes were included. The interviews from the focus group discussions were captured on a tape-recorder and transcribed, translated and coded. The translation from Northern Sotho to English was done by the researcher and controlled by a recognised second translator. (Refer to Annexure H).

## **1.12. DATA ANALYSIS**

Data analysis means the researcher has to make sense of the information collected. In other words, as stated by Polit and Beck (2008:747), the data analysis is a process of organising and synthesising data so as to answer the research question. In this phase data analysis was done concurrently with the data collection.

The data analysis process started during the data collection to obtain relevant and rich data. The researcher wanted to get the “whole sense” of the raw data and therefore followed the steps as advised by Polit and Beck (2008:517). The researcher transcribed the audio-taped data in order to organise it. She listened to the recorded tapes repeatedly and read and reread the field notes to get a “whole sense” of the raw data (Polit & Beck, 2008:517), to code the transcribed data and identify themes and subthemes through the compilation of descriptive phrases/comments given by participants. Tesch’s method (1990) of data analysis (cited by Botma et al. 2010:223) was used. Similar themes were clustered and presented as matrices. The themes were described, coded and interpreted and verified with a literature control. (Refer to Chapter 4).

### **1.12.1 PHASE 2: Formulation and refinement of strategies to improve caregivers’ practices regarding nourishment of children aged 6 to 24 months**

#### ***1.12.1.2. Objectives 3 and 4***

The following objectives followed the same methodological process.

**Objective 3:** For objective 3, inductive and deductive reasoning was used based on the results of the first phase to formulate the strategies.

**Objective 4:** The fourth objective was to involve healthcare professionals based on their knowledge regarding nutrition of children (nurses, a dietician, physiotherapists, the social worker, an occupational therapist, and two paediatricians) in refining the strategies for caregivers with regard to nutrition of children aged 6 to 24 months (also refer to Chapters 3 and 4).

### **1.12.2. Population and sampling**

The healthcare professionals' focus group was in the form of a multidisciplinary team comprising of six nurses (provides basic nursing care); a dietician (addresses diet related issues); a speech therapist (assist the child to establish speech related milestone and assess the need for hearing device where necessary), and a paediatrician working in the paediatric ward in this context. The healthcare professionals were purposively selected as they had educational background on available guidelines and the impact of under-nourishment on humans including children in this context. Although the healthcare professionals did not experience the circumstances that caregivers went through (namely, what it was like to be without money to buy food for their children), the researcher acknowledged that they did have the necessary knowledge and were in a better position to guide caregivers in ensuring the nutritional status of the children was not compromised without focusing on the logistic of money shortage.

At the time of study 24 professional nurses were employed in the paediatric ward. It was not possible for all to engage all 24 together in a focus group as this would leave the paediatric ward unattended. Also, those who were off duty at the time some were not willing to attend the focus group discussion in their

time off. The healthcare professionals from the other disciplines involved in the paediatric ward included a doctor, one speech therapist and one dietician.

The researcher issued the brief summary of the study with invitation letter to the unit manager of paediatric ward. Healthcare professionals were given invitation letters by the unit manager highlighting the aims, objective, and what was expected of them. (See Annexure C). The researcher conducted a focus group discussion with 10 eligible participants who agreed to voluntarily participate. (Refer chapter 3 for detailed discussion).

#### **1.12.4. Data collection**

A focus group discussion was held with 10 healthcare professionals (a paediatrician, six nurses, a speech therapist and a dietician) to develop the preliminary strategies that had been formulated as part of Objective 1. Although there were other options available for data collection such as using a structured questionnaire, the decision was made to use a focus group to gain the benefit of group dynamics to achieve in-depth answers for the questions (Botma et al., 2010:210). (Refer to Chapter 3).

#### **1.12.5 Data analysis and interpretation**

As mentioned, guiding attributes for guidelines used by Peu (2008:198) were used as the basis for the refinement of strategies by healthcare professionals working in a particular paediatric ward. Each strategy was rated according to the criteria. Inputs were included in the refinement of the strategies. The researcher linked her interpretation/arguments with scholarly articles. (Refer to Chapter 4 for a detailed discussion).

### **1.13. TRUSTWORTHINESS**

Lincoln and Guba's model (1985) (cited by Polit & Beck, 2008:539-543) regarding transferability, dependability, confirmability and credibility served as the criterion to ensure trustworthiness in this qualitative study. (Detailed discussion in chapter 3).



### **1.13.1. Credibility**

Credibility means confidence in the truth of data; the objective of credibility is to ensure that the topic was accurately identified and described (Polit & Beck, 2008:538-539) and the researcher's interpretation thereof is unbiased. (Refer to Chapter 3).

### **1.13.2. Transferability**

The extent to which data can be applied to other settings or groups is known as transferability (Polit & Beck, 2008:539). Transferability implies generalisability; in other words, transferability reflects the extent to which the findings from the data can be transferred to the other settings or groups (Polit & Beck, 2012:585). Purposive sampling of participants was done to ensure a true reflection of the phenomenon under study and a thick description of the process and the data obtained was made available by the researcher to make transferability possible. However, as mentioned, the generalisability of the study was not the main aim—the study was done in a particular context and the findings may be transferable to other similar settings (see heading 10 DELINEATION). (Refer to detailed discussion in Chapter 3).

### **1.13.3. Dependability**

Dependability refers to the consistency of the data over time (Polit & Beck, 2012:585). (Refer to Chapter 3).

### **1.13.4. Confirmability**

Confirmability refers to the objectivity of data (Polit & Beck, 2008:539). Polit and Beck (2008:750) state confirmability is a criterion for integrity in qualitative inquiry; it refers to the objectivity or neutrality of the data and the interpretations thereof. (Refer to Chapter 3).

## **1.14. Ethical considerations**

This researcher submitted the proposed study to the Research Ethics Committee of the University of Pretoria, the Gauteng Provincial Department of

Health (GDoH), district health offices, and the management of the particular hospital and received approval from all four to conduct the study.

In a qualitative study, researchers collect data from human beings; therefore, the researcher had to take into consideration the ethical principles of research. (Refer to detailed discussion in Chapter 3).

#### **1.14.1 Beneficence**

Polit and Beck (2008:170) state researchers are obligated to minimise harm and maximise benefits to participants. They have to assure all participants that any information disclosed by the latter would not in any way be used against them. (Refer to Chapter 3).

#### **1.14.2 Dignity**

The Belmont Report stresses the importance of allowing participants to participate voluntarily in a study with the right to disclose or not to disclose any information, or to withdraw from a study at any time should they wish to do so (Polit & Beck, 2008:171). (Refer chapter 3 for detailed discussion).

#### **1.14.3. Justice**

Justice refers to participants' fair treatment and their right to privacy as human beings (Brink, et al. 2006:33; Polit & Beck, 2008:173-174). (Refer chapter 3)..

### **1.15. CONCLUSION**

This chapter presented an overview of the study. The background described the meaning, diagnosis, consequences, factors leading to and the reality of under-nourishment in children between 6 and 24 months in the setting. The research question and objectives were set. A summary of the problem statement and the significance of this study as well as an outline of the two phases of which the methodology comprised of were presented with special reference made to the Road to Health Booklet which was regarded as an integral part of the solution sought. The concepts used in this study were clarified and the philosophical assumptions underlying the study explained. Also addressed were the measures of trustworthiness and the ethical principles which guided the study process.

In Chapter 2 the literature review is presented and discussed. The aspects paid attention to are the importance and benefits of nutrition, determinants of under-nourishment, the consequences and prevalence of under-nourishment and the management thereof by caregivers of children 6 to 24 months old.

## CHAPTER 2: LITERATURE REVIEW

### 2.1. INTRODUCTION

The previous chapter gave an overview of the study. This chapter will address what nourishment is, measurements of nourishment, its importance, under-nourishment, diagnosis, consequences, prevalence and management among children. The WHO (2014: 5) states “a quarter of all children under the age of five years were estimated to be stunted” in 2012. The organisation further states despite a decline from 1990 when the global results showed 40% young children had been stunted, “it is unacceptable that 162 million young children are still suffering” from chronic under- nutrition and it unequivocally states that preventable diseases are “the main causes of under-five deaths and appropriate actions need to be taken to address them” (Kar et al., 2008 n.p.).

### 2.2. MEANING OF NOURISHMENT

Nourishment is explained as “the provision of food materials necessary for life and growth and the term is sometimes used synonymously to nutrition” (Roadmap for Nutrition in South Africa, 2013-2017:7). The concept ‘food materials’ in the definition includes proteins, vitamins, carbohydrates, minerals and oils. In this definition the phrase “provision/supply of the nutrients” may mean either self-supply (intake) or supplied by another person (provision). In the context of the present study ‘nourishment’ refers to the provision of food by parents or caregivers to children between 6 and 24 months.

The nourishment status of an individual is measured by clinical assessment known as ‘anthropometry’ which includes body measurements like age, weight, height, sex, mid upper arm circumference and oedema (Roadmap for Nutrition in South Africa, 2013-2017:6; Cross et al., 1995:60;).

### 2.3. MEASUREMENTS OF NOURISHMENT

Anthropometry is a Greek word which means “to measure scientifically growth by comparing weight for height, weight for age, height for age, mid upper arm circumference and other human body parts like skin folds thickness which could be measured in two to three areas (arm, scapula, halfway point between the bottom rib and the iliac crest) under normal and abnormal circumstances” (Gibney, Margetts, Kearney & Arab, 2004:44-45). The mid upper arm circumference must be between 11.5 cm and 12.5 cm.

The Road to Health Booklet is a growth chart developed by the NDoH in South Africa, guides healthcare professionals on the expected weight in relation to age and height (Roadmap for Nutrition in South Africa, 2013-2017:6; Cross et al., 1995:60). This measuring is done using the international reference value or country-specific reference population called the ‘Z-score’ or ‘median value’(Han, Lawlor, Sue & 2010:2; Gitau 2009:13). If the weight of the child is *above* the Z-score (also known as the international reference value by more than two standard deviations), the child is considered to be *overweight* and if the weight is *below* the median line by more than two standard deviations, the child is diagnosed as being *underweight*. According to the Road to Health Booklet, children who are well-nourished maintain a weight that is appropriate to age and height.

Adequately nourished children have no clinical symptoms of nutrition-related illnesses like kwashiorkor, marasmus, marasmus-kwashiorkor, obesity, or anaemia. Nourished children are less likely to suffer from infectious disease like pulmonary tuberculosis, measles, pneumonia, and diarrhoea (Sphere Projects 2013:138-9 & Roadmap for Nutrition in South Africa, 2013-2017:8: Road to Health Booklet, n.d.:n.p.). The provision and maintenance of adequate nutrition is important as it is necessary for the well-being of children in terms of physical growth and normal physiological function.

## **2.4. IMPORTANCE OF NOURISHMENT**

Nourishment is needed for physical growth and normal physiological function. Normal physiological function includes, among others, physical activity, cognitive function, immune function, and sexual maturation (Al-Hazzaa, Al-Sobayel, Abahussain, Qahwaji, Alahmadi & Musaiger, 2013:1; Laus, Vales, Costa & Almeida, 2011:592; Gibson, Edgar, Neville, Gilchrist, McKinley, Patterson, Young & Woodside, 2012:1429).

### **2.4.1. Nourishment and physical growth**

Nourishment affects body composition and functionality (Lelijveld, Seal, Wells, Heyderman, Nyirenda & Kerac, 2015:A2). The positive association between nourishment and physical growth is a well-researched and well-known factor in the healthcare paediatric domain. Children under the age of 2 years are supposedly expected to have supplementation of micronutrient in powder form because they are in the fast growing phase. Increasing children's protein intake with protein-rich supplementation powder which contains much micronutrient elements such as iron, calcium and zinc has been shown to increase not only health but also body weight and to reduce the prevalence of stunting (Miller, Makrides, Gibson, McPhee, Stanford, Morris, Ryan & Collins, 2012:7). This confirms the findings of a study conducted in South Africa by Troesch, van Stuijvenberg, Smuts, Kruger, Biebinger, Hurrell, Baumgartner and Zimmermann (2011:241) which reflected an increase in the weight-for-age Z-scores. Mølgaard, Larnkjær, Mark and Michaelsen (2011:1865S-1869S) confirm the correlation of breast milk with bone growth at 9 months and later at 15 to 17 years. This suggests that nourishment is the principal requirement for growth and that within food there are essential nutrients that are important for growth.

### **2.4.2. Nourishment and physiological function**

Nourishment is important for normal physiologic function in living organisms. The physiological functions that have been associated with nourishment include physical activity, cognitive function, and immune function (Al-Hazzaa et al., 2013:1; Laus et al., 2011:592).

- *Nourishment and physical activity*

Food is needed to meet the body energy requirements. By using 5 years' retrospective nutritional data, Satyanarayana, Naidu and Rao (1979:1769) showed that children who had been under-nourished when they were younger had to use a significant higher rate of energy when performing moderate work than children who had been normally nourished.

A study done by Neyens, Halfens, Spreeuwenberg, Meijers, Luiking, Verlaan and Schols (2013:265) confirmed that under-nourished people are less active than well-nourished people. In a study done in Mozambique it was indicated that stunting and wasting in early childhood that was due to under-nutrition and could be associated with low physical performance found among the youth (Nhantumbo, Maia, DosSantos, Jani, Gudo, Katzmarzyk & AntónioPrist (2013:516). Increased physical performance seems to be the end result of the consumption of energy nutrients such as fruits and vegetables (Al-Hazzaa et al., 2013:1). O'Dea (2003:497-499) found that children who eat a healthy diet can run, hop, skip, have physical endurance, and are more energised. Another study done by Olney et al. (2006) (cited by Ramakrishnan, et al., 2011:2066-2075) on children aged 6 to 24 months revealed that children who received supplements (specifically iron) were more likely to walk earlier than those who did not. The above studies confirm that nutrition plays a vital role in children's physical activity.

- *Nourishment and cognitive function*

Under-nourishment during the main spurt of brain growth (6 to 24 months postnatal life) may result in failure to acquire certain skills (Kar et al., 2008:5-12; Gordon, 1997:168). This suggests that nourishment also plays an important role in brain development and function. This supports the results of the review study by Grantham McGregor et al. (1997:2235S) on nourishment and mental development which indicates that nourishment affected children's reasoning and perceptual-spatial functions as well as motor skills (Kar et al., 2008:5-12;

Grantham-McGregor et al.,1997:2235S).Studies were conducted within the 5-to15-year-old age group where learning, visual functioning, and comprehension were negatively affected by under-nourishment (O’Dea, 2003:497; Safer & Keenan, 2005:1).These two studies’ findings are supported by a recent study conducted by Laus et al. (2011:1) that reported an association between nourishment and cognitive development. During the literature search, it was found that research studies on the age group 6 to 24 months were limited.

- *Nourishment and immune function*

Various studies report on the interaction between nourishment and immune function. Keusch (2003:336S), Scrimshaw, Taylor and Gordon (2003:316S) and Ponton, Wilson, Sheena, Cotter, Raubenheimer and Simpson (2011:1-3)agree that this interaction is bi-directional – under-nourishment leads to increased susceptibility to infection while infection may cause deterioration in nutritional status. Ponton et al. (2011:1-3) state nutrition is critical for normal immunological defense against pathogens. In support, a study in humans has shown that fruit and vegetable intake increases antibody binding to bacterial upon pneumococcal vaccination (Gibson et al., 2012:1429).

It is a known fact that from the age of 6 months to about 24 months children are more likely to have diarrheal diseases. This is probably due to the fact that they explore their environment and can therefore eat more contaminated food. During this time it is crucial that they get adequate nutrition in order to boost their immunity because in this explorative phase they touch and taste or eat contaminated items (Dewey & Mayers, 2011:29-142; Nguyen & Sin, 2008:232).

The above discussion relating to the role of nourishment on physical growth and normal physiological function suggests that a healthy diet for children is a diet that will ensure normal physical growth and physiological functioning in young children. Providing a healthy diet is essential for young children between 6 and 24 months to attain a state of good health.



### **2.4.3. Components that entail a healthy diet for children**

The World Health Organization (WHO) and Road to Health Booklet advise that a healthy diet comprises food components that have carbohydrates (cereal, porridge, pasta, and bread); proteins (milk, fish, beans, Mopani worms, and yoghurt); vitamins (vegetables such as pumpkin, green peas, and carrots as well as fruits like bananas, apples, and oranges); fats (butter and oil), and minerals (iron, zinc and iodine) (WHO, 2013:308; Road to Health Booklet).

The WHO recently produced a document on nutrition guidelines for the first 1 000 days of life (WHO, 2013:1) (as discussed in chapter 1 Introduction). After 6 months children should receive complementary food that contains adequate nutrients. The complementary food should further be complemented by micronutrient supplements which are usually provided by multiple micronutrient powders and given between 6 to 23 months of age (WHO, 2013:1-4). In some cases in various countries, supplementations such as vitamin A, iron, zinc and iodine may be required (WHO, 2013:1-4).

The South African Government compiled and published the Road to Health Booklet which is given to all mothers post-delivery at discharge with their infants. In the booklet examples of food important for quality infant and child health are given. In line with the WHO's (2013:2-4) recommendations, the guidelines in the booklet advise the nourishment of children aged 0 to 6 months should be exclusive breastfeeding on demand or 3-hourly per day. Complementary food should be introduced at 6 months after birth to supplement breastfeeding. This complementary food may include mashed beans, egg yolk, minced meat, and Mopani worms. Mopani worms are large caterpillars found on Mopani trees in South Africa which are eaten as staple source of proteins in rural areas. For children aged 12 months to 5 years, the booklet supplies lists of food items that contain essential micronutrients. For example, foods rich in iron include liver and mangoes, dark green leafy vegetables and liver are rich in vitamin A. Vitamin C is present in citrus fruits and tomatoes. Since this is the rapid growing phase, the frequency of nourishment should be at least 5 times per day including at least three cups of milk per day. Children that are not provided with the diet recommended in the Road to Health Booklet will ultimately develop under-nourishment.

#### **2.4.4. Influencing factors/determinants of adequate nourishment**

Under-nourishment has multi factorial causes which are either modifiable, non-modifiable or in some instances may be related to man-made and natural disasters. The non-modifiable determinants are mainly socio-demographic factors whereas the modifiable factors range from the health status of the mother or the child (or both) to cultural feeding practices or beliefs.

##### ***2.4.4.1. Non-modifiable determinants of childhood under-nourishment***

Non-modifiable determinants of under-nourishment are those determinants or factors that cannot be easily and rapidly changed or cannot be changed at all. Most of these are socioeconomic factors, man-made and natural disasters.

- ***Socio-demographic determinants of childhood under-nourishment***

Socio-demographic factors include region and type of residence or place of birth and mother's or households' socioeconomic status.

- *Region and type of residence or place of birth*

There is extensive evidence showing a higher prevalence of childhood under-nutrition in rural areas compared to urban areas (Fotso, 2007:2; Smith, Ruel & Ndiaye, 2005:1286; Kikafunda, Walker, Collett, & Tumwine, 1998:4). This finding is reported to be common in several African countries (Madise, Matthews & Margetts, 1999:331). This high prevalence in rural areas is attributed to various factors of which some are discussed below. However, the most important factors seem to be extreme poor socioeconomic status, a higher prevalence of diseases (Alderman, 1990:23) and inadequate or inaccessible health services in rural areas.

A study in Brazil shows that the odds ratio of undernourishment is between 2.3 and 2.7 times higher in children living in impoverished and overcrowded households (Aerts, Drachler & Giugliani, 2004:1187). The place of birth is another critical factor as reported by Espo, Kulmala, Maleta, Cullinan, Salin and Ashorn (2002:1364). These authors report that in rural Malawi, children born at home were 1.7 times more likely to be under-nourished when compared with

children born in health facilities. The reason for this may be that mothers who give birth in health facilities are probably provided with child nutrition education.

- *Mother's or households' socioeconomic status*

Children born to teenagers are reported to be at a higher risk for under-nourishment (Linnemayr et al., 2008:252; Mamabolo et al., 2005:505; Aerts et al., 2004:1364). Among others, it may be due to teenagers' lack of experience in child care, not being employable, and lack of experience in ensuring food security.

Young children under the care of mothers or caregivers with no formal education, or only primary education at most, are reported to be at higher risk of developing under-nourishment (Oyekale & Oyekale, 2009:118; Aerts et al., 2004:1364; Delpeuch, Traissac, Martin-Prével, Massamba & Maire, 1999:39). Conversely, under-nourishment in children of uneducated mothers may be a consequence of the lack of knowledge caregivers have about young children's health, nutrition needs, and child care education.

The prospects for uneducated mothers to get employment are dismal; mothers (specifically single mothers) who do not work cannot ensure family food security as they cannot finance household food expenditure. Delpeuch et al. (1999:39) and Gitau (2009:56) concede that the likelihood of having an under-nourished child is higher in mothers who are unemployed or have poor salaried occupations. A mother's marital status has been shown to be one of the determinants of under-nourishment in children. Being a single parent increases the chances of under-nourishment (Gitau, 2009:56). An explanation for this may be that married mothers sometimes have partners that economically help in the upbringing of the children and thus the children have adequate food. Furthermore, children living in households with a low economic status are prone to be under-nourished children as observed by Kikafunda et al. (1998:4) and Mamabolo et al. (2005:505). As a result, these children do not have access to healthy or a variety of foods and therefore their daily diets are also unhealthy.

The number of children a woman has also seems to be a determinant of the nutritional status of the children (Gitau, 2009:56). This author's view is supported by several research studies which show that the odds of children being underweight and wasted are respectively 3 to 5 times more in households where there are more than three children than in those where less than three children live (Gitau, 2009:56; Nguyen & Sin, 2009:232). Mamabolo et al. (2005:505) found that in households in a rural area in South African area where more than four members reside, the under-nourishment rate was between 4 to 8 times higher than in households consisting of fewer members. The effect of household size on the young children's under-nourishment has also been observed in other countries (Linnemayr et al., 2008:252; Radhakrishna & Ravi 2004:671). The increase in the number of children means more mouths have to be fed; household expenditures increase because the children need to be fed and clothed and school fees paid. If the expenditure exceeds the income, household expenses – which include food expenses – are reduced.

- ***Man-made and natural disasters***

“Man-made disasters occur when there are continuous conflict and/or wars that prevent production of food at ploughing and harvesting levels” (Synthesis of Guiding Principle on Agricultural Programming for Nutrition, 2013:1-18; Gitau, 2009:18; Hendricks & Bourne, 2009/2010:47). Displaced people and refugees have no cattle or land to produce food on and are dependent on host countries as well as support organisations and groups for food, shelter and clothing. This in turn places an enormous socioeconomic burden on poor host countries. “Humanitarian crises and conflicts continue to uproot millions of people across the globe” and as a result of persecution, conflict, generalised violence and human rights violations during 2013, developing countries, many of them poverty stricken, hosted approximately “86% of refugees under the UNHCR mandate” (WHO 2014:15; WHO 2011:15).

Natural disasters include times when there are floods or droughts; in both cases these disasters lead to overpricing of food which some caregivers then cannot afford. When the demand of crops is higher than availability, prices tend to be

more than what ordinary caregiver can afford to pay (Synthesis of Guiding Principle on Agricultural Programming for Nutrition, 2013:1-18; Gitau, 2009:18).

#### **2.4.4.2 Modifiable determinants of childhood under-nourishment**

Modifiable determinants of undernourishment are those determinants or factors that can be easily and rapidly changed and, when appropriately changed, could lead to the proper nourishment of children.

- ***Mother's and child's health status***

Maleta, Virtanen, Espo, Kulmala and Ashorn (2003:384) and Espo et al. (2002:1368) both state they found children who have had a few or more frequent illness episodes were at higher odds of having under-nourishment, especially if the illness was diagnosed as HIV. This concurs with the study findings of Kikafunda et al. (1998:3). These authors' study findings show that stunting was more common in unhealthy children and the odds of having under-nourishment were low in healthy children. A review on studies conducted in African countries shows that in all countries studied, previous diarrhoeal diagnoses or fever were important determinants of under-nourishment in children (Madise et al., 1999:336; Danaei, Andrews, Sudfeld, Fink, McCoy, Peet, Sania, Fawzi, Ezzati & Fawzi, 2016:8)

Maleta et al. (2003:384) report that the relative risk of being under-nourished is higher if the mother is HIV positive. This is supported by the meta-analyses findings of several studies conducted in different countries across sub-Saharan Africa which showed that in numerous countries the percentage of children who are under-nourished is significantly higher in mothers who are HIV positive than in mothers who are HIV negative (Magadi, 2011:570). Furthermore, the same study shows that being an HIV positive mother increases the chance for having an under-nourished child. The reason for the high prevalence of under-nourishment in children of mothers infected with HIV may be that a high proportion of these children could have acquired HIV via vertical transmission from their mother thus appearing to be under-nourished (Magadi, 2011:442).

Reduced breastfeeding or the HIV/AIDS disease also leads to a lack of parental care (Magadi, 2011:443).

According to Magadi (2011:442-443), HIV/AIDS has been reported to contribute to 40% of deaths in children. Children infected by HIV are reported to be more at risk of developing diarrhoeal diseases than non-infected children. Severe and untreated diarrhoea leads to the mal-absorption of nutrients which in turn makes children appear under-nourished according to the WHO criterion (WFH and WFA of below -3 standard deviation), and presence bilateral oedema (WHO, 1999:4).

- ***Caregivers' feeding practices and cultural beliefs***

In their review on the role of the caregiver in nutrition, Engle et al. (2000:25) reported that around the years 1999 to 2000 there were quite a number of articles reporting the impact and importance of cultural and behavioural factors of caregivers on children's nutrition.

As mentioned earlier, according to the WHO guidelines (2013:12), infants should not be given any solid food for the first 6 months of life and should be exclusively breastfed. Gupta, Mehrotra, Arora and Saran (1991:269) report that a child's nourishment status is associated with the caregiver's nutritional attitudes and practices. A worldwide study by Lutter, Daelmans, de Onis, Kothari, Ruel, Arimond, Deitchle, Dewey, Blössner and Borghi (2011:1423) indicates that in Africa – which is one of the global areas where the highest rates of childhood under-nourishment exists – only about 30% of children aged 0 to 6 months were exclusively fed on breast milk. The findings further show that less than 30% were provided with the minimum of dietary diversity while less than 20% received the minimum acceptable diet. These findings concur with those of Kumar, Goel, Poonam, Mittal and Misra (2006:417) and Mwase, Mutoro, Owino, Garcia & Wright (2016:46) who report that the delay of mothers to give their babies breast milk post-delivery and inappropriate introduction of complementary feeds has a negative impact on the nutritional status of children.

Turyashemererwa et al. (2009:975) assessed the association between under-nourishment and child feeding practices in the Kabarole District, Western Uganda. They found two-thirds of mothers of under-nourished children aged 6 to 59 months introduced complementary feeding before the age of 6 months. In selected rural areas of Ethiopia and Chad, under-nourishment in children was associated with feeding practices such as an early weaning age and low feeding frequency (Haidar et al., 2005:625; Mushapi, 2008:37). The longitudinal comparative study by Saha et al. (2008:1856) ascertained that children of parents who had more than 75<sup>th</sup> percentile infant feeding scale gained more weight than those of mothers with lower than 75<sup>th</sup> percentile infant feeding scale.

Studies conducted in South Africa confirm that the introduction of solid food (weaning) before the end of the sixth month is common (Mamabolo et al., 2004:327; Faber & Benade, 1998:182). Kruger and Gericke's (2002:217) quantitative study reveal that adherence to cultural practices such as the traditional way (pouring a lot of water in order to soften maize meal and over cooking of meat including non-serving of meat to children as it is considered not to be healthy for children) of preparing and choosing food for children leads to poor child and infant feeding practices. Moreover, Sibeko, Dhansay, Charlton, Timothy, Gray-Donald (2005:1) found that about 30% of mothers introduce solid food to their children in their first month of life. The reason for this was the mothers' false perception that they produced not enough milk.

The reason for the early introduction of solid food is often cultural. A study on feeding practices among HIV positive women revealed that older grandparents are oftentimes responsible for instilling cultural influence on feeding practices (Thairu, Pelto, Rollins, Bland & Ntshangase, 2005:6; Busken, Jaffe & Mkhathshwa, 2007:1101). Thairu et al. (2005:6) report that caregivers are being informed that a child will never grow well on breast milk alone during the six month of exclusive breast milk period. Caregivers are ill advised by older adults that complementary feeds should be added as early as one month of age. According to Kruger and Gericke (2002:222), other cultural disbeliefs or malpractices exist which play a role in poor feeding practices that lead to under-nourishment. An example would be the older caregivers' belief that the traditional way to prepare food (by only boiling) is healthier. Witchcraft or the violation of sexual taboos, which have been reported as causes of under-nourishment, are regarded as

obstacles for the diagnosis and subsequent treatment of under-nourishment (Abubakar, Holding, Mwangome & Maitland, 2011:1). An example given on witchcraft was that when you a female is pregnant and a person with an evil eye looks at her unborn child, the child will be constantly ill after birth thus this will contribute to under-nourishment.

- ***Knowledge transfer by healthcare professionals and comprehension by caregivers***

Educational interventions aimed at addressing childhood under-nourishment should be directed to children's caregivers (mothers in this study) as they are the ones responsible for children's nourishment. It is a known fact that children depend on adults for food as the latter are considered to be the ones taking care of the children's basic needs of which nutrition is foremost. Nutritional health can only be achieved if there is communication of health information between the healthcare professionals and the caregivers (Lee & Garvin, 2003:449). The importance of health information is that it provides both direction and the rationale for guiding strategic health behaviours, treatments, and decisions (Kreps, 2001:61-62; Safeer & Keenan, 2005:467).

Healthcare professionals should assist caregivers to comprehend nutritional health education (Safeer & Keenan, 2005:467; Lee & Garvin, 2003:449). However, several studies show that most patients and communities fail to comprehend some of the health education information (Estey, Musseau & Keehn, 1991:1; Kushner, 1995:546; Safeer & Keenan, 2005:463).

- ***Caregivers' literacy level, relevant teaching material, and adequate time***

The caregivers' literacy level, relevant teaching material, and adequate time to conduct educational sessions are factors that influence the effectiveness of the healthcare professionals' educational intervention to ensure that caregivers maintain the nutritional status of children (Kushner, 1995:546; Hutchinson, 1999:1267). Over and above the fact that it is essential for healthcare professionals to have the required necessary and relevant knowledge, they also have to be able to transfer that knowledge with confidence to caregivers whose



level of understanding of the information shared differ significantly. Hutchinson (1999:1267-1268) reports there are many factors which may influence the effectiveness of educational interventions. These include an educational component, the facilitator's skills, prior experience, and motivation. The lack of teaching material was also reported as an obstacle of providing nutritional education and counseling (Kushner, 1995:546; Sovyandi & Cort, 2004:31).

Information transfer involves the utilisation of different teaching techniques. These techniques may include direct teaching, use of posters and flyers and practical demonstrations. All these techniques require information transfer tools such as teaching models and without these tools information transfer will not be possible.

Several studies have also reported that nurses and physicians do not have enough time in their schedule to provide nutrition education (Auld, Romaniello, Heimendinger, Hambidge & Hambidge 1998:268; Kowanko et al., 1999:217).

- ***Access to food store and affordability***

Access to food store and affordability by caregivers are other factors that determine the provision of adequate nutrition of children (Fotso, 2007:1-2; Krebs-Smith & Kantor, 2001:487S). Residing in areas where food stores sell all food groups (for example, vegetables, fruits and meat) at a reasonable price that is within the affordability of caregivers will more likely lead to caregivers buying and providing the required nutrition to their children.

- ***Food preferences by children***

Importantly, children often have specific food preferences. Such children are less likely to consume their food with minimal effort for cohesion from the caregivers. They tend to spit out the food they dislike thus consuming less than the recommended nutrients. This spitting out of food is unfortunately often interpreted by caregivers as saturation which results in reduced consumption. This reduced intake of the necessary nutrients could lead to under-nourishment (Black & Hurley, 2013:20; Llewellyn & Wardle, 2013:27).

- *Time and effort and manipulative behaviour of a child*

Some caregivers tend to inadequately feed their children as they reported that they did not have enough time to keep on following their children during meal times nor do they have the time to be persistent in feeding the child who is not willing to swallow food or is spitting out the food given. In some instances, other children do manipulate the feeding session by either spitting, gagging or swallowing slowly (Ramsay, 2013:5; Liu et al., 2013:11)

- ***Ineffective or non-adherence to intervention programmes***

It is extremely important for caregivers to understand and adhere to intervention programmes addressing under-nourishment. Providing advice on healthy diets and nutrition, these programmes and initiatives include supplementation interventions (Grantham-McGregor et al., 1997:247), food fortification interventions (Faber et al., 2005:1032), educational interventions (Penny et al., 2005:1863), and behavioural interventions (Engle et al., 2000:25-35). However, in all these interventions, education or knowledge transfer serves as the key component of health promotion. According to Mosley et al. (1993:623-649), providing information, knowledge and skills ideally reinforced with social support is critical to the promotion of child health and disease prevention. When all these intervention programmes are ineffectively implemented or are not adhered to by caregivers, under-nourishment will ultimately ensue.

## **2.5. MALNOURISHMENT**

Adequate and appropriate nourishment is associated with good health; however, not all people may be adequately nourished. People who are not adequately or appropriately nourished are more likely to have poor health outcomes and are referred to as 'undernourished'. This section describes disturbances in nourishment which include over-nourishment and under-nourishment.

### **2.5.1. Malnourishment**

Malnourishment is defined as either inadequate or improper intake of food and may be divided into under-nourishment and over-nourishment (Faber

&Wenhold, 2007:393). It should, however, be noted that in most studies malnutrition and under-nourishment are used concurrently mainly because they have the same effect on the body. Malnutrition is defined as “the cellular imbalance between the supply of the nutrients and the body’s demand for them to ensure growth, maintenance, and specific functions” (Sheetal, Hiremath, Patil, Sajjansetty & Kumar, 2013:178).

### **2.5.2. Over-nourishment**

Over-nourishment is defined as “feeding of the body over the physiological demand of the body. Over-nourishment leads to either overweight or obesity which is diagnosed by measurement of weight relative to height.” (Lobstein, Baur & Uauy, 2009:1). According to Han, Lawlor and Kimm (2010:2), the commonly used criteria for diagnosis of childhood over-nutrition are: overweight is 110% above ideal WFH and obesity is 120% above ideal WFH respectively; or a weight for height (WFH) Z-score which is above 1SD and a weight for height (WFH) Z-score which is above 2SD respectively.

### **2.5.3. Under-nourishment**

Under-nourishment refers to the inadequate intake of food and is the most common type of undernourishment in poor or developing countries (de Onis et al., 2004:2600; Mamabolo et al., 2005:501). Hence, inappropriate reference to under-nourishment as ‘undernourishment’ is commonly found, leaving out of sight that over-nourishment is also a form of ‘undernourishment’. In the present study the term ‘under-nourishment’ is used as it is more specific to the particular type of undernourishment that is common in developing countries, and which is commonly present in children admitted to the hospital in the setting of the study. With under-nourishment there is an inadequate intake of food which includes both macronutrients (proteins, carbohydrates, and lipids) and micronutrients (vitamins and minerals) (Faber &Wenhold, 2007:3). Under-nourishment is further divided into the acute and severe (chronic) forms. Acute under-nourishment occurs when there is inadequate food intake without the presence of any clinical symptoms of undernourishment whereas chronic under-nourishment occurs when inadequate intake of food is accompanied by clinical

symptoms of undernourishment. Inadequate intake of macronutrients is also referred to as “protein energy malnutrition”. Severe forms of protein energy under-nourishment include marasmus caused by the inadequate intake of energy macronutrients (carbohydrates and lipids) and kwashiorkor caused by the inadequate intake of mainly proteins (Kar et al., 2008:n.p; Castiglia, 1996:28).

## **2.6. CHILDHOOD UNDER-NOURISHMENT**

The focus of the present study is on strategies to prevent under-nourishment among children. It is therefore important to first describe childhood under-nourishment. Childhood under-nourishment literally means the occurrence of under-nourishment in children or inadequate provision of food to children.

## **2.7. DIAGNOSTIC DEFINITION OF CHILDHOOD UNDER-NOURISHMENT**

Severe (chronic) under-nourishment is often diagnosed by the clinical picture supported by specific deviations such as general body swelling; pale skin; skin desquamation; angular stomatitis; apathy; sparsely or fluffy hair and wasting (Shetty, 2006:524) as well as non-standard anthropometric measurements (Cross, Holden, MacDonald, Pearmin, Stevens & Booth, 1995:61). Although anthropometric measurements can detect both acute and severe under-nourishment (Cross et al., 1995:61), acute under-nourishment is only diagnosed by the deviations of anthropometric measurements.

According to the WHO, anthropometric measurements can be used to classify under-nourishment into three classes, namely underweight, stunting and wasting (WHO, 1986:929). This is achieved by calculating weight for age, height for age and weight for height Z-scores respectively.

Acute wasting is defined as WFH less than the international reference value by more than two standard deviations, while severe wasting is when WFH is less than the international reference value by more than three standard deviations (Manary, 2008:1227). Stunting is defined as height for age that is less than the international reference value by more than two standard

deviations and under-weight weight-for-age that is more than two standard deviations below the international reference value (Zere & McIntyre, 2003:3).

Clinical diagnosis of acute under-nourishment is less sensitive as clinical signs may be a result of an underlying disease other than under-nourishment (Faber & Wenhold, 2007:394). If possible to perform, laboratory investigations may be helpful in confirming under-nourishment as the levels of the type of nutrient deficient can be detected (Muller & Krawinkel, 2005:281).

## **2.8. CONSEQUENCES OF CHILDHOOD UNDER-NOURISHMENT**

If not treated early, the consequences of under-nourishment may be lethal. The effects may be immediate or observable later in life (Saunders, 2010:624; Bryce et al., 2005:1147; Caulfield et al., 2004:55).

### **2.8.1. Short-term consequences**

Consequences in the short term refer to consequences that occur in the early years of life. Under-nourished children, if not treated, fail to thrive and thus contribute to high mortality rates in infants and children (Saunders, 2010:624; Bryce et al., 2005:1147; Caulfield et al., 2004:55). Pelletier and Frongillo (2003:107-119) assessed the association between the prevalence of under-nutrition and mortality in developing countries and found that improvement in the prevalence of under-nourishment was associated with the reduction in child mortality rates. Increased mortality in under-nourished children is thought to be due to the fact that under-nourishment is associated with increased infection which in turn results in children's death (Guerrant, Oriá, Moore, Oriá & Lima 2008:1753). Guerrant et al. (2008:1753) state there are studies that show that under-nourishment increases the occurrence of diarrhoeal disease and also prolongs the duration of this disease. Caulfield, de Onis, Blössner and Black (2004:55) observe that almost half of children's deaths are as a result of diarrhoea, measles, pneumonia and malaria attributed to under-nourishment. This confirms the findings of Rice et al. (2000:1214) at the beginning of the 2000s.

The mechanism behind the relationship between childhood under-nourishment and mortality is explained in Schaible and Kaufmann's review (2007:1) as a weakened immune system. Maggini, Wintergerst, Beveridge and Hornig (2007:1) agree with Schaible and Kaufmann (2007) by highlighting the importance of selected micronutrients in strengthening the immune system of a child. It is the combination of both under-nourishment and infection that ultimately leads to death.

### **2.8.2. Long-term consequences**

Long-term consequences of undernourishment refer to consequences that occur later in life either at adolescent or adult stages (Dewey & Begum, 2011:5; Ampaabenga & Tan, 2013:1014).

Under-nourishment may lead to poor growth which has a detrimental effect later in life. Under-nourishment during childhood may lead to the underdevelopment of essential organs such as the liver, kidneys and pancreas which will increase the risk of these children developing chronic diseases such as diabetes, hypertension and cardiovascular diseases later in life (Victoria et al., 2008:348-350). Under-nourishment may also lead to impaired mental development (Ampaabeng & Tan, 2013:1014; Kar et al., 2008:5-12). Under-nourished children do not perform well in school and other activities. Dersheiwitz (2003:1) and Dewey and Begum (2011:5) are in agreement that these cognitive deficits persist until adulthood. Galler et al. (2005:1760) further mention other unacceptable social behaviours that are associated with childhood under-nourishment, namely aggressive behaviour and poor socialisation.

## **2.9. AVAILABLE CHILDHOOD PREVENTATIVE STRATEGIES FOR UNDER-NOURISHMENT**

The WHO produced a guiding document for the treatment and prevention of childhood under-nourishment (WHO, 1999:35-37). In the context of the present study this document gives guiding information on (i) how to identify under-nourished children, and (ii) treatment and, more importantly, teaching

parents (caregivers [mothers]) how to prevent under-nutrition from occurring or recurring. Furthermore, the WHO's division of Child Health and Development (WHO's CHD), emphasising that a child's health is dependent on his or her nutritional status, developed an Integrated Management of Childhood Illness (IMCI) strategy (Integrated Nutrition Programme Strategic Programme Strategic Plan 2002/03 to 2006/07:7). One of the key components of the strategy is to improve child nourishment by promoting breastfeeding, improving feeding practices, and providing micronutrient supplements.

The South African Government also developed a National Integrated Nutrition Programme 2002-2006 which is considered to be a comprehensive nutrition strategy that focuses on children under 6 years old, pregnant and lactating women, and people with communicable or non-communicable diseases as well as the elderly (Hendricks & Bourne, 2009/2010:5-7). The aim is to achieve the overall goal to improve all people's nutrition status through three major programmes. These three programmes include a nutrition promotion programme aimed at improving nutrition policies; community-based nutrition programmes aimed at ensuring household food security; and a health facility-based nutrition programme aimed at enabling the healthcare system to address under-nourishment. The community-based nutrition programmes on the other hand conforms to the WHO's Integrated Management Childhood Illnesses strategy in the sense that it also aims to improve breastfeeding, feeding practices, and providing supplements.

The similarity found in the three above mentioned documents is that in part they all aim to improve breastfeeding and feeding practices. Such a strategy can only be employed by targeting children's caregivers. It is unfortunate that to date there has not yet been sufficient research done to evaluate either the implementation or the impact of these programmes. A report on the implementation of integrated nutrition plan (INP) in the Northern Cape in South Africa reveals that the plan is implementable although some obstacles exist (Northern Cape ISDS Technical Report # 4, 2000). The report lists a lack of human resources, poor monitoring of the quality of service and, more importantly for the present study, the staff's lack of knowledge and of staff time

as major obstacles in the implementation of the Integrated Nutrition Programme. It will therefore be difficult to educate children's caregivers about childhood nourishment if health workers also lack knowledge on nutrition or do not have time to provide nourishment education. Unfortunately, there are no studies done to identify obstacles integral to the children's caregivers in areas where the Integrated Nutrition Programme has been implemented.

Importantly though, is the fact that strategies do exist which are aimed at reducing or preventing childhood under-nourishment and child mortality. These include strategies targeting healthcare services (policy makers, governments) or workers who should be providing nourishment education or counselling and those targeting children's caregivers who are responsible for feeding the children.

### **2.9.1. Preventative strategies targeting healthcare services**

The government health care services policies play a pivotal part in the prevention of childhood under-nourishment. According to the WHO's strategy for global infant and young child feeding, the primary obligation of governments regarding their role in preventing childhood under-nourishment is to formulate, implement, monitor and evaluate a comprehensive national policy on infant and young child feeding (WHO, 2003:13-25). In addition, there should be political commitment at the highest level of government. This can be achieved by developing a detailed action plan based on the developed policy on the national policy on infant and young child feeding followed by provision of resources for the action plan. These resources include trained personnel, financial resources, and infrastructure.

In response to this the South African Government produced two guiding documents. The first was the National Integrated Nutrition Programme (INP) which has been discussed earlier. The latest is the Roadmap to Nutrition in South Africa 2013-2017 (2013:18-27) which outlines key nutritional intervention programmes, the importance of strengthening human resources, and the implementation plan.



Preventative strategies to be conducted by the government include those strategies that require a huge budget such as training relevant health workers in nutrition education and prevention of under-nourishment, fortification of staple food, and provision of food supplements.

### **2.9.2. Preventative strategies targeting healthcare workers**

The provision of nourishment education is often provided by healthcare workers; however, comprehension of nourishment education by caregivers is an issue. A lack of time to conduct educational sessions, inadequate teaching material, the lack of knowledge by facilitators as well as their lack of confidence (Kushner, 1995:546) and the mode of knowledge transfer (communication) (Vahabi, 2007:27) has been reported as factors integral to healthcare professional which contribute to failure to comprehend and apply nutrition education by caregivers. Penny et al. (2005:1863) maintain that the provision of nutrition education to caregivers is associated with increased children's height and weight Z-scores. Mowe et al. (2008:196) report there are healthcare professionals who do not know how to identify under-nourished patients and are not aware of national guidelines for clinical nutrition. Kowanko, Simon and Wood (1999:219-223) found that most nurses employed in hospitals cannot mention major food groups accurately, do not mention specific nutrient deficiencies when asked about under-nourishment, are not aware of the anthropometric techniques used in the diagnosis of under-nourishment because they only mention clinical signs for recognition of under-nourishment. This is supported by Suominen, Sandelin, Soini and Pitkala (2009:1) who found that nurses were unable to diagnose patients who presented with malnourishment.

Research has shown that continued professional education in the prevention and management of under-nourishment by nurses helps in the reduction of under-nourishment (O'Flynn, Peake, Hickson, Foster & Frost, 2005:1) This suggests that one of the preventative strategies for under-nourishment is to train healthcare professionals in nutrition and provision of nutritional education. According to Kushner (2005:550-551), the training content should include strategies to ensuring quality nutrition education, the acquisition of

training material, motivating health professional by providing such education, and identifying suitable transfer methods.

### **2.9.3. Preventative strategies targeting caregivers' feeding practices**

Apart from factors integral to healthcare professionals, the failure to comprehend and apply health information by caregivers may also be attributed to factors or characteristics integral to caregivers such as a low literacy level, socio-economic status, parity, nutritional knowledge, attitude and practices (Vereecken & Maes, 2010:44-51; Haidar et al., 2005:625-630; Kruger & Gericke, 2002:217). Although affected by other primary factors, caregivers' nutritional knowledge and nutritional attitude contributes to childhood under-nourishment mainly by impacting on feeding practices (Vereecken & Maes, 2010:44-51; Haidar et al., 2005:625-630; Kruger & Gericke, 2002:217). Therefore, feeding practices play an important role in the development of childhood under-nourishment.

An evaluation of intervention programmes aimed at improving feeding practices has shown that these interventions managed to improve child growth and reduced the prevalence of childhood under-nourishment by 1% – 19% (Caulfield, Huffman & Piwoz, 1999:183). Among these programmes most were feeding interventions and few were educational programmes suggesting that strategies aimed at improving feeding practices may be either by feeding programmes (either by means of food parcels, fortification or supplementation) and also by providing nutritional education.

- ***Feeding programmes as a strategy for improving feeding practice***

Feeding programmes has been shown to have a positive impact on children's growth. There are two ways in which feeding can be achieved and these include mass feeding through fortification or feeding of those at risk by direct supplementation. There are quite a number of studies that have shown that fortification of staple food improves nutritional status. Faber et al. (2005:1032) found that fortification of maize-meal porridge with iron, vitamin A

and zinc improved blood levels of some of the micronutrients while Defourny, Minetti, Harczi, Doyon, Shepherd, Tectonidis, Bradol and Golden (2009:5455) identified that the fortification of milk-based spread with vitamins and minerals improves children's growth. This is supported by Phuka, Maleta, Thakwalakwa, Cheung, Briend, Manar and Ashorn (2008:619) whose study findings reaffirmed that fortified spread with micronutrients reduced stunting in Malawian children.

- ***Educational programmes as a strategy for improving feeding practice***

Programmes aimed at changing behavioural factors can only be addressed educationally. Bhandari, Mazumder, Bahl, Martines, Blac and Bhan (2004:2342) show that nutritional counseling on complementary food improved infant height. This is supported by Penny et al. (2005:1863-72) who demonstrated that a randomised education intervention that involved nutritional counselling and provision of age-specific nourishment messages improved the prevalence of stunting as compared to a group that did not receive the intervention. An educational intervention that was specifically designed to target caregivers' attitudes and practices reported to have significantly increased weight, height, weight for age Z-score and height for age Z-scores (Salehi, Kimiagar, Shahbazi, Mehrabi & Kolah, 2004:779).

The above studies focussed on the effect of educational intervention on children's anthropometric status. There are studies which reported the impact of educational intervention on caregivers as well as cultural and feeding practices. Penny et al. (2005:1863-1872) did a randomised education intervention that involved nutritional counselling and provision of age-specific nourishment messages. The results showed an improved dietary intake when compared to a group that did not receive the intervention. In addition, Britto, Engle and Alderman (2009:1) demonstrated that an educational intervention which included, among others, skills training on early child development and nutrition, improved mothers' attitude and mothers' child or infant feeding practices.

- ***Integrated intervention programmes as preventative strategy for childhood under-nourishment***

Although the aforementioned research studies and interventions served to emphasise that individual strategies do help in addressing under-nourishment, there are quite a number of studies which ascertain that if all or some of these strategies are integrated within a single intervention programme, the results are more favourable.

The Food Nutrition Bulletin (2002:3-128) published a special issue showing the importance of an integrated intervention programme in Vietnam. In this 2002 FNB issue (cited by Schroeder, Pachón, Dearden, Ha & Lang 2002:37-40) it was reported that children's nutritional status deteriorated with age; however, children receiving an integrated intervention showed a more reduced deterioration than those who did not receive an integrated intervention. Similarly, in the same FNB issue, Pachón, Schroeder, Marsh, Dearden, Tran and Tran (2002:59) write that mothers of children receiving an integrated intervention were more likely to report an increased higher food and energy intake than those of children who did not receive the integrated intervention. Saha et al. (2008:1852) found that implementing an integrated good child or infant feeding practice as recommended by the WHO and UNICEF was associated with improvements in child height and weight.

All these strategies are available, but children are still being admitted with under-nourishment in this particular hospital. The question that remained was why children are still under-nourished when all these strategies are in place.

## **2.10. MANAGEMENT OF CHILDHOOD UNDER-NOURISHMENT**

Treatment or management of acute under-nourishment is less complicated than that of severe under-nourishment. According to Manary (2008:1228), acute under-nourishment is simply managed by adding nutrient rich supplements which can be achieved by food fortification provision. The WHO has developed a guiding manual for clinical management of under-nourishment (WHO, 1999:7-12). These guidelines have been adopted and

implemented in South Africa (Ashworth, Chopra, McCoy & Sanders, 2004:1110; Deen, Funk, Guevara, Saloojee, Doe, Palmer & Weber, 2003:237). According to these guidelines, there should be appropriate treatment facilities in place such as hospitals and primary healthcare centres with staff trained in the management of under-nourishment. The healthcare professionals should be able to identify under-nourished children and to provide initial treatment for severely under-nourished children. Furthermore, the manual outlines the rehabilitation and follow-up process during and after for patient treatment.

The first step in the management of an under-nourished child is to identify or diagnose under-nourishment. The diagnosis of under-nourishment has been discussed earlier (see section 2.7). Once under-nourishment has been diagnosed, clinical treatment is based on the severity thereof. In severe under-nourishment, clinical treatment of symptoms such as dehydration, hypoglycaemia, hypothermia, and infections are prioritised. This is followed or done in conjunction with specific dietary interventions for severely under-nourished patients and includes micronutrient supplements such as vitamins, zinc and iron.

Once the patient has been stabilised, the next steps is rehabilitation and follow-up. Rehabilitation includes reintroduction to a normal diet, assessment and ensuring physical functioning and, more importantly, to educate caregivers on the prevention of recurrence of under-nourishment. The follow-up process involves setting times for follow-up visits aimed at ensuring adherence to treatment.

## **2.11. PREVALENCE OF UNDER-NOURISHMENT**

A global, South African and Gauteng situational analysis of under-nourishment are presented and discussed next.

### **2.11.1. Global prevalence of childhood under-nourishment**

The information on the current global prevalence of childhood under-nourishment is scant. Available information is based on surveys conducted in the 1980s and early 1990s. A meta-analysis using surveys conducted by de Onis et al. (2004:2600) between 1990 and 2000 reported the global prevalence of underweight to be 26.5%. This prevalence was lower than that reported in meta-analysis studies using data collected during 1990, before 2000 or during the early 1980s which reported the estimated prevalence of underweight, stunting and wasting to be 35.8%, 42.7% and 9% respectively (de Onis, Monteiro, Akre & Clugston, 1993:9).

### **2.11.2. Prevalence of childhood under-nourishment in South Africa**

South Africa, like any developing country experiences childhood under-nourishment problem. The information regarding recent statistics on childhood under-nourishment in South Africa is scant. Available surveys on childhood under-nourishment in the country are out-dated perhaps and based on anthropometric diagnosis of under-nourishment.

A survey conducted in 1993 shows that the prevalence of stunting in South African children was 24.5%, underweight 17%, and wasting 8.9% (Zere & McIntyre, 2003:7). However, the representativeness of this survey is not clearly defined. Only two representative national surveys have been conducted in South Africa. The 1999 National Food Consumption Survey (1999) reflects the prevalence of stunting was 21% (Input Paper for Health Roadmap of Combating Undernourishment in South Africa, 2008) which is unfortunately not significantly different from the 1993 survey. The 2005 National Food Consumption Survey (NFCS-FB-I) survey shows that from 1999 to 2005 stunting decreased to 18% (Input Paper for Health Roadmap of Combating Undernourishment in South Africa, 2008:8). The two national surveys concurs that prevalence of underweight remains constant at about 9%, which is a significant reduction compared to the 1993 survey, while wasting has decreased to 3.6%.

Only one document is available which report the incidence of severe under-nourishment diagnosed by clinical assessment (Indicators: severe under-nourishment: <http://indicators.hst.org.za/healthstats/235/data>). This document shows that between 2001 and 2009 the incidence of severe under-nourishment has reduced from 13% to 4%. The study was done in all nine of the provinces in South Africa.

### **2.11.3. Prevalence of childhood under-nourishment in Gauteng**

In context of the present study, there are few studies that have determined the prevalence of under-nourishment in Gauteng and none in the current study area. According to the NDoH document, District Health Information Health System (DHIS), (<http://indicators.hst.org.za/healthstats/235/data>), the incidence of severe undernourishment in Gauteng was 2.5% which is significantly lower than the 11.8% reported in 2001. In her MSc dissertation, Musvaire (2008:36) states the prevalence of stunting, underweight and wasting in Gauteng to be 16.8%, 6.4% and 3.3%, respectively. This finding agreed with that of the 2005 NFCS-FB-I survey.

In their study Theron, Amissa, Kleynhans, Albertse and MacIntyre (2006:379) found in informal settlements in Gauteng and Limpopo there was no difference in dietary intake between stunted and non-stunted children. This suggests diet is not the only determinants of stunting in this area.

Unfortunately, studies on the determinants of under-nourishment are scarce; the few found in literature disappointingly report determinants which have been reported before. For example, Kleynhans, MacIntyre and Albertse (2006:163) report in Atteridgeville (a township next to the City of Tshwane [Pretoria]), household size (socioeconomic status) and feeding practices (introduction of complementary food earlier than 6 months) were observed determinants of under-nourishment in this area. This is similar to Gitau's (2009:51-52) findings in Soweto (a township next to Johannesburg) that feeding practices is associated with under-nourishment in children. Gitau (2009) additionally assessed the effect of other determinants such as

socioeconomic determinants. He reported that living in a shack, having few household assets, being a single parent, and the introduction of solid foods increased the odds of being either stunted, wasted or underweight (Gitau, 2009:51-56).

Information and data found in literature during an extensive review are known – what is not yet known is *why* caregivers are still unable to provide their children with the recommended nutrition. This is the aspect that led to the purpose of this study.

## **2.12. CONCLUSION**

In this chapter the main concepts that was addressed included nourishment, healthy diet, under-nourishment and the prevalence thereof, and known strategies for preventing under-nourishment among children. The section that explains the strategies used to prevent under-nourishment highlighted some of the possible strategies; however, most of these strategies were developed by health workers or professionals and may sometimes not be appropriate for the end-users which are the children's caregivers.

After having done an extensive and thorough literature review, according to the researcher's knowledge, there is no study which has as yet determined and analysed the inputs of children's caregivers regarding preventative strategies against childhood under-nourishment. In the next chapter the methodology followed to develop strategies to improve feeding practices among caregivers (mainly mothers) of children aged 6 to 24 months is explained.



## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1. INTRODUCTION

The previous chapter dealt with the literature review regarding under-nourishment in children aged 6 to 24 months. The researcher assumed that caregivers would be providing the required nutrition for their children as documented in the Road to Health Booklet issued to every mother who gets discharged with a new born baby and returns home. The Road to Health Booklet clearly explains measures caregivers should follow to nourish their children. Social support in the form of a child grant is available for every child born in South Africa to all mothers who have socioeconomic problems. The reality of the situation is children are still being admitted with under-nourishment or under-nourishment coupled with another diagnosis to a particular hospital in a township close to Pretoria, Gauteng. The researcher deemed it necessary to involve caregivers to shed light on this problem, and with their inputs, how best this problem could be resolved. It was clear that the available measures in place at the time of study had not yet and seemingly could not resolve the problem adequately.

This chapter focuses on the methodology the researcher used to collect, organise and analyse the data.

### 3.2. FRAME OF REFERENCE

The frame of reference of this study was based on the researcher's experience of working with caregivers of under-nourished children admitted to the hospital in the study context and was described in terms of paradigms, assumptions and conceptual definitions as presented and discussed in Chapter 1.

#### **3.2.1. Paradigm**

The frame of reference of this study was the naturalistic paradigm—also called the constructivist paradigm – which is based on the belief that reality is not a fixed entity, but is based rather on inputs of participants participating in a study. A further belief

underlying this paradigm is that knowledge can be maximised if the distance between the inquirer and the participants is minimised. Findings of the naturalistic originate from the outcomes of the inputs and interaction between the participant(s) and the researcher (Polit & Beck, 2008:15).

### **3.2.1.1. *Ontological assumptions***

Caregivers are supposedly expected to know how best to nourish the children under their care, but the reality of the situation is that this is not the case; caregivers do not nourish these children correctly (Dearden et al., 2002:34-43). The ontological assumption the researcher made regarding the caregivers was that they came from poor socioeconomic backgrounds, were illiterate and unemployed. Possible underlying factors relating to the under-nourishment of the children in their care could be inadequate supervision where the children's nutrition is concerned, caregivers' inability to comprehend nutritional knowledge (probably due to illiteracy), socioeconomic challenges, and/or simply ignorance. It is furthermore assumed that if they are informed about nourishment, they will be able to make suggestions on how it can be achieved in their context.

For the participant to buy-in in the study, the researcher had to explain to them that strategies addressing under-nourishment are, in fact, in place. The Road to Health Booklet is an integral part of the solution as it clearly guides caregivers on *what* nutrition to give and *how* it should be given to children. Despite having such a clear and precise guideline, in the real life situation the researcher observed children aged 6 to 24 months were still diagnosed with under-nourishment. The researcher assumed all caregivers received a Road to Health Booklet and they are familiar with the content of the Road to Health Booklet.

It is possible that the caregivers did not fully comprehend the content of the Road to Health Booklet or alternatively, that the strategies in place were inadequate, too difficult to follow or caregivers were not aware of these strategies.

### **3.2.1.3. *Epistemological assumptions***

The researcher realised to help caregivers to give children in their care nutritious food thereby preventing under-nourishment and hospitalisation, it was essential to identify the problem by getting their input. The involvement of caregivers in the study made them feel important as their input would be of significance to resolve the problems

preventing them from preparing nutritious food. The researcher assumed that interaction with caregivers will enable the researcher to obtain the relevant information.

### **3.2.1.3. Methodological assumptions**

For a researcher to gain knowledge about human beings' experience of their social reality, she or he has to interact with human beings (Offredy & Vickers, 2010:169 Botma et al. 2010:210). In this study context 'human beings' referred to the caregivers (mostly mothers). The researcher used a qualitative data collection method (a questionnaire) to conduct a focus group discussion thereby interacting with caregivers to seek in-depth understanding of their first-hand experience of the topic under study. Caregivers outlined the feeding practices and challenges they experienced that prevented them from providing the recommended diet. From the health education they received post-admission from healthcare professionals they identified measures they could implement and ways in which to provide the recommended diet to the 6- to 24-year-old children in their care. This assisted the researcher to formulate preliminary strategies based on their inputs. These preliminary strategies were distributed to healthcare professionals for confirmation or disconfirmation.

### **3.3. AIM OF STUDY**

To answer the research question (*Childhood under-nourishment: Moving from challenges to strategies. What are the caregivers from the township in Gauteng saying?*) the aim of the study was to develop strategies to improve feeding practices among caregivers on feeding practices of children aged 6 to 24 months in a township in Gauteng.

The objectives of this study were addressed in two phases with two objectives each.

**PHASE 1:** Description of caregivers' suggestion regarding nourishment of children aged 6 to 24 months

- **Objective 1:** To explore and describe caregivers' current feeding practices of children aged 6 to 24 months.
- **Objective 2:** To explore and describe caregivers' suggestions on how they could nourish the children aged 6 to 24 months.

**PHASE 2:** Formulation and refinement of strategies to improve caregivers' practices regarding nourishment of children aged 6 to 24 months.

- **Objective 3:** To formulate strategies for caregivers on feeding practices of children aged 6 to 24 months.
- **Objective 4:** To refine strategies for caregivers by health care professionals (i.e. nurses, dieticians, physiotherapists, a social worker, an occupational therapist, and two paediatricians) with regard to the nutrition of children aged 6 to 24 months in a township in Gauteng.

### **3.4. CONTEXT OF STUDY**

The context of the study is outlined in detail in Chapter 1.

### **3.5. STUDY DESIGN**

The researcher used a qualitative, exploratory, descriptive design that was contextual in nature and which allowed the researcher to gain a comprehensive view of the phenomenon under study.

#### **3.5.1. Qualitative research**

Qualitative research, according to Polit and Beck (2008:763), is the investigation of a phenomenon, typically in a holistic fashion, through the collection of rich narrative materials using a flexible approach. In a qualitative study, the researcher can be the

research instrument. The research occurs in a natural setting, is flexible, and allows for changes that may occur whilst the study is in process (Offredy & Vickers, 2010:24).

The natural setting was the hospital where these children were admitted. The researcher chose the qualitative method as it allows human interaction and in-depth discussion with the people who have first-hand experience of the situation under study and participants can be purposively selected (Botma et al. 2010: 201;Tongco, 2007:147).The disadvantage of this approach is that human beings are instruments and humans are biased in nature, that is, they can say what they think is what the researcher wants to hear. (Refer to Chapter 1, 1.12.2 Population and sampling).

### **3.5.2. Explorative descriptive design**

An explorative descriptive design as defined by Offredy and Vickers (2010:48) is a design used to discover general information about a phenomenon and factors that influence the phenomenon being studied in order to better understand it. This design describes a situation by looking at it from different angles and analysing why certain events occur in a particular manner. The researcher can also use this design to identify health-related issues or practices with the aim of improving the particular problematic areas (Peu, 2008:28).

In this study, the researcher explored caregivers' suggestions on how they could improve the nutritional status of the children. Caregivers were purposefully selected as participants because they were the only ones who had hands-on experience of buying and preparing nutritional food. Subsequently, only caregivers could explain what was possible and what was impossible for them to maintain a healthy diet for the young children.

### **3.5.3. Pilot testing**

The researcher did a pilot testing with a singular participant (Refer to section 3.6 Population and sampling). Polit and Beck (2012:1950) state in order for a qualitative researcher to test methods and refine a tool or technique, they have to do a pilot study (which is a mini research) was not done. Instead, in this study pilot testing (Polit &

Beck, 2008:213), was used to test the suitability of the questionnaire and the likely success of the recruitment strategy (purposive sampling) to find participants.

The researcher invited 32 participants (caregivers of children who had previously been admitted with under-nourishment or under-nourishment coupled with another disease) for a focus group discussion (Polit & Beck, 2012:729), but only one turned up. The discussion was held with a caregiver on 26 August 2014 to refine the questions and techniques to be used for the final focus group discussions.

The aim of the study was explained in detail to the participant. The informed consent form was given to participant and she was allowed between 10 to 20 minutes alone to make a decision as to whether she wanted to participate in the pilot study. She was assured that if at any stage she did not want to continue with the pilot study, she could withdraw without prejudice. She was also informed that she could ask questions for clarification if she did not understand something (Botma et al., 2010:20; Offredy & Vickers, 2010:115). The caregiver made the choice willingly to take part in a pilot study; she voluntarily signed the informed consent form and handed it to the researcher. The researcher then conducted the interview with the participant.

The Road to Health Booklet and the National Department of Health's (NDoH) nutritional poster was shown to the participant. Based on these two guidelines pre-formulated questions were then put to the participant. She was able to answer all the questions except for Question 6: "How do you think caregivers can take care of nutritional status of their children?" The researcher rephrased the question to make it more understandable, but the participant's response to it was the same answer as to Question 4. The researcher then rephrased and asked Question 6 in many ways to draw relevant information from the participant. Eventually, Question 6 was deleted because the researcher and the participant agreed it was a repetition of Question 4 which read: "How do you think those challenges could be overcome?"

The participant was neither uncomfortable nor inaudible on the tape recorder as the interview was recorded. The interview which was conducted in N. Sotho, took 1 hour and 30 minutes. The researcher wrote field notes during the interview. The participant was given time to ask questions. Some of the questions the researcher could not

answer as they were not in her field of study, for example, “Why is government not creating enough jobs?” Neither the participant nor the information she shared was used in the main study (Botma et al., 2010:275).

The researcher thanked the participant and a signed copy of the informed consent form. She handed the participant a fruit packet as a token of appreciation for her time and contribution. She was also given R20 for her transport expenses as the arranged transport was cancelled on her request. The participant requested no further contact from the researcher nor did she want to be informed of the outcome of the results. The methodological approach followed to achieve the various objectives are presented and explained next.

### **3.6. POPULATION AND SAMPLING – OBJECTIVES 1, 2 AND 3**

To answer the research question this study was done in two phases with two objectives set for each phase. (Refer to 3.3 Aim of study).

The population, sampling, data collection method and method used for the data analysis for objectives one and two of Phase 1 and objective three of Phase 2 were the same. The following section will address these four aspects of the research process where after the process for achieving objective four of Phase 2 will be presented and discussed.

Purposive sampling, also called judgemental sampling, was employed (Offredy & Vickers, 2010:138). The researcher selected participants purposively as they had to have the best characteristic befitting the criteria under study (Tongco, 2007:147).

The inclusion and exclusion criteria for the current study are set out below.

- **Inclusion criteria**

- Caregivers of undernourished children between 6 to 24 months admitted in the hospital with under-nourishment or under-nourishment coupled with other diseases.
  - Caregivers who voluntarily chose to participate in a focus group discussion.
  - Caregivers who understood and spoke Northern Sotho or Zulu.
  - Caregivers who were 18 years or older.
- **Exclusion criteria**
    - Caregivers of children admitted with conditions not accompanied by under-nourishment were excluded from this study.
    - Caregivers who did not understand or speak Northern Sotho or Zulu.
    - Caregivers who were younger than 18 years old.
    - Caregivers who refused to give informed consent.

Permission to conduct this study in the specific hospital was requested and given. Participant selection for pilot testing began after the researcher had obtained permission to conduct the study in a hospital of the particular township. She used the admission book of the hospital to retrieve the files from January 2009 to the end of August 2014 of all children between 6 and 24 months who had been admitted from the above mentioned dates with under-nourishment or under-nourishment coupled with other diseases to record the caregivers' contact details. From the information in the files, 50 caregivers were identified who met the inclusion criteria from January 2009 to end December 2014. However, 18 out of the 50 had no contact numbers at all or the numbers were non-functional when the researcher dialled them.

The files of patients (whose caregivers resided in the specific township near Pretoria) from January 2009 to August 2014 were retrieved. Accordingly, 32 caregivers were contacted for a focus group discussion to be held on the 26 August 2014. Ten caregivers showed interest and agreed to attend the focus group. Five of the ten



caregivers contacted requested follow-up calls to be reminded of the day and venue when the focus group would be conducted. Follow-up calls were done the day before the discussion to all 10 caregivers; however, five out of the 10 were not available and the researcher had to leave a voicemail for these five reminding them of the focus group discussion.

The day of the discussion, reminder follow-up calls were made to the remaining five participants. All five said they would rather not be picked up at home but would prefer to have their own transport money refunded. The researcher once again reminded all five participants of the venue and time. In the end, only one caregiver turned up for the planned focus group discussion. This participant was a caregiver of a child who was admitted in the paediatric ward with under-nourishment coupled with another diagnosis. The researcher checked with the occupational therapist and dieticians to verify whether they had had any follow-ups from caregivers of children who had previously been admitted with under-nourishment or under-nourishment coupled with another diagnosis. However, they confirmed there had been no other follow-ups.

**Purposive sampling** which is the selection of participants who had the similar characteristic that met the criterion required for this study (Polit & Beck, 2008:354), was used. The population for the study comprised of caregivers of children who were admitted in the paediatric ward with under-nourishment or under-nourishment coupled with another diagnosis at the particular hospital and who participated voluntarily in the focus group. The participating caregivers were considered to be representative of comparable characteristics and circumstances of caregivers of under-nourished children in the particular age group (6 – 24 months) in the township as they lived in the same environment as the majority of other caregivers in the township. The diagnosis of these children was based on mid upper arm circumference (MUAC), height for age and weight for age measured by the dieticians. (The Sphere Project, 2013:183). The caregivers of the children in this context were selected because their children were diagnosed with under-nourishment, which suggests that the caregivers were unable to provide nutrition and therefore it was believed that their input in the focus group discussion would contribute significantly to bring about a solution to this problem.

The researcher received approval from the Hospital Ethics Committee on 15 August 2014 thus the consent to be contacted could not be issued out to patients by healthcare professional (nurses) prior to this date. On receiving approval (mid-August 2014) the researcher used the admission book from January 2009 to August 2014 to access contact numbers of caregivers whose children were admitted with under-nourishment or under-nourishment coupled with another diagnosis. Although the initial plan was to involve the nurses to inform the caregivers of the study, collect the names and contact details of those who would be interested to participate and put them into the patients' files, due to the fact that the Hospital Ethics Committee only gave their approval in mid-August 2014, this process could not be followed. Hence, the healthcare professionals were unable to give the researcher consent to contact caregivers that had information about the aim and objectives of the study as there were no admissions of under-nourished children from January 2014 to mid-August 2014. Additionally the researcher had not yet received approval from ethics committee

The purposive selection of participants for the main study was done. The researcher identified nine eligible caregivers whose children had been admitted from late August 2014. Participants (nine) were contacted on the same day of the focus group discussion (before the focus groups would be conducted as they were all admitted the night before) and explained the purpose of the study to them. Seven participants agreed they would take part in the focus group discussions at the pre-arranged venue.

On the day of the focus group discussions, the participants were divided into two groups as some understood Northern Sotho whilst the others Zulu and minimal Northern Sotho. The sample size for the first group comprised of four participants (Zulu and Northern Sotho) and the second of three (Northern Sotho). The reason behind the separation of the two groups was to make everyone comfortable in terms of cultural differences. The researcher also wanted to ensure that when there was a need to rephrase the question it would be understood by all participants. Data was collected on the same day from both groups. One was held in the morning and the second in the afternoon. The focus group discussions were held in the paediatric nurses' duty room as the hospital boardroom was under renovation and there was no alternative area that the hospital could provide, The questions for the focus group discussions

were based on the information in the Road to Health Booklet as they constituted an integral part of the NDoH's solution to combat under-nourishment in young children. The inclusion criteria applicable for participation have to do with a list of characteristics essential for a member in the target population to have in order to become a part of the sample in a research study (Burns & Grove, 2009:344).

The fact that the children were diagnosed (and at times readmitted) with under-nourishment implied that the caregivers had not been able to take care of the children's nutritional needs. It was postulated that if solutions could be found to address the problem by including these caregivers' real life experiences, it could benefit caregivers of other children.

### **3.7. DATA COLLECTION METHOD**

Focus group discussions is one of the qualitative data collection methods when four to six people share a similar problem and are gathered to discuss a particular idea (Offredy & Vickers, 2010:24). The researcher chose this method as it is less time-consuming than other methods like individual interviews for the researcher as it takes less time to gather information in one session (Botma et al., 2010:222) perhaps and participants may be more relaxed than when other methods such as individual interviews (Offredy & Vickers, 2010:169; Polit & Beck, 2008:395).

The researcher preferred to use focus groups as the data collection method for three reasons. Firstly, she believed focus groups would allow for the responses from the selected participants to be open and broad because they all shared the same characteristic (Polit & Beck, 2008:354), namely being responsible for the nutrition of children between 6 and 24 months who were admitted with under-nourishment or under-nourishment accompanied by others diagnoses. In the second place, their contribution of relevant information would not be limited to questions asked or space allocated for responses. Finally, it was her firm belief that, as caregivers who stayed at home and were responsible for feeding young children, the participants would feel more comfortable and at ease if they knew they were in the company of others who understood the many obstacles and problems which they had to overcome on a daily basis to feed the children in their care.

One advantage of making use of a focus group to gain insight about the topic is that group discussions are not limited to the ideas of the researcher who designs the questions, but they can effectively open a communication line for participants to discuss and share different ideas, views and arguments on a particular topic (Offredy & Vickers, 2010:169). Hence, new results, views or ideas on the topic can emerge which enhances the data (Hollander, 2004:606-608). Focus group interviews as a data collection method allow the generation of rich data; it enables the researcher to probe, obtain in-depth information, and elicit more data from participants (Polit & Beck, 2008:477). It also elicits the inclusion of physical appearance and gestures as part of data collection (Offredy & Vickers, 2010:26). For example, in this study the clothing of participants in the first focus group had the appearance of people who experienced financial problems as one participant reported that the money they received for grants was inadequate to cater for milk that would last for a month. However, by assuring the whole group a few times that that no input was viewed as superior to another, but all information was considered important and of relevance to address and solve the research problem, helped the participants to feel their view was important (McLafferty, 2004:188). They began interacting more proactively by sharing their thoughts or views on specific points or ideas that emerged. Also, at one point in the first focus group discussion a shy participant was addressed and drawn into the conversation when the researcher addressed her by name and asked her opinion. Mentioning a participant by name is a tactful way to include shy or introverted participants who. In fact, shy or quiet-spoken participants who may feel uncomfortable to express their opinions in the presence of domineering ones is one of the disadvantage of focus group interviews mentioned by Offredy and Vickers (2010:170). These authors also state another disadvantage is that it can be difficult to organise a group to get together at the same time and place; however, in this study the researcher did not encounter this as a problem. The focus group discussions were held at the hospital where their children were hospitalised and it was thus an environment they knew and where they were in any case together.

The researcher's initial intention was to use the hospital auditorium as the venue, but it was unfortunately under renovations at the time of data collection. Since there were no other rooms available apart from the paediatric ward, the researcher suggested

holding the focus group discussions under the Marula trees in the hospital grounds. The hospital management deemed it inappropriate and eventually these discussions took place in the duty room of the paediatric ward. Holloway and Wheeler (2010:129) emphasise that the participants need to be at ease and comfortable and the focus group interview has to be conducted in an environment conducive to participants' comfort.

The data regarding the feeding practices among caregivers on feeding practices of children aged 6 to 24 months in a township in Gauteng was collected by using prepared open-ended questions (Botma et al., 2010:134) based on the information in the Road to Health Booklet that constitutes an integral part of the NDoH's solution to combat under-nourishment in young children. The Road to Health Booklet is available from the NDoH and were given to mothers post-delivery at discharge with their baby.

### **3.7.1. Data collection procedure**

The same data collection procedure was followed in both focus group discussions. The researcher spoke Northern Sotho while the peer researcher assisted in Zulu as it was the languages that the caregivers understood. The researcher facilitated both focus group discussions in N. Sotho. Holloway and Wheeler (2010:129) assert that the participants need to be at ease and comfortable during the focus group interview. The researcher was friendly and warmly welcomed every participant as they arrived. After they had all been seated, the researcher firstly introduced herself and thanked the participants for their time and presence. She then requested them to individually introduce themselves. The establishment of rapport between the researcher and participants enhanced a relaxed mood and helped to make the participants feel more comfortable with each other and in the group (Polit & Beck, 2008:369).

The purpose of the study, the study process and the significance was accurately and completely explained in Northern Sotho, the language that participants understood. A peer researcher assisted in repeating everything in Zulu (part of the inclusion criteria; see section 3.6 - Population and sampling). The researcher emphasised that, although their names would be used during the group interviews, their identities would remain confidential as codes would be assigned to each name during the data analysis

process (Offredy & Vickers, 2010:13; Hsieh & Shannon, 2005:1279; Hollander, 2004:612). Not only was anonymity guaranteed, but also their right to decline participation. The researcher explained that choosing to participate or not was every participant's right. She further assured them that they had the freedom to withdraw from the study without stating a reason. Withdrawal would not influence the care of the young child in the paediatric ward (Offredy & Vickers, 2010:115; Polit & Beck, 2008:173). She stressed that it was a discussion and there were no wrong or right answers. The group members were encouraged to feel free to express themselves (Rossouw, 2003:147). The researcher made sure the participants understood what she was saying by intermittently pausing and asking them whether they understood and the peer researcher repeated everything in Zulu.

The use of the audio-recorder was explained by the researcher and the peer researcher translated the information into Zulu. It had been placed where it could capture the discussion best on the table that was placed behind participants. The researcher chose that location for the tape in order to ensure that it would not distract the focus of participants. The peer researcher ensured that the audio-recorder was in working order. The interviews were recorded with the permission of all the participants in both focus groups (Botma et al., 2010:207; Offredy & Vickers, 2010:166; Hollander 2004:612). The topic was then introduced and the Road to Health Card Booklet plus the NDoH Nutrition poster were shown attached to the duty room board to participants as the semi-structured open-ended questions were based on them.

The researcher asked the first question, namely "Tell us about your feeding practices for your 6 to 24 months old children". There were questions she had to rephrase because it was not understood fully by some participants, for example, "How do you think can those challenges be overcome?" was re-asked: "What is it that you can do to ensure that you feed your child well?". Although the researcher had reported that this question when asked during the pilot testing it yielded the same answer as question 4, the researcher posed it to rule out missing any valuable information that might come out of it.

Two focus group discussions were held with an overall of total of seven participants (the first group comprised of four participants (Zulu and Northern Sotho) and the second comprising three participants (Northern Sotho). The caregivers were mothers of the children admitted with undernourishment or undernourishment coupled with another disease. The caregivers were around 20 to 24 years old. Their babies' age was between 7 months and 1 year 8 months old. In the second focus group discussion the challenge that related to the misuse of finance came out whereas in the first focus group discussion it was never reported on. The duration of the first focus group discussion was an hour and half and the second interview lasted for 51 minutes. The researcher deemed it appropriate not to conduct any further focus group discussions as the data that was given was rich and no more new data was forthcoming.

Throughout the discussions, the researcher – as the facilitator who conducted the meetings – made field notes. According to Polit and Beck (2012:728), field notes are defined as “the notes taken by researchers describing the unstructured observations they have made in the field and their interpretation of those observations”. De Vos et al. (2005:298) state field notes are written notes of the researcher’s personal reflections on participants’ experiences. In the view of Polit and Beck (2012:548), field notes include descriptive (observational) notes describing events experienced through watching and listening; the researcher does not interpret the notes but only records the who, what, where and how of a situation. The researcher specifically took care to write down her observations related to participants’ attitude and behaviour in an unprejudiced and objective manner (Corbin & Strauss, 2008:124).

Personal notes reflect “comments about the researcher’s own feelings while in the field” (Polit & Beck, 2012:548). It includes notes on participants’ non-verbal cues jotted down during interviews and discussions and making further notes immediately after each interview as this helps the researcher to reflect on the data later. In this study personal notes were used by the researcher to indicate the participants’ body language (behaviour, expressions and gestures) as well as the pauses and vocalisation of the participants when they spoke. Reflective notes are, according to Polit and Beck (2012:549), “notes about the researcher’s personal experiences, reflections and progress while in the field”.

The researcher attentively listened to the participants' input and potential solutions and made use of probing to elicit more information on the study topic. Attentive listening was illustrated by the facilitator showing each participant that she was deeply interested and listened to every detail the latter shared by nodding her head or saying “mmm”, “and then” or “okay” often (Gerrish & Lacey, 2010:341). Phrasing and rephrasing was done when participants were not clear about the question. Probing was used by the facilitator to obtain more information on a specific aspect or idea that emerged (Burns & Grove, 2005:397) and follow-up questions were asked for further clarity on the reasons why the caregivers seemed unable to provide the children between 6 and 24 months who were in the latter's care with a nutritious diet (De Vos et al., 2011:310). As the facilitator, the researcher furthermore repeated what participants had said to ensure that she had understood them fully. Time was also given for participants to ask questions, seek clarification or add additional information to statements or ideas which other participants mentioned.

In both focus groups the lack of resources, poor financial management, and the lack of health education related to nutrition and under-nourishment were mentioned as challenges the participants experienced to provide the required nutrition.

### **3.8. DATA ANALYSIS**

In qualitative research the data analysis process occurs simultaneously with data collection. Data analysis refers to the systematic organisation and synthesising of the data (Polit & Beck, 2012:751). De Vos et al. (2011:403) define data analysis as the process during which order, structure and meaning is brought to “the mass of collected data”. In this study the data were analysed by using Tesch's method of data analysis as outlined in De Vos et al. (2011:403). (Discussion to follow soon)

#### **3.8.1. Data organisation, analysis and interpretation – Objectives 1, 2 and 3**

The audiotaped data together with the field notes (researcher's observations of the verbal and non-verbal communication from the focus group discussions with caregivers and reflective notes on the process and the discussions) made up the raw data. The raw data originated from verbal and non-verbal communication from



participants (Offredy & Vickers, 2010:208). The audiotaped data was translated by the researcher.

### **3.8.1.1. Data analysis –Objectives 1 and 2**

The raw data was qualitatively analysed for Objectives 1 and 2 and was done concurrently with the data collection, as it is the case with qualitative studies (Creswell, 2002; Miles & Huberman [1984] cited by McLaughlin, slide 8).

During the data analysis, the privacy and anonymity of the participants' identity was ensured when transcribing the data by giving each participant a code (for example, Participant 1 and Participant 2 instead of using their original names). The researcher followed Tesch's method of data analysis (De Vos et al., 2011:403; Tesch method [1990] cited by Botma et al., 2010:223) when she analysed the data in this study.

- The researcher transcribed the recorded data verbatim. The audiotaped data was played and replayed repeatedly while the researcher listened again and again to make sure she had thoroughly transcribed everything that was recorded, including the silences. The researcher then arranged and re-arranged the transcribed notes into themes. Subthemes emerged from the developed themes.
- The collected data was prepared and organised. The verbatim transcribed focus group interviews were coded and labelled according to the main semi-structured questions. To make sense of the raw data, the researcher repeatedly listened and re-played the audiotapes of the participants' responses immediately after each of the two focus group interview sessions. She made notes in the margins of valuable information.
- The same process was applied to the field notes. The information collected via field notes during the two focus group interviews allowed for the proper grouping of similar stories. Reading and re-reading the field notes, the researcher endeavoured to connect what transpired in the groups and the discussions at the time she made the specific note; thus, by immersing herself

in the collected raw data assured that meaningful, accurate and relevant data would be available to describe the phenomenon studied.

- The researcher concurrently used comments made by the participants. The themes were described, coded, interpreted and verified with a literature control. (Refer to Chapter 4).
- Challenges that caregivers reported were identified.
- The researcher formulated preliminary strategies based on those challenges.

Data saturation was attained by increasing the length of the focus group discussions. The first group discussion lasted for an hour and 30 minutes and the second focus group discussion for 51 minutes.

### **3.8.1.2. Data analysis – Objective 3**

Inductive and deductive reasoning was done to analyse Objective 3 based on the results of Objectives 1 and 2 to formulate strategies. Inductive reasoning as defined by Polit and Beck, (2008:755) is reasoning from specific to general based on observation and experience, whilst the latter is reasoning from general observation or experience to specific observations or experience (Polit & Beck, 2008:751).

For Objective 4, healthcare professionals were involved based on their previous experience and knowledge of caring for children with under-nourishment in the age group 6 to 24 months to refine the preliminary strategies that were formulated by the researcher.

### **3.9. POPULATION AND SAMPLING – OBJECTIVE 4**

For this objective the healthcare professionals' focus group was in the form of a multidisciplinary team comprising six nurses, a dietician, a speech therapist and paediatrician working in the paediatric ward in this context. Healthcare professionals were purposively selected as they had educational background on available guidelines and experience on the impact of under-nourishment on humans including children in this context. It was highlighted in Chapter 1 that although the healthcare professionals did not experience the circumstances that caregivers went through (for example, what it was like to be without money to buy food for their children), the researcher acknowledged that the professionals did have the necessary knowledge and were in a better position to guide caregivers in ensuring the nutritional status of the children was not compromised without focussing on the logistic of money shortage.

At the time of study, a total of 24 professional nurses were employed in the paediatric ward. Due to logistic issues it was not possible to have all of them together in a focus group. The healthcare professionals involved in the paediatric ward from the other disciplines included one paediatrician, one dietician, and one speech therapist. Polit and Beck (2008:395) recommend a focus group discussion should consist of between 10 and 12 participants. Twenty invitations were sent to the healthcare professionals to participate in the focus group discussion. Only ten responded positively. The invitations were handed out to the unit manager unit on the 23 October 2016 and focus group discussion was conducted on 3 November 2016 in the paediatric unit as the unit manager felt that patient care will be compromised if the venue is away from the patients.

### **3.10. DATA COLLECTION**

A focus group discussion was held with ten healthcare professionals to refine the preliminary strategies that had been formulated by the researcher as part of the previous objective. Although there were other options available for data collection such as using a structured questionnaire, the decision was made to use a focus group to gain the benefit of group dynamics to achieve in-depth answers to the question.

The researcher used the scale adapted from Peu (2008:198) based on the following criteria: feasibility, accuracy, relevancy, completeness and practicality (user-friendly), and converted it to an interview schedule. (Refer to Annexure B). The participants received the preliminary strategies that were based on the results of inductive and deductive reasoning from Objective 1 as well as the interview schedule at least two weeks prior to the discussion. Data verification was done using a focus group discussion with healthcare professionals. Instructions on how they should go about evaluating the strategies were included. Participants were required to rate the strategies on a rating scale of 1 to 4 with 1 being “strongly disagree”, 2 being “disagree”, 3 was “agree” and 4 meant “strongly agree”.

The researcher presented an overview of the study to the healthcare professionals. Attention was focussed on those strategies which were disconfirmed to get the reasons and inputs that would be added or amended in the preliminary strategies. The participants confirmed the first three subthemes of the preliminary strategies and disconfirmed all the strategies in relation to completeness. All preliminary strategies were considered to be relevant by the healthcare professionals. Additions/inputs from healthcare professionals were added to the preliminary strategies.

One focus group discussion was held as this objective was about refinement and not about generation of new information. The length of the discussion was approximately one hour. The researcher facilitated the discussion and an audio recorder was used to record the discussion and a subscriber (in this study researcher) took field notes of the participants’ responses.

### **3.11. DATA ANALYSIS AND INTERPRETATION – OBJECTIVE 4**

The data analysis for Objective 4 was done qualitatively and concurrently with data collection. As mentioned, guiding attributes for guidelines used by Peu (2008:198) were used as the basis for the refinement of strategies by healthcare professionals working in a particular paediatric ward. Each strategy was rated according to the criteria. Inputs were included in the refinement of the strategies. The researcher linked

her interpretation/arguments with scholarly articles. The guiding attributes used to verify caregivers' suggestions are shown in Table 3.1.

**Table 3.1: Guiding attributes used to verify caregivers' suggestions**

| ATTRIBUTE                    | RATING SCALE             |                 |              |                       |
|------------------------------|--------------------------|-----------------|--------------|-----------------------|
| CHECKLIST                    | Strongly disagree<br>= 1 | Disagree<br>= 2 | Agree<br>= 3 | Strongly agree<br>= 4 |
| ACCURATE                     |                          |                 |              |                       |
| FEASIBLE                     |                          |                 |              |                       |
| RELEVANT                     |                          |                 |              |                       |
| COMPLETE                     |                          |                 |              |                       |
| PRACTICAL<br>(USER-FRIENDLY) |                          |                 |              |                       |

### 3.12. ETHICAL CONSIDERATIONS

Research ethics require that all researchers comply with the principles of research ethics which includes beneficence, respect for human dignity and justice. Ethical principles were adhered to as the researcher used humans to collect data. The researcher also correctly acknowledged the work of authors throughout the research report and the researcher's supervisor evaluated the report for plagiarism

**Beneficence** is a basic ethical principle for researchers to ensure that the study brings no harm to participants (Polit & Beck, 2008:170). In this study participants were protected from physical and psychological harm and distress by informing them that they were not obliged to answer questions that might affect their integrity. The invasion of their privacy was prevented as no identifiable names or surnames were used in the discussion of the findings or at any time during the data collection process. The researcher shared with the participants that the future benefits of their participation would possibly help them and other caregivers to provide young children with better nutrition despite the problems they face. The researcher constantly consulted with her supervisors to ensure that all the ethical principles were being adhered to throughout the study. The participants were reassured that refusal to give consent would in no way affect the care of their children. Furthermore, the participants were at liberty to

refuse to answer any question that could affect their integrity. In this study qualitative data was collected from caregivers and healthcare professionals who were informed and participated voluntarily.

**Respect for human dignity** refers to the right to participate in research voluntarily without coercion or discrimination (Polit & Beck, 2008:171-172). Approval from the Research Ethics Committee of the University of Pretoria was obtained (Refer to Annexure F). Consent to enter the hospital site and use the hospital records as well as involving caregivers and healthcare professionals was obtained from the relevant authority which was the hospital management. (Refer to Annexure H). The researcher explained the aim of the study to participants and further requested permission from them to participate in the study voluntarily prior to conducting the focus group discussion.

Consent forms for participants were structured in English and translated into Northern Sotho as it was the language that participants in this study understood. Participants used English and Northern Sotho consent forms. The translation of the consent form into Zulu could not be done due to logistical problems. The signed informed consent from willing participants was obtained from individual participants and signed copies were issued to them. The participants were made aware that they could withdraw their consent at any time after having agreed to participate without prejudice and without stating a reason. Furthermore, the participants were provided with the opportunity to ask questions or request more details. They were given adequate time to rethink their decision to participate or decline participation and were thus not in any way pressurised to take part in this study (Offredy & Vickers, 2010:110)

The participants were requested not to discuss any information outside the focus group discussion and were reassured that neither would the researcher. Their names were replaced with codes to ensure privacy. Finally, the participants were given fruits packages as a token of stipend.

**Justice** implies the right to fair treatment and privacy (Polit & Beck, 2008:173-174) and was maintained. The participants were reassured that declining or withdrawing participation would in no way affect the treatment of their children at the hospital. They

were further reassured that any information discussed in the focus group discussion would not be discussed outside the hospital premises by the researcher. The information would be solely used for research purposes only. Time was allocated for participants to ask questions or receive clarification on aspects of the study they did not understand. Their names were replaced with codes (for example, Participant 1; Participant 2 and so forth) when analysing data to ensure the privacy and anonymity (i.e. would not be traceable to any individual participant) of participants were maintained. The researcher also requested participants not to discuss any information outside the borders of the discussion room. (Refer to Chapter 1). The focus group discussions were conducted in a hospital duty room.

### 3.13 TRUSTWORTHINESS

Trustworthiness/rigour was maintained by following Lincoln and Guba's (1985:290) strategies of truth and value, applicability, consistency and neutrality. These authors define (credibility) **truth and value** as the researcher's confidence in the truth of the findings provided by participants.

In this study truth and value was enhanced by the researcher having been part of the paediatric team in the particular hospital for eight years. The knowledge she acquired nursing and working with caregivers of the children contributed to the credibility in the study. The current researcher was very aware that she had to reflect on the accumulated data critically while constantly reminding herself to remain unbiased during the analysis of the data. She therefore used her personal diary to reflect on her thoughts and every decision made during the interviews since she conducted the interviews personally. Triangulation was done by including caregivers and healthcare professionals in focus groups discussions (two with the caregivers and one with the healthcare professionals). Member checking was done by taking the final report to the healthcare professionals to confirm or disconfirm it. The researcher's experience of seven years working with caregivers of under-nourished children in the particular hospital increased the credibility of the study as prolonged engagement enhances the credibility of the research findings (Polit & Beck, 2008:538-539). The authority of the supervisor throughout the research report review enhanced credibility.

**Applicability/dependability** is the extent to which the study, if repeated with the same participants, will yield similar findings. The researcher used humans to collect data and since humans are infallible, the data given could have been biased. The researcher made comprehensive field notes during the focus group discussions and the data was recorded to ensure the findings reflected the ideas, opinions and suggestions of the participants and the conditions of the inquiry, and not the biases, motivations or perspectives of the researcher herself (Polit & Beck, 2012:585). The focus group discussions were transcribed verbatim and the field notes consulted to add depth and richness to the recorded data. Coding was performed twice (the coding-recoding approach) by the researcher and an independent coder who assisted with the coding process to confirm the accuracy, neutrality, and relevance of the meaning and understanding the researcher attached to the obtained data (Polit & Beck, 2008:543). Field notes and the thick description of the research processes enhanced the ability of the reader to judge the trustworthiness of the findings.

**Neutrality (confirmability)** as described by Lincoln and Guba (1985:290) is the freedom from bias in the researcher's procedures and results. The researcher achieved this by being aware of the subjectivity factor and she made a conscious effort to be objective by giving health education to caregivers after conducting the focus group discussion in order to avoid imposing her ideas and knowledge on participants. The researcher included peer review in the form of experts to confirm or disconfirm her findings. Furthermore, a literature control from research engines like Google Scholar, Cinahl and Medline were used to support the research findings. The researcher assured participants that no answer was considered wrong or right. She also made sure that no one imposed their ideas or beliefs on any participant before the focus group discussions. Health education to participants was given after the discussion. The focus group discussions were recorded and a thick description of the research process as well as an audit trail was provided.

**Applicability/transferability** is defined by Shenton (2004:69) as the degree to which findings can be applied to other contexts/settings or used with other groups; in other words, the ability to generalise findings to a larger population or groups –although as



mentioned repeatedly, it was not the researcher's aim with this study. Participants were purposively selected to ensure a true reflection of the phenomenon under study. The researcher provided a thick description of the research process and further went on to include experts to validate her findings. In the case of this study the experts were healthcare professionals.

### **3.14. CONCLUSION**

This chapter dealt with the research methodology in detail. The aim and limitations of the study were highlighted. The next chapter will deal with the results/outcome of this study and a discussion thereof.

## CHAPTER 4: FINDINGS

### 4.1. INTRODUCTION

The previous chapter dealt with the research methodology. The main focus of this chapter will be on a discussion of the findings and a literature control related to the themes and subthemes. The words in italics and inverted commas are direct quotes from participants during interviews. An extraction of the transcript is included in Annexure I. The overall aim of the study was to develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months in a township in Gauteng. This chapter is organised according to Objectives 1 and 2 of Phase 1 and Objective 3 of Phase 2 which were:

- **Objective 1:** To explore and describe caregivers' current feeding practices of children aged 6 to 24 months.
- **Objective 2:** To explore and describe caregivers' suggestions on how they could nourish the children aged 6 to 24 months.
- **Objective 3:** To formulate strategies for caregivers on feeding practices of children aged 6 to 24 months.
- **Objective 4:** To refine strategies for caregivers by health care professionals regarding nutrition of children aged 6 to 24 months in a township in Gauteng.

### 4.2. DISCUSSION OF FINDINGS

#### PHASE 1:

#### Description of caregivers' suggestion regarding nourishment of children aged 6 to 24 months

Discussion of phase 2 will address objective 1 and 2, their themes and subthemes in detail.

#### **4.2.1. Objective 1: Caregivers' feeding practices of children aged 6 to 24 months**

The first objective was to explore and describe current caregivers' feeding practices of children aged 6 to 24 months.

Focus groups were held with seven caregivers (two focus group discussions comprising four and three participants respectively) with the focus on their feeding practices. The primary question during the focus group was: "Tell us about your feeding practices for your 6 to 24 months old children". Examples of additional probing questions that were used are, "How do you prepare your child's food?" and "How do you measure milk?" The probing questions were asked to find clarity on comments made by the participants.

As illustrated in Table 4.1, four themes with their respective subthemes were identified, namely, food and fluids given to children; feeding patterns; food preferences; and knowledge of caregivers.

**Table 4.1: Themes and subthemes of feeding practices**

| <b>THEMES</b>                                             | <b>SUBTHEMES</b>                                                                                                       |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>4.2.1.1 Theme 1: Food and fluids given to children</b> | <i>(a) Carbohydrates<br/>(b) Proteins<br/>(c) Fruits and vegetables<br/>(d) Fats<br/>(e) Fluids</i>                    |
| <b>4.2.1.2 Theme 2: Feeding patterns</b>                  | .                                                                                                                      |
| <b>4.2.1.3 Theme 3: Food preferences</b>                  | <i>(a) Caregivers' preferences<br/>(b) Children's preferences</i>                                                      |
| <b>4.2.1.4 Theme 3: Knowledge of caregivers</b>           | <i>(a) Knowledge of the caregivers regarding nutrition and under-nourishment<br/>(b) Knowledge of food preparation</i> |

#### **4.2.1.1. Theme 1: Food and fluids given to children**

The food that is given to children emerged as an important theme. Types of food and fluids given to children as reported by caregivers were carbohydrates, proteins, fruits and vegetables, fat and fluids. Five subthemes emerged from Theme 1 and these included *carbohydrates, proteins, fruits and vegetables, fats and fluids*

##### **(a) Carbohydrates**

Sources of carbohydrates given to children were porridge (“pap/bogobe”), soft porridge (“motogo”), mashed potatoes, brown Mabele(kind of porridge),and selected cereal products such as Weetbix®. Supporting quotes were:

- *“I give my child soft porridge (motogo)”.*
- *“I would give him porridge (pap/bogobe) and soup”.*
- *“I would give mash potatoes... and one weetbix”.*
- *“I gave my child brown Mabele porridge with milk...he takes ...soft porridge”.*

Carbohydrates in humans, including children, are essential sources of energy. The intake of macronutrients which include carbohydrates is essential to prevent severe forms of protein energy malnutrition. Marasmus, for example, is caused by not taking in enough energy macronutrients like carbohydrates and lipids (Kar et al., 2008:n.p.; Faber & Wenhold, 2007:3; Castiglia, 1996:28).The Road to Health Booklet of the NDoH encourages caregivers to provide carbohydrates as a main source of basic food for children.

There are different sources of carbohydrates of which the availability depends on the global geographical location. In Asian countries, rice is the most common source of carbohydrates and the staple food (BishwajitSarker, Kpoghomou, Gao, Jun, Yin & Ghosh, 2013:2; Ashworth & Ferguson, 2009:5371).In Africa and the USA, maize meal is the most common staple food and source of carbohydrates (Ashworth & Ferguson, 2009:5371; Mamabolo, et al., 2004:330).

The findings of the present study indicated caregivers do provide carbohydrates in the form of soft porridge (“motogo”), porridge (“bogobe”) and mashed potatoes which are all staple foods as recommended by the Road to Health Booklet.

*(b) Proteins*

The most reported sources of protein fed to children in this study were formula milk and fresh cow’s milk. Other sources such as meat soup, Mopani worms and grounded Mopani worms in soup were also reported but to a lesser extent. The following quotes verify this finding:

- *“In the morning he takes... soft porridge ...with milk...fresh cow’s milk”.*
- *“I gave my child brown mabele® porridge with milk ...Nespray® I add 3 spoons of milk”.*
- *“At four he gets soft porridge ...then at eight he gets porridge and meat soup”.*
- *“I am going to give my child... grounded Mopani worms in soup...”.*

Proteins are macronutrients made of building blocks called amino acids. There are two types of protein, complete (sources thereof are from animals) and incomplete protein (plants are the sources for this) (Michaelsen et al., 2009:5349). Complete proteins have all the required amino acids needed for the formation of globin for heme, production of enzymes and hormones, tissue building, repair and maintenance whilst the latter lack or is low in essential amino acids (Michaelsen et al., 2009:5349; Castiglia, 1996:28). These amino acids are required by the body daily for tissue building as the body does not store them like it does fats and carbohydrates (Michaelsen et al., 2009:5349) Children need proteins to aid growth because proteins help in tissue building. To get the body in an anabolic state where muscle building will occur means there has to be a positive nitrogen balance in the body. Muscle building can only occur if the child has a daily adequate supply of protein which is made up of nitrogen carbon hydrogen and oxygen. Failure to receive a daily supply of protein will lead to a catabolic state where stored muscle will be broken down to retrieve stored energy. This will in turn cause muscle wasting (Shetty, 2006:524).

Michaelsen et al. (2009:5349) recommend for children both animal protein and vegetable sources of protein should be included in their daily diet with one-third of the source of protein to be from animal source food as this protein source has an important impact on growth.

Available sources of protein for children include milk from the breast, goat's milk, cow's milk, formula milk, legumes, eggs, fish, soya, Mopani worms and meat soup. In the present study the main sources of protein mentioned were soft porridge ("motogo"), brown Maltabela® porridge, Nespray® milk, Mopani worms and meat soup. However, in other research studies legumes and soybean are also reported as sources of protein (WHO, 2013:308; Michaelsen[2009] cited by Ashworth & Ferguson, 2009:5372).

The findings of the present study imply the only sources of protein used by caregivers for young children were formula milk, cow's milk and Mopani worms whereas the Road to Health Booklet additionally recommends that children should be given eggs, fish, soya beans and peanut butter. Importantly though, is that none of the caregivers reported giving their children breast milk. This contradicts the WHO's (2013:398) recommendation of breastfeeding from birth to 24 months.

### ***(c) Fruits and vegetables***

Fruits and vegetables are sources of vitamins the body needs to build immunity. Dark green leafy vegetables are sources of iron which is essential for blood production. Iron is absorbed easily in the presence of vitamin C (Gibney et al., 2004:184; Ponton et al., 2011:1-3). Fruits commonly available in South Africa include bananas, apples, pears, oranges, naartjies and grapes.

Fruits can be given to children as fruit juices, pureed (almost all fruits can be pureed), mashed (like bananas), chopped or grated (for example, apples) (WHO, 2013:308; Gibson et al., 2008:207; Gibson, Edgar, Neville, Gilchrist, McKinley, Patterson, Young & Woodside, 2012:1429). Michaelsen et al. (2009:5379) advise fruit should be eaten raw to promote the effective absorption of iron.

Commonly found vegetables in South Africa include pumpkin, carrots, green peas, cabbage and marogo (in various local nomenclature known as “thepe”, “lephutsi”, “monawa”, “legghusha”, “lerotho” or spinach) which can be given to children raw, cooked, grated or mashed. Examples include raw carrots, cooked (all the vegetables listed), and mashed (vegetables such as pumpkin, green peas and carrots) (WHO, 2013:308; Gibson et al., 2008:207).

The most common vegetables consumed by young children were reported by caregivers as pumpkin, cabbage, marogo and carrots as the next quotes verify.

- *“I would give him pumpkin, cabbage... with carrots”.*
- *“I give him porridge and soup ... sometimes marogo”.*

Some caregivers reported giving processed fruits and vegetables in the form of Purity® only. (Purity® is the brand name of pureed baby food typically bought in small bottles in supermarkets and local shops). One voiced she gave her son *“...him [a] bottle of Purity® ... either fruits or vegetables”.*

The qualitative nature of the present study made no allowance for quantifying the use of fruits and vegetables. In spite of the caregivers’ responses that they gave children fruits and vegetables, it is, however, well-known that in South Africa, the intake of fruits and vegetables among children is not common or is irregular (Gibson et al., 2008:207; Steyn, Maunder, Labadarios & Nel, 2006:66; Faber, 2004:6; Mamabolo et al., 2004:329).

#### **(d) Fats**

Fats are necessary for insulation, energy and absorption of nutrients (Michaelsen et al., 2009:5349). None of the participants added oil as a source of energy to their children’s food except one who voiced she gave her child fats (in this case it was margarine):

- *“I add Rama® to the porridge (motogo)”.*

Meat products are a major source of fats. Other sources include legumes, soybean oil, peanuts and vegetable fat (Ashworth & Ferguson, 2009:5372-5376). Ashworth and Ferguson (2009:5351) found children aged 6 to 36 months in Gambia, China and Western countries only get the essential fatty acid from legumes, soya and in some cases breast milk and cow's milk. In the present study children between 6 and 24 months ingested essential fatty acids predominantly from cow's milk and formula milk. No caregiver reported legumes and soya were included in their children's daily nutrition.

Contrary to the findings of the present study as well as those of Ashworth and Ferguson (2009:5346) and Michaelsen et al., (2009:5349), the Road to Health Booklet does not mention fats as part of its nutrient recommendations.

### **(e) Fluids**

Fluids given to children by the caregivers who participated in this study included milk, rooibos tea, juice and a mixture of milk and water. This statement is supported by the following quotes:

- *"In the morning he takes...at four soft porridge ... with milk ... fresh cow's milk".*
- *"Then around one she feeds on Purity® and rooibos tea bottle again".*
- *"When I pour water I just pour and I add milk".*
- *"I would give him milk".*
- *"During the night, I would give him water or Purity® juice".*
- *"At 4 after he had eaten around two I would give her bottle milk or rooibos tea".*

The human body of children aged 6 to 12 months is made up of 61.1% fluids (Fomon, Haschke, Ziegler & Nelson, 1982:1171). Fluid is essential to children in order to hydrate, maintain intracellular function (for example, blood volume and urine formation), extracellular functioning (controlling body temperature, sweat and skin turgor), and to help decrease the viscosity of the food. If the viscosity of the food is high, children might find it difficult to swallow it (Ashworth & Ferguson, 2009:5346).



Sources of fluid suitable to children include water and milk (breast milk, goat and cow's milk and formula milk). According to Ashworth and Ferguson (2009:5346), it is essential to include water and milk as fluids in young children's diet. Some of the current participants reported either giving their children milk or replacing milk with rooibos tea. Tea or herbal tea, plain sweetened water and juice are not listed as recommended sources of fluids (Michaelsen et al., 2009:5362; Road to Health Booklet; WHO, 2002:1).

According to the WHO guidelines (2000:33), tea is not recommended for children under the age of 24 months while in children aged above 24 months it should also be avoided after meals as it is known to inhibit iron absorption (Michaelsen, Weaver, Branca & Robertson, 2000:116). In addition, it has been reported that the sugar in tea reduces appetite resulting in reduced intake of nutritious food (Michaelsen et al., 2000:193-205). Michaelson, Warren, Weber-Gasparoni, Marshall, Drake, Dehkordi-Vakil, Kolker and Dawson (2008:72) further report the use of feeds high in sugar content negatively affects the dental health of children. The Road to Health Booklet also stipulates that tea and juice are suitable sources of fluids in children aged below 24 months. Responses from the caregivers in the present study suggest that the fluids caregivers were giving to the children are not included in the fluids recommended in the Road to Health Booklet.

#### **4.2.1.2. Theme 2: Feeding patterns**

No subthemes were identified for Theme 2.

Feeding patterns refer to the frequency, type of food and specific times caregivers provide food to the children. The feeding routine and pattern current participating caregivers maintained was giving their young children's main meal either "sometimes", "once" or "twice" per day. This implies the feeding frequency inconsistent as indicated in the quotes below.

- *"I gave him food 3 times per day. At 9 I give him soft porridge and maybe 30-45 minutes give his bottle".*
- *"Soft porridge I give it to her twice. Sometimes, once per day".*
- *"I give her porridge in the morning and soft porridge during the day. Soft porridge I give it to her twice".*

- “During the day I give her porridge and milk”.
- “At 4 after he had eaten around two I would give her bottle milk or rooibos tea”.
- “In the morning he takes rooibos bottle. Around nine, soft porridge, around one she feeds on Purity® and then rooibos bottle again. Around one he eats Purity® then he drinks rooibos. At four, soft porridge again then he will get milk bottle. Then at eight he gets porridge and soup”.

Caregivers are expected to establish a certain feeding pattern, regime or routine at an early stage (Black & Hurley, 2013:160). If this pattern is not maintained at an early stage of life it could result in eating disorders (obesity and picky eaters) (Liu & Stein, 2013:12). Eating disorders are associated with stressful situations which impact negatively on the nutritional status of the child (Black & Hurley, 2013:16; Liu & Stein, 2013:140).

The Road to Health Booklet and the WHO (2013:6-24) recommend that children aged birth to 6 months be fed 8 times per day (per 24-hour day) and those from 6 months to 5 years of age 6 times per day. This recommendation was clearly not followed by the caregivers in this study. Moreover, it is implicitly stated that children should be exclusively breastfed for six months and be provided with either formula milk or at least 2 cups of full cream cow’s milk daily; however, caregivers also did not adhere to these guidelines (WHO 2013:12; Road to Health Booklet).

#### **4.2.1.3. Theme 3: Food preferences**

Food preferences refers to choices one makes regarding the types and amount of food one intends to feed based on taste, satiety, presentation, modern trends portrayed by media and cultural/traditional influences. They could either be detrimental to one’s health or bring about a positive impact(Black & Hurley 2013:16). Caregivers as well as young children have food preferences. Two subthemes were identified in Theme 3 and these were *Caregivers’ preferences and Children’s preferences*.

The two subthemes are paid attention to in the next section.

### **(a) Caregivers' preferences**

Caregivers' preferences referred to what caregivers deemed appropriate food for their children. An important finding was that caregivers opted to substitute the young ones' diet with modern food trends because they did not want to bring up their children in the "old way" in which they were brought up by their parents. This is clearly demonstrated in statements made by the caregivers such as:

- *"They should not grow [up]in the same old way that we did".*
- *"It's just that we are no longer belonging to the old generation and I want my child to have at least a little bit of Purity®".*
- *"Old generation used to give children breast milk, soft porridge and porridge. This Purity® and formula milk thing they were not there. We never had them."*

Traditional trends (what caregivers' parents used to provide in terms of food) versus modern trends (food that caregivers are presently providing their children as advertised by media) could be factors that influence caregivers' preferences regarding child feeding practices. The printed media as well as television advertisements influence feeding practices of modern society which includes children between 6 and 24 months as per the Encyclopaedia of Early Childhood Development Synthesis (2013:4). In their study, Arcan, Bruening and Story (2013:33) identified that television greatly influences the types of food caregivers give their children as well as caregivers' feeding preferences. Some caregivers chose to follow current trends and give the young ones Purity® –which is instant pureed meals made from vegetables, fruit, meat and other foodstuffs bought in, for example, supermarkets.

- *"Purity® is a snack you must also feed the child well. Snack can be given in between meal times when the child is playing".*
- *"I want my child to have at least a little bit of Purity®".*

However, the Road to Health Booklet recommends that children be given the recommended diet regardless of what the media portrays or what caregivers prefer to give.

On the other hand, it is interesting that all caregivers agreed that according to the way they were brought up, they were fed all food components and thus they were fed a healthy diet as verified below.

- *“We were brought up with meat soup. We were fed porridge and cow milk”.*
- *“Yes, with porridge. Sometimes, marogo, cabbage, potatoes or porridge and meat soup”.*
- *“We grew up eating vegetables, milk, and soft porridge.”*
- *“Old generation used to give children breast milk, soft porridge and porridge. This Purity® and formula milk thing they were not there. We never had them. A woman would breastfeed a child for two to three years”.*

In spite of all participating caregivers’ their belief that they as young children they were fed a healthy diet, some did not follow the ‘healthy nutrition’ example of their own childhood days. The current study finding is contradictory to that of Liu and Stein (2013:12), Kramer, Coutinho, Vaeth, Christiansen, Suatkar and Gittelsohn (2012:948) and Gibson et al. (1998:207) who are all in agreement that caregivers who reported they believed they had grown up eating healthy food are more likely to provide a healthy diet. More importantly, with children a mother *“would breastfeed a child for two to three years”* one caregiver said while another added:

- *“I was breast [breastfed] on demand as I was told that I used to demand breast milk and would instruct my mom to sit down so that I could breastfeed.”*

But, in this study some caregivers weaned children off breastfeeding much earlier. Early weaning of young ones in modern times could be ascribed to mothers’ other commitments like following her own career and/or going to work to earn extra money (Liu et al., 2013:12). Early weaning implies that caregivers are compelled to introduce formula feeds thereby not adhering to the

recommendation of providing breast milk made in the Humanitarian Charter (2013:140-141) and the WHO (2013:398). The guidelines in the Road to Health booklet clearly advises the nourishment of children aged 0 to 6 months should be exclusive breastfeeding on demand or 3 hourly per day and complementary food should be introduced at 6 months after birth to supplement breastfeeding (WHO, 2013:2-4).

As far as food preferences is concerned, some caregivers stated they did not provide other sources of affordable protein, specifically Mopani worms which is an excellent source of protein and freely available, as they personally did not like it.

- *“I don’t eat Mopani worms”.*
- *“I also don’t eat Mopani worms”.*

Liu and Stein (2013:12) state that tradition has a positive influence on recommended feeding practices of caregivers; however, in this study the findings rather imply that modern trends were followed by caregivers. Although caregivers reported to have been fed well in their early childhoods, modern feeding practices, work commitments and personal preferences seem to significantly influence caregivers’ non-compliance to the information made in the Road to Health Booklet of examples of food important for quality and healthy infant and child health nutrition.

## **(b) Children's preferences**

Caregivers voiced that they preferred to feed their children according to the latter's food likes and dislikes. This statement is confirmed by the following verbatim quotes:

- *"You know children tend to spit out food because they don't want them".*
- *"Actually he doesn't like milk bottle".*
- *"She prefers to eat soft porridge than to drink milk".*
- *"He doesn't want it [milk in bottle] he vomits it".*
- *"He prefers to have it [milk in bottle] with food".*

Previous studies reported that children have a tendency of spitting out food if they disliked the taste, food, temperature, smell or appearance of it (Liu et al., 2013:11; Black & Hurley, 2013:20; Llewellyn & Wardle, 2013:27). The Encyclopaedia of Early Childhood Development Synthesis (2013:4) concurs with the current study findings that children do have preferences. In the current study spitting "*out food because they don't want them*" was specifically mentioned as the young child's sign of satiety (a feeling of having had enough food) or dislike.

It has been confirmed in previous studies that some young children do have bigger appetites ('an avid appetite') while others have internal satiety (Llewellyn & Wardle, 2013:27; Gibson et al., 1998:207). But, the spitting out of food does not mean satiation (having had enough food) as often interpreted by caregivers. If the young child is given food he or she dislikes, spits it out and feeding is stopped due to the misconception that the child is 'full', it could lead to a reduced intake of the necessary nutrients which could result in under-nourishment (Liu et al, 2013:11; Black & Hurley, 2013:20; Llewellyn & Wardle, 2013:27). Clearly, as confirmed by these authors, young children do have food preferences and they convey the message by spitting out the food provided. However, caregivers can be encouraged to prepare different meals in order for the child to experience different tastes whilst others could try to be patient when feeding children, serve

food that is neither cold nor hot and ensure that the consistence of food is according to the child's preference (Liu et al., 2013:11; Black & Hurley, 2013:20).

#### **4.2.1.4. Theme 3: Knowledge of caregivers**

The caregivers' level of knowledge about child nutrition and their educational status seem to be the critical determinants of childhood nutrition and undernourishment. Two subthemes identified in Theme 3 were *knowledge of the caregivers regarding nutrition or under-nourishment* and *Knowledge of food preparation*

##### **(a) Knowledge of caregivers regarding nutrition and under-nourishment**

In this study caregivers lacked knowledge about nutrition and under-nourishment; the causes thereof as well as associated signs and symptoms. They also did not understand how weight could be used to diagnose under-nourishment. One caregiver attributed her child's condition to diarrhoea due to teething and another reported she had not been informed about the diet she should provide her child. Comments caregivers' made in this regard included:

- *"I am going to give her food but my child was admitted here because she had diarrhea which was caused by teething".*
- *"I wasn't told anything about nutrition or under-nourishment".*
- *"My child doesn't have too much body weight naturally but here at the hospital they will tell you that the child has under-nourishment and seriously my child's weight is like that".*
- *"My child was admitted here because of diarrhoea which was caused by teething."*

The researcher deduced from the caregivers' perceptions as reflected in the verbatim transcriptions that their view of a balanced diet was it should mostly include starch and milk. Most of their comments of food groups included "motogo", "bogobe" and milk. Caregivers also shared they were unaware that their children lacked some other constituents necessary to ensure a balanced diet.

- *“I was also not aware that my child is lacking some of the things that were said she lacks and the way I brought her up I thought it was the best way. So when I arrived here and they said my child is lacking one two, three ... one, two, three, I was surprised and said how is it possible”.*
- *“I thought what I was giving was the right thing”.*

A balanced diet should have all food components such as carbohydrates, proteins, fats vitamins and minerals (Ashworth & Ferguson, 2009:5346). Caregivers are supposedly expected to have an idea of what nutrition and under-nourishment entails, the causes thereof, signs and symptoms and preventative measures. Not only do they receive a Road to Health Booklet when discharged with their baby from hospital as aforementioned, but as Roy et al. (2005:329) point out, they are mostly adults and adult learners have life experience and prior knowledge that they have acquired in their learning phase (at schools, billboards advertisements in health institution and leaflets). This suggests that caregivers should be able to practice what they have learned but it was not the case with these particular caregivers (Roy et al., 2005:329)

The researcher expected caregivers to mention all food components of a balanced diet and the importance thereof. Disappointingly, not one caregiver who participated in this study could provide the requested information. This confirms the lack of knowledge about nutrition and under-nourishment by caregivers. A similar lack of this essential knowledge among caregivers of young children was discovered by various other researchers, namely Oyekale and Oyekale (2009:118-127), Turyashemerwa et al. (2009:975-989) and Kruger and Gericke (2002:219)

### **(b) Knowledge of food preparation**

The caregivers further lacked knowledge of food preparation. For example, they said they did not measure formula milk powder and water when mixing feeds, they simply estimated the proportions.

- *“Jooo!! I don’t measure, I just pour”.*
- *“When I pour water I just pour and I add milk”.*



- “*Eish!! Milk I don’t measure I just pour. I just pour*”.
- “*Agh sham!! The measuring [of formula powder]I don’t do it. I don’t want to lie [laughter]. You see if it is watery and when it is not yet milk I pour until I can see that now it is milk and I give it to him*”.
- “*I don’t even understand some of this measurement*”.

The above mentioned comments undoubtedly show that food was not prepared according to instructions. The preparation of formula milk depends on the type of formula. Different companies provide different scoop sizes in formula containers. For every scoop of formula milk it is expected that it will be equivalent to a certain amount of water (Andresen, Rollins, Sturm, Conana-Greinerd, 2007:1). Instructions for preparation of formula milk preparation are tabulated clearly on the formula containers; but, caregivers in this study still did not follow measurements. The milk provided by most caregivers to their children was either over- or under-diluted during preparation as confirmed by the following words of one caregiver: “*I just pour until I see that now it is no longer water but milk [as it is white]*”.

Not following the prescribed preparation of formula milk implies children might be getting a less concentrated amount of the recommended dietary intake of milk. Also, because they have no specific timeframes of giving milk children might be getting less than the recommended dietary intake of milk as recommended in the Road to Health Booklet. The findings do not comply with the guideline made in the Road to Health Booklet which recommends children be given either breast milk on demand up to the age of 6 months, formula milk or at least 2 cups of full cream cow’s milk.

Moreover, hygienic measures were also not adhered to. One participant acknowledged that she “*don’t wash the bottle with boiling water I use already cooled off water*”. Preparation of the food, in this instance it was formula milk, was not done in a hygienic way. Caregivers are supposed to wash their hands as well as the utensils with soap and water before preparing food (Andresen et al., 2007:1; Gupta et al., 1991:274). In this study none of the caregivers mentioned washing their hands or the utensils. Taking the necessary steps to ensure utensils

used are free of bacteria is an important precaution when preparing food (Andresen et al., 2007:1). Dewey and Mayers (2011:29-142) and Nguyen and Sin (2008:232) concur that the immunity of children from the age of 6 months need to be boosted. From this stage, they start exploring their environment and can come into contact with contaminated food or items because they touch and taste it or put it in their mouths. If caregivers then also do not prepare food under hygienic circumstances, children whose immune system might be already lowered can get serious bacterial infections.

### **Concluding remarks: Caregiver's feeding practices for children aged 6 to 24 months.**

The researcher came to the conclusion that even if the caregivers had financial resources to provide the recommended nutrition to their children, they were still unlikely to do so as some of their feeding practices were influenced by a variety of factors. These include the lack of knowledge regarding food groups to be given to children (Kumar et al., 2006:45; Kruger & Gericke, 2002:219) and the combination of both the both the caregivers' and children's feeding preferences (Kumar et al., 2006:46). The researcher deemed it appropriate to engage with caregivers on how best they thought they could resolve this problem of not following the feeding practice recommendations made in the Road to Health Booklet and the WHO (2013:12-29).

#### **4.2.2. Objective 2: Suggestions of caregivers regarding nutrition**

The second objective in Phase 1 was to identify the caregivers' perspectives on the challenges they faced to nourish their children aged 6 to 24 months to ensure they did not become under-nourished.

The focus of the questions asked was related to the challenges caregivers experienced with regard to their young children's nutrition and how best these challenges could be resolved. The probing asked questions were: "What prevents you from giving the food that is stipulated in the Road to Health Booklet?" and

“What are the things that you are going to do from now on to ensure that you provide the recommended diet?”

In the next section, the challenges caregivers reported are identified in Step 1 and the caregivers’ strategies to address these challenges are noted in Step 2.

#### **4.2.2.1. Identifying caregivers’ challenges**

Only one theme with three subthemes was identified with regard to the challenges as shown in Table 4.2. The theme related to the fact that there was an apparent need on the caretakers’ side for the optimal use of available resources to be addressed. Three subthemes were identified: financial management was found by caretakers as a significant challenge as was health education related to nutrition and under-nourishment of children.

**Table 4.2: Themes and subthemes related to caregivers’ challenges**

| THEME                                                                                  | SUBTHEMES                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>4.3.1.1 Theme 1: The optimal use of available resources needed to be addressed.</b> | <i>(a) Resources</i><br><i>(b) Financial management</i><br><i>(c) Health education related to nutrition and under-nourishment</i> |

#### ***Theme 1: Addressing the need for optimal use of resources***

There was consensus among all caregivers that the optimal use of all available resources needed to be addressed. They said they did not know about such resources neither did they have the skills required to meet the nutritional requirements of their children. Some were unable to use available financial help (in the form of child grants) optimally for the nutritional benefit of the child. They were also concerned because they needed adequate health education related to nutrition and under-nourishment.

Three subthemes were identified as major challenges which hampered the caregivers in providing healthy nutrition to the young children in their care and

these were resources, *financial management and health education related to nutrition and under-nourishment.*

### **(a) Resources**

Caregivers reported they did not have the skill or knowledge on how to start cultivating fruit and vegetable gardens. Comments that were made included:

- *“I don’t have seeds plant and even if I had I don’t know how to plant those fruits and vegetables”.*
- *“We don’t have land to plant. The yards that we live in are [is]too small”.*
- *“Water is expensive to use on watering the garden”.*

Having farming skills as a necessary tool and resources such as land, seeds and water are needed for subsistence farming (du Toit, Ramonyai, Lubbe & Ntushelo, 2011:23). The objective of the World Food Aid Summit held in Rome in 1996 was to ensure that all people have the skills, physical and financial resources necessary to enable them to meet and sustain food production and access (du Toit et al., 2011:23). As reported by du Toit et al. (2011:5), the following organisations had an objective of addressing what caregivers reported as lacking resources: the United Nation Development Programme (UNDP), Food and Agriculture Organization of the United Nations (FAO), (the South African) Department of Agriculture, Forestry and Fisheries Employment, and the (South Africa) Centre for Poverty and Employment and Growth (CPEG) of the (South Africa) Human Sciences Research Council (HSRC).

### **(b) Financial management**

Caregivers reported parents’ misuse of child grants which is supposed to be used for adequate nutrition of the young children. One made the following statement:

- *“Some parents instead of using the money to buy food for children use it to gamble, buy themselves clothes or worse cases beer”.*

A lack of knowledge predisposes one to poor financial management. If caregivers are informed they are more likely to do what is right than if they are not informed. This correlates with the stance of Anderson, Zhan and Scott (2004:167) and Norvilitis, Merwin, Osberg, Roehling, Young and Kamas (2006:1395) that people who save or have good financial management are informed people.

### **(c) Health education related to nutrition and under-nourishment**

Some caregivers reported not having received any health education regarding nutrition and under-nourishment, nutritional requirements of their children and preventative measures as the two quotes below show.

- *“I am talking for my side what they told me as I was not given full information on what the child should have or not”.*
- *“I was not given full information”.*

Health education is a major tool which can be used to empower people with knowledge or bring about change in people’s life. If people are not educated on nutrition-related issues they are more unlikely to provide adequate nutrition to their children (Kumar et al., 2006:45; Penny et al., 2005:1868).

### **Strategies to solve challenges from the caregivers’ perspective**

The aim of this study was not to discuss the challenges but rather to identify those challenges and come up with strategies to solve them from the caregivers’ perspective.

Caregivers reported that that they would discard their old habits and add new habits. They would introduce feeding patterns but highlighted the need to be provided with knowledge regarding some factors associated with nutritional status and access to information regarding financial management. All this was suggested by them in order to improve the feeding practices that they previously practised.

Some caregivers reported that healthcare professionals had explained to them measures that they could do to improve the nourishment status of their children. These measures included introducing a structured feeding routine and frequency, the improvement of their knowledge regarding food preparation, and finding ways of acquiring resources.

From Theme 1, personal actions taken by caregivers to prevent recurrence of the problem four subthemes were identified and these included *discarding old habits and adding new habits, introducing feeding pattern, providing knowledge regarding factors associated with nutritional status and lastly access information regarding financial management*

Table 4.2 reflects more of the challenges that the caregivers experienced and for which they needed assistance from outside to overcome them. The assistance could be in the form of ideas, finances or the acquirement of knowledge on good nutrition practises. Table 4.3 reflects what the caregivers themselves are capable of addressing personally to prevent recurrence of the problem. Therefore it was appropriate to discuss Table 4.3 separately.

**Table 4.3: Themes identified regarding caregivers' suggestions**

| THEME                                                                                        | SUBTHEMES                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4.3.2.1 Theme 1: Personal action taken by caregivers to prevent recurrence of problem</b> | <i>(a) Discarding old habits and adding new habits<br/>(b) Introducing feeding pattern<br/>(c) Providing knowledge on factors associated with nutritional status<br/>(d) Access Information regarding financial management</i> |

**(a) Discarding old habits and adding new habits**

In the previous objective caregivers' non-adherence to the feeding recommendations of food groups outlined in the Road to Health Booklet was a huge problem as they felt that it was not good enough to meet the nutritional needs of their children. However, they all agreed to start implementing the health education given to them by healthcare professionals to correct their feeding practices immediately and continue doing so in the future.

Caregivers said they would discontinue giving inappropriate food to children. One voiced she would reduce her child's intake of tea and give more milk.

- *"I should not give her inappropriate food like Simba Chips®, juice".*
- *"I must reduce this tea and rather give him milk".*
- *"This spaghetti macaroni, I should cook for him. Also bread with Rama®".*
- *"Maybe I should give that milk on a four hourly interval".*
- *"I will add vegetables and fruits to my child's meal".*
- *"I should also give mashed potatoes, pumpkin, marogo, spinach".*
- *"Give him more milk. Sometimes give him banana, apple pear, orange...  
[pause] ...porridge and soup".*

Caregivers said that they would no longer provide a diet which has more carbohydrates and less of other food groups, but would rather give a balanced diet containing food groups like protein, vegetables, fruits and fats. What caregivers suggested correlates with the recommendations made by the WHO (2013:398) of introducing all types of food gradually to children from six months and to include all food groups when the children reached nine months old.

As part of their intervention programme to combat undernourishment, the United Republic of Tanzania (URT) also recommends for children to be exclusively breastfed from 0 to 6 months and by the age 6 and above complementary feeds should be introduced (URT National Nutrition Strategy, 2001-2016:18). The caregivers' suggestion to follow a balanced diet comprising of all food groups including exclusive breastfeeding is what is recommended in the Road to Health Booklet which were given to caregivers on discharge post-delivery.

Caregivers' suggestion of providing a balanced diet is further validated in previous studies and guidelines on a balanced diet for young children (Encyclopaedia of Early Childhood Development, 2013:4; Liu & Stein, 2013:18)

## **(b) Introducing feeding pattern**

During the focus group discussion, caregivers displayed the lack of knowledge as a challenge as regards adherence to maintaining a routine and frequency with feeding young children.

Caregivers reported they would take the following measures to address and correct the feeding practices and pattern they were used to. One caregiver said she would encourage her child to eat rather than stop feeding her child when food is refused. In other words, this participant demonstrated willingness to become more patient and persistent to encourage her child and to establish a proper feeding routine for her child.

- *“I need to force [encourage]him to eat”.*
- *“Give him the right food timeously”.*
- *“Maybe I should give that milk on a four hourly interval”.*
- *“Give him more milk”.*
- *“I must reduce this tea and rather give him milk”.*
- *“...and also milk. He should drink enough because I was not giving him enough”.*

Caregivers reported the need to establish a routine and the need to adhere to a fixed routine with regard to feeding of their children. The likelihood of their children following a proper eating routine later in life is much more possible for caregivers who model a certain role or maintain a certain routine for their children, for example, including fruits and vegetables intake in their diet, eating meals at a specific time (Encyclopaedia of Early Childhood Development, 2013:4; Kramer et al., 2012:948).

Kruger and Gericke (2002:217) also emphasise that caregivers need to establish a routine as part of feeding practices while the WHO (2013:24) recommends increasing the number of times and frequency of giving feeds– three times a day of complementary feeds excluding the frequency that one gives milk which is in line with what caregivers listed as part of their strategies to assure the establishment of a specific feeding pattern.



### **(c) Providing knowledge regarding factors associated with nutritional status**

From the health education they received one caregiver identified that under-nourishment was brought about by diarrhoea which could have been predisposed by non-adherence to good hygienic practices either from the child playing with soiled items she put in her mouth, from preparing food not hygienically or storing food in unhygienic containers (UNICEF, 2007:18).

The said caregiver voiced that she intended to improve the hygienic status of her child to make sure the latter's immunity is boosted to combat communicable diseases that could negatively impact (for example, cause diarrhoea) on the health status of the child. She further said she would ensure preparing the child's food under hygienic circumstances; for example, keeping the cooking utensils clean and sterile. Another caregiver said that she would take better care of her child from now on in terms of good personal hygiene and also give the required nutrients.

- *“Let him live in a clean environment even where he plays. Bath him well and give him the right food”.*
- *“I will take my child to get the missed injections that he was supposed to have had so that he does not get sick again.”*

Caregivers understood that hygiene has a positive impact on a child's overall well-being. One caregiver suggested they needed to bath children and ensure that the environment that children play in is also clean. Previous studies conducted also associated good health with good hygiene (Andresen et al., 2007:1; Kruger & Gericke, 2002:222). This implies that caregivers' suggestions were in line with previous studies that recommended good hygiene practices as a method of preventing food contamination, diarrhoea and under-nourishment. Caregivers' suggestions were also validated by Luby et al. (2005:225) who recommend using of soap and clean boiled water to wash utensils or wash hands prior to handling food.

A further positive suggestion which emerged was that one caregiver stated she would ensure her child receives the correct and timeous immunisations; she

would take *“my child to the clinic to correct the missed doses”*. As part of their strategy, caregivers realised child immunisation was crucial for the well-being of their children. They said immunisation prevents the transmission of communicable diseases like pulmonary tuberculosis, polio, and so forth.

It's a known fact that with the severity or prognoses of disease like measles, transmission can be prevented by routine immunisation which also forms part of what the South African government is currently practising with Integrated Management Childhood Illnesses (IMCI) to ensure child wellness (Sphere Project, 2013:277; Michaelsen et al., 2000:283). If a child's immunity is compromised due to ill health the child's appetite will be negatively affected and under-nourishment will ensue. This concurs with recommendations made by the WHO (2008:29) on the prevention of communicable diseases with routine immunisations from birth to age 12 years of age and the concurrent intervention of Integrated Management of Childhood Illnesses (IMCI) as a strategy to combat under-nourishment (WHO, 2013:398; Gupta et al., 1991:274) and the Road to Health booklet.

One caregiver came up with the suggestion that she would make certain her child's weight is monitored.

- *“I will take my child for her appointments where they will be checking her weight”.*

The Road to Health Booklet stipulates weight monitoring needs to be done as part of growth and child wellness of all children up to 5 years to detect early signs of obesity or, as applicable in the context of this study, under-nourishment. Children who are underweight are diagnosed by a health professional (in this context a doctor or dietician) and she or he will recommend supplementary feeds. The caregivers' suggestions are what the Input Paper for Health Roadmap of Combating Undernourishment in South Africa (2008:29) is using as a monitoring tool to assess child wellness and growth for early detection of under-nourishment.

The same caregiver said she would keep her child's food in closed containers to avoid flies contaminating the food:

- *"We need to keep children's food in containers that have lids to close so that flies don't have access to those foods".*

It is a general known fact that leaving food exposed or using unclean, unwashed utensils attract flies and is susceptible to airborne diseases. If humans eat the food they are more than likely to fall ill (have diarrhoea) from food poisoning. Acute or chronic diarrhoea causes under-nourishment which is a life-threatening disease (Guerrant et al., 2008:487; Bryce et al., 2005:1147). If caregivers ensure non-contamination of food, food poisoning would be prevented and under-nourishment will not occur provided that the diet is balanced.

This caregiver's suggestion is supported by previous studies which found proper hygienic practices of food handling and storage prevent insects like flies from contaminating food. In turn, it prevents diarrhoea in children—and in severe or chronic instances of diarrhoea – under-nourishment (Guerrant et al., 2008:487). Furthermore, the principles for proper food by the WHO (2013:34) concur with this caregiver's suggestion.

A further challenge the researcher identified was that rehydration was inadequately prepared and was not given effectively. One caregiver reported that if her child had diarrhoea, she would prepare a sugar-salt solution as stated in the Road to Health Booklet and take her child to the clinic if the diarrhoea did not resolve in two days.

- *"If he has diarrhea I will prepare sugar salt solution and give it to him for two days".*

This is verified by the recommendation in Road to Health Booklet as well as the United Republic of Tanzania's National Nutrition Strategy 2011/12-2015/16 (URT, 2011-2016:4) that children who suffer diarrhoea or vomiting should be given a sugar-salt solution with each loose stool passed or vomiting occurs in

small amounts frequently until the diarrhoea or vomiting has resolved as acute or chronic diarrhoea could lead to under-nourishment.

The provision and use of clean water was reported by caregivers as a crucial factor because contaminated water could lead to water-related illnesses. Caregivers wished for access to safe, clean water to give to their children.

- *“Clean water is right. Dirty water has germs. You cannot give your child dirty water you have to first boil the water before you can give the child to drink. If you don’t your child will have sores, diarrhea and some diseases whereby when he urinates it will be painful”.*

It was clear from caregivers’ suggestions that they knew the importance of providing safe clean water as well as the basic measures that one has to follow to achieve it. Studies that validate this specific suggestion from participants regarding provision and use of safe water were done by the United Republic of Tanzania National Nutrition Strategy 2011/12-2015/16 (URT, 2011-2016:5) and Smith et al. (2005:1290).

#### **(d) Access information regarding financial knowledge**

Caregivers believed it was necessary for other caregivers like them to be supported with financial planning. Below is one of the suggested comments that related to the need for financial management which caregivers reported:

- *“Some parents need to be taught how to budget the child grant as some don’t. They would use the money for gambling, buying clothes for themselves whilst others would even go a step further to buy beer with it”.*

In order for people to achieve their fullest potential of health they must be accorded education (Ottawa Charter, 1986:17-21). Caregivers attributed under-nourishment to a lack of financial knowledge. They wished that government could give them an idea of how best to manage their children’s grant as some of them were unable to do so (Smith et al., 2005:1290). Anderson et al. (2004:1) similarly found in a study they conducted with students that, as stated by the caregivers’ suggestions, people who have been empowered with knowledge on financial management are more likely to refrain from money laundering and unplanned debts than people who are not empowered with such knowledge.

### **Concluding Remarks: Strategies to solve challenges from the caregivers’ perspective**

Based on the suggestion that caregivers came up with regarding discarding old habits and adding new habits; introducing feeding patterns and providing knowledge on some factors associated with nutritional status, and having access to information with regard to financial management, it is clear that some of their suggestions have already been implemented at government level and also been validated by research. This assisted the researcher to develop strategies on feeding practices.

## **PHASE 2**

### **Formulation and refinement of strategies to improve caregivers’ practices regarding nourishment of children aged 6 to 24 months.**

Phase 2 will address the formulation and refinement of strategies for caregivers regarding nourishment of children aged 6 to 24 months which will be supported by literature control.

### **4.2.3. Objective 3: Formulation of strategies for caregivers on feeding practices of children aged 6 to 24 months.**

The goal of developing the strategies was to enable caregivers to provide the required nutrition to children aged 6 to 24 months. The focus of the strategies targeted caregivers who fell within the study context. Strategies were built upon WHO recommendations, governmental interventions, and validation of the strategies by previously done studies which addressed nutrition-related issues in the 6 to 24 month old age group.

During the formulation of the strategies the current researcher considered the input of the caregivers (refer to Chapter 3 regarding methodology followed). The researcher followed the principles recommended by the government of the United Republic of Tanzania National Nutrition Strategy (URT, 2011-2016:15) in that community participation is important as part of formulating nutritional strategies. The researcher considered the principle to be important as caregivers themselves will actively be leading change by providing the required nutrition to the children. This principle was used in all the preliminary strategies formulated by the researcher. Strategies were based on challenges and suggestion that caregivers came up with during the focus group discussion.

#### ***Some challenges identified***

The major challenges identified by the caregiver participants included addressing the need for the optimal use of available resources. Resources could be in terms of land, seed, skills and the use of recycled water. Other challenges derived from the focus group discussion included the need to address optimal use of financial management and health education related to nutrition and malnutrition.

Caregivers reported the inability to use available resources like land, seed and water to start subsistence farming. Optimal usage and availability of extra financial support at home to back up the little finance they receive in the form of a child grant. Unemployment was also reported as an obstacle to providing adequate nutrition. Lack of knowledge on how best to use the child grant by

caregivers was highlighted while their use of the child grant money for non-child related issues like buying oneself clothing or beer was also an issue of concern. During the interview caregivers indicated that although the South African Government provides child grants and they do receive it, it is insufficient to cater for the needs of the child.

By carefully considering their suggestions, it became clear that caregivers have little knowledge on how to budget and there is no adequate monitoring system which monitors the use of the child grant. In addition to these challenges reported was the fact that there is insufficient education related to nutrition and malnutrition given by healthcare professionals to caregivers. Caregivers further suggested discarding old habits and adding new ones, introducing feeding patterns, the need to be provided with knowledge regarding factors associated with nutritional status, and to have access to information regarding financial management.

In order for caregivers to achieve all that, they will need to be provided with support in the form of education and training on food groups; nutrition and malnutrition; preparation of food; hygienic maintenance of utensils and hands; introducing and adhering to a certain feeding pattern and frequency; creation of small gardens; subsistence farming; the use of recyclable water; and proper financial and budget planning. The strategies shown in Table 4.4 were identified to improve nutrition of children in the age group 6 to 24 months:

**Table 4.4: Identified strategies based on caregivers' suggestion**

| THEME                                                                                        | SUBTHEME                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4.2.3.1 Theme 1: Educating and training caregivers regarding the subthemes identified</b> | <p>(a) <i>Food groups</i></p> <p>(b) <i>Nutrition and malnutrition</i></p> <p>(c) <i>Preparation of food, hygienic maintenance of utensils and hands</i></p> <p>(d) <i>Introducing and adhering to a certain feeding pattern and frequency</i></p> <p>(e) <i>Creation of small gardens, subsistence farming and use of recyclable water</i></p> <p>(f) <i>Proper financial planning and budget</i></p> |
| <b>4.2.3.2 THEME 2: Motivate caregivers to enhance nutrition</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                        |

**4.2.3.1. THEME 1: EDUCATING AND TRAINING CAREGIVERS REGARDING THE SUBTHEMES IDENTIFIED**

Education and training are the basis of bringing about change in one's life (Kumar et al., 2006:420). These authors assert if people are educated they are more likely to do what is right than what is not right. Therefore, the recommendation of education as the basis of bringing about a change in the mindset of individuals to do the right thing and not make arbitrary decisions is positive and can result in empowerment. Thus, incorporating the contents of the Road to Health Booklet should be part of health education by healthcare professionals during antenatal clinics in order to reinforce the feeding recommendations of the WHO (2013:938) and Kumar et al. (2006:417). The Integrated National Programme Strategic Plan (2002-2006:25) also supports formal teaching as a major tool of behavioral change.

The researcher deemed it fit to educate and train caregivers with the possibility of creating a community project that will address the above mentioned issues in order to change the mind set of caregivers as part of developing strategies for caregivers on feeding practices of children aged 6 to 24 months. The purpose of developing strategies was to change people's (in this context caregivers') attitude



and practice, to make them aware, give them the knowledge and, hopefully, to change their mind set so that they could provide the recommended diet to the children.

Education and training should incorporate food groups; nutrition and malnutrition; food preparation; hygienic maintenance of utensils and the practise of hand washing; introducing and adhering to a certain feeding pattern and frequencies; the creation of small gardens; subsistence farming; the use of recycled water; and proper financial planning and budgeting discussed in the subthemes next.

**(a) Food groups**

Educating and training caregivers regarding the food groups which are supposed to be given to children – and which are clearly tabulated in the Road to Health Booklet and the Department of Health Nutrition Poster (n.d.)—was identified by the researcher as a strategy to combat malnutrition.

Healthcare professionals need to intensively reinforce what is written in the Road to Health Booklet through health education so that caregivers could remember to give food groups that are recommended in this booklet. Health professionals could reinforce such health education during antenatal clinic follow-up visits, visits to child wellness clinics, and child-related illness consultation visits.

Workshops could also be held with community members on child wellness awareness days or so-called ‘open-days’ which could be identified and implemented by the specific hospital. A planned programme for the open days or child wellness awareness days should include the presentation of the recommended food groups, the normal weight ranges, need for weight monitoring while mid upper arm measurements could be demonstrated to the community on these informative days. This might assist caregivers to take the Road to Health Booklet seriously or assist those who are unable to read or understand what is written in it. Through continuous health education caregivers could be assisted to assimilate what is written in the Road to Health Booklet and tabulated in

Department of Health Nutrition Poster (n.d.). This could result in successfully changing caregivers' mind set.

This strategy was recommended by the South African Government to combat malnutrition in the Input Paper for Road Map (2008:31) and validated by Kupka in the United Republic of Tanzania's National Nutrition strategies 2011/12-2015/16 (URT, 2011-2016:29). The continuous education on food groups is paramount; the WHO (n.d.:16-18) in its Planning Guidelines (n.d.:16-18) also tabulate key training guidelines which have to be followed to assist caregivers with knowledge and skills regarding the introduction of complementary feeds.

The WHO Global Strategy for Infant and Young Child Feeding (n.d.) supports the notion that if people are more knowledgeable about the appropriate food that has to be given to children they are more likely to provide it than discard or disregard such food types. The strategy is reaffirmed by Kassouf and Senauer (1996:818), Sovyanhadi and Cort (2004:31); and Penny et al. (2005:1863) who are in agreement that people gain more knowledge after presentation and continuous reinforcement through education. Furthermore, inputs from healthcare professionals was the use of visual electronic device to broadcast simple meal plans in waiting areas of hospitals and clinics and the provision of tablets by either the South African Government or the non-governmental organisation (NGO) to which the researcher would have negotiated on the healthcare professionals' behalf. This method was initially used by commercials and has been adopted by the health system to empower and educate patients (Eysenbach, 2001:1).

### ***(b) Nutrition and malnutrition***

Information transfer regarding nutrition and malnutrition was listed by the researcher as a strategy to be included into the Road to Health Booklet as access to information is mandatory in South Africa (Promotion of Access to Information Act no 2 of 2000).

Additional information typed by healthcare professionals in the form of pamphlets regarding causes of malnutrition and signs and symptoms should be included as presently only *what nutrition is*, is highlighted. Healthcare professionals could distribute the typed pamphlets to caregivers at the same time as issuing the Road

to Health Booklet, on discharge, post-delivery, on open days and child wellness days.

In addition, how oral rehydration solutions should be given to the children should be illustrated with posters exhibited on hospital boards and typed as pamphlets to be issued out to caregivers on discharge post-delivery. It should also be more widely distributed such as when health education is given by healthcare professionals during antenatal clinics, child wellness clinics or on open days allocated by the specific hospital. This will assist caregivers to give the rehydration solution in such a way that children will retain it. This information will aid caregivers to prevent acute or chronic malnutrition caused by diarrhoea.

This implies that hands-on training as recommended by the researcher should be another option of equipping caregivers with better skills of doing things as validated by Frank et al. (2012:1), Penny et al. (2005:1863) and Sovyanhadi and Cort (2004:31) who concur that ongoing training is a necessary measure of reinforcement. Healthcare professionals added the use of technology that would also be played in hospitals and clinic foyer areas whilst waiting in the queue for files or the doctor. This video which would have been added on by healthcare professionals on YouTube shows the clinical manifestation of kwashiorkor and marasmus for the caregiver to see during admission. This is supported by the e-HealthSouth African strategy (2012:11).

***(c) Preparation of food, hygienic maintenance of utensils and hands***

Outlining simplified steps of formula milk preparation with posters or typed pamphlets by healthcare professionals in the caregivers' languages (Pedi, Zulu, and Tsonga) that caregivers can easily understand should be included during the implementation of education and training.

Healthcare professionals could type simplified versions of formula milk preparation and distribute them as pamphlets to caregivers on discharge and post-delivery and should include mothers who opt to bottle feed only or not to breastfeed exclusively. This could also be demonstrated on hospital open days and child wellness days. Michaelson et al. (2009:255) support the researcher's

strategy as he also recommends for companies to clearly state formula milk preparation in languages caregivers can understand– this implies all 11 official languages in South Africa. This will aid caregivers to avert over- or under-dilution of milk which does predispose children to diarrhoea and in some instances malnutrition. In their study Andresen et al. (2007:1)– with further support from the WHO’s Essential Nutrition Actions: Improving Maternal, New born, Infant and Young Child Health and Nutrition (2013:21)–highlight that proper food handling and preparation should be one of the good principles that caregivers need to adhere to in food preparation. On the open days hand washing and proper food handling should be demonstrated by healthcare professionals to caregivers. Hand washing pre- and post-nappy changing on admission should be demonstrated to all caregivers whose children are admitted in the paediatric unit. Follow-up feedback in the form of re-demonstrations by caregivers to healthcare professionals should be included so that healthcare professionals can make sure the caregivers understand and can perform these actions.

If possible, healthcare professionals could attach pamphlets that could be easily followed by the caregivers regarding measurements; that is, conversion of ounces to millilitres or simple illustrations showing hands-on training in a step-by-step way explaining the equivalence of ounces to millilitres to caregivers who opt to bottle feed or mix feed on discharge post-delivery, child wellness days or hospital open days.

Caregivers should be encouraged by healthcare professionals to follow the normal calibration of millilitres that South African people are familiar with rather than the international calibration of ounces. This could minimise over- or under-diluted milk being given to children. Andresen, Rollins, Sturm, Conana and Greinerd (2007:1) highlight that manufacturers should have clearly labelled instructions which caregivers can easily follow to avoid over- or under-dilution of formula milk. On the other hand, Michaelsen et al. (2009:245-250) recommend the inclusion of easy-to-use scoops to formula milk containers which should help caregivers to measure the powder milk accurately.

Researcher and caregivers recommend that food should always be stored in containers that have tight lids so that flies and other insects and even rodents do not contaminate the food. It is also asserted by Michaelsen et al. (2009:239) that children's food should be kept (and stored for the next meal) in closed containers, in a fridge and that the food needs to be well cooked.

Proper hygienic practices of hand washing with soap and water and using utensils which have been washed with clean water and soap was another recommendation the researcher derived from the caregivers' suggestions. Utensils such as cups need to be thoroughly washed with hot water and soap using a cloth rather than a brush. Reaffirming this suggestion, Michaelsen et al. (2009:239), Kruger and Gericke (2002:222) and Luby et al. (2005:366) all state good hygienic practices are essential to prevent food contamination by bacteria or, in some instances, prevent chemical contamination. All these mentioned authors recommend the practice of good hygienic measures (hand washing with soap, washing utensils with hot water and soap) to prevent communicable diseases like diarrhoea which might ultimately lead to acute or chronic malnutrition. This can be achieved through demonstrations by healthcare professionals as hands-on training is an effective way of ensuring knowledge transfer that will be easily remembered.

Health care professionals further went on to highlight that they would tape a 10 minute demonstration of food (milk) preparation and storage, hand washing and cleaning of utensils that would have been added on by them on YouTube for the caregiver to see in waiting areas or during admission.

The researcher recommends that caregivers be given continuous health education and hands-on training on good hygienic practices regarding food preparation. Michaelson et al. (2009:239) concurs with the researcher's and caregivers' suggestion that hand washing prior to food handling is paramount to avert food contamination with bacteria while Kruger and Gericke (2001:70) recommend in their reflection that *both the child and caregiver* should wash their hands prior to food handling to minimise bacterial contamination.

***(d) Introducing and adhering to a certain feeding pattern and frequency***

Caregivers need to be encouraged on the importance of leading by example. In this case, it would translate to ensuring that they adhere to a certain pattern of providing food to children (for example, six times a day), the types of food given to children (including vegetables and fruits in their diets), and specific times that children are fed food (Encyclopaedia of Early Childhood Development, 2013:4). This strategy is recommended by Steyn et al. (1993:10) and Kruger and Gericke (2001:60) as well as the WHO in its Global Strategy for Infant and Young Child Feeding (WHO, 2003:12). All three sources confirm feeding practices do indeed affect the nutritional status of the child. This is further reinforced by the WHO (2013:12-21) in its intervention strategy targeted at infants and young children age 6 to 23 months. The WHO (2013:12-21) recommends for:

- breastfeeding to be continued after 6 months and should still be on demand till 2 years of age;
- complementary feeds be introduced from 6 months old by gradually introducing a variety of food that will meet the nutritional requirements of the child
- while concurrently increasing the number of times that the child is fed complementary feeds
- and providing those feeds timeously.

***(e) Creation of small gardens, subsistence farming and use of recyclable water***

The researcher recommends projects that will assist caregivers with the creation of small gardens, starting subsistence farming and the use of recyclable water to be done in order to teach the community (the particular township that caregivers come). The researcher recommends the following as examples of hands-on projects: how to start a backyard vegetable garden using old tyres and tins for those caregivers with limited backyards and watering it with previously used water.

The South African Government Food Security (2011:12-16) concurs with the researcher's recommendation as it also encourages creations of small gardens

and subsistence farming as a measure of ensuring food security and alleviating hunger and malnutrition.

The National Nutrition Strategy (July 2011 – June 2016:25) also support the researcher's suggestion as it aims to address food security by supporting subsistence farming in terms of production, harvesting, storage post-harvesting and preservation including supply of the necessary resources and information needed to start and sustain food security.

The researcher firmly believes that caregivers should be encouraged to use previously used water (such as washing dishes or laundry) to water their small gardens. If possible, recycled water should be accessible for subsistence farming to ensure that safe water supply is accessible for day-to-day living or usage. Previously used water is water that has been used for either household or industrial and reused without going through the cycle of water purification. Recycled water is previously used water that has gone through purification either with chemical (chlorine, iodine), physical (sand filtering and boiling) or biological treatment (silver compounds) (Azeem, 2013:n.p.).

**(f) *Proper financial planning and budget***

The researcher identified proper financial planning and budget as a strategy to combat malnutrition. Caregivers need to be assisted with budgeting skills in order for them to manage the child grant in a way that benefits the child.

Pamphlets that inform about financial planning and budgeting need to be distributed to healthcare facilities as well as to churches and schools by healthcare professionals or financial institutions. Once again, the emphasis is on the premise that *in order to change an individual's behaviour, one needs to educate that individual.*

Healthcare professionals could negotiate with financial institutions to provide financial information on an open day allocated by the hospital in this context to assist caregivers to optimally use the available finances at their disposal. Inputs

on how to start a small business like selling bunny chow (“*sphatlho/quarter*”) and small “mashonisa” schemes (non-registered money lending schemes) are only two ideas that could be presented to caregivers to help them boost their available monetary resources.

Caregivers could also be encouraged to do small jobs like house cleaning and laundry. A ‘Speaker of the Day’ could be recruited and invited by healthcare professional to come and present his or her history and story of starting up a small business on open days. This might help to encourage one caregiver to try out his or her method with the aim of improving his or her financial status; if only one takes the initiative it is possible that others may follow his or her example.

Perry and Morris (2005:299) agree with the researcher that the exchange of simplified knowledge transfer and accessibility to non-complicated financial information could assist to resolve financial mismanagement that caregivers experience with child grants. This sixth strategy which addresses education and training of caregivers on financial planning and budgeting has not been confirmed by other studies as limited literature to support it as a strategy of addressing malnutrition was found.

#### **4.2.3.2. Theme 2: Motivating caregivers to enhance the nutrition**

Motivating caregivers to change the feeding practice and enhance the nutrition of the children they take care of can be done through encouraging the purchasing of normal food rather than fast food with the child grant. The researcher and caregivers could achieve this by involving NGOs Food and Agriculture Organization of the United Nations 2013. To fund a special discount the researcher aims to negotiate with major supermarkets. This is in line with the recommendation by the Food and Agriculture Organization of the United Nations (2013:50) that NGOs need to be involved to support the government and caregivers to combat under-nourishment.

Incentives, in the form of discounts (subsidised by an NGO) when foodstuff such as milk and vegetables are bought with child grant cards in major supermarkets, should be negotiated. This may encourage caregivers to use the child grant



wisely. This will correlate with Pavlov's theory (Kern & Clemens, 2007:65-66) that good behavior needs to be rewarded to assure its reoccurrence.

In addition, the implementation of the food support system that is being accorded to schools could be extended to crèches. This supported by Bundy, Shaeffer, Jukes, Beegle, Gillespie, Drake, Lee, Hoffman, Jones, Mitchell, Barcelona, Camara, Golmar, Savioli, Sembene, Takeuchi, & Wright, (1996:1098) who state providing food aid to school children is a measure of curbing malnutrition.

### **Concluding Remarks: Formulation of strategies for caregivers on feeding practices of children aged 6 to 24 months**

The following listed strategies addressing education and training of caregivers on food groups; nutrition and undernourishment; preparation of food; hygienic maintenance of utensils and hands; introducing and adherence to a certain feeding pattern and frequency identified by the researcher are recommendations derived from the WHO feeding guidelines (WHO, 2003:7-12) and are also verified in literature in studies by Kruger and Gericke (2001:70); Sovyanhadi and Cort (2004:31); Kassouf and Senauer (1996:818) and Andresen et al. (2007:1).

Moreover, these strategies are part of the South African Government's Intervention Programme (Food Security, 2011:12-16) and the South African Government's determination to combat malnutrition in the Input Paper for Road Map (2008:31) and they clearly correlate with the researcher's strategies. The inclusion of subsistence farming as a way of ensuring food security was also reprioritised in the 2010/2011 financial year budget by the South African Government and implemented in all provinces (Food security, 2011:1). Limited literature on its success is available to date.

The need to educate and train caregivers on proper financial planning and budget as a measure of addressing under-nourishment has not been validated as a strategy to combat under-nourishment. Perry and Morris (2005:299) addressed proper financial planning with university students thus limited literature is available to address proper financial as a strategy to address malnutrition.

The need to educate and train caregivers on proper financial planning and budget as a measure of addressing under-nourishment might be a strategy that can be used to combat financial mismanagement of child grants. Presently there are no studies that have been used to prevent or combat under-nourishment. Yet, in the researcher's view if this strategy could work for child grants, there seems to be no reason why it would not prove to be successful if applied for the purpose of enlightening and empowering caregivers on the issue of malnutrition.

In summary, the strategies caregivers suggested based on their own experiences in real life was in line with the preliminary nutritional strategies which the researcher developed from nutritional strategies that are already in place. The question that needs to be addressed next is how to assure that these strategies are effectively implemented.

## PHASE 2

### Formulation and refinement of strategies to improve caregivers' practices regarding nourishment of children aged 6 to 24 months

#### **4.2.4. Objective 4: Refinement of strategies for caregivers by healthcare professionals with regard to the nutrition of children aged 6 to 24 months in a township in Gauteng**

The researcher involved healthcare professional to confirm or disconfirm the preliminary strategies. The strategies were given to the unit manager of the paediatric ward for distribution to healthcare professionals who worked in paediatric unit two weeks before the focus group discussion together with the consent form on 23 October 2016. This was done for participants in order to prepare and familiarise themselves with the strategies.

Healthcare professionals were requested to participate voluntarily in writing. The letter of request had an abstract which outlined the topic, methodology, significance of the study and results.

Participants were purposively selected as they were health workers (one paediatrician, one dietician, one speech therapist, and seven registered nurses) who worked in the paediatric ward. Debriefing of how the study unfolded was done by the researcher. Steps to be followed for confirming and disconfirming the strategies were explained to participants. Consent to participate was signed.

Each strategy was discussed individually and rated according to all criteria (accurate, feasible, relevant, complete, and practical/user-friendly). In this instance for each criteria 1 was strongly disagree, 2- disagree, 3- agree and 4 being strongly agree

**Table 4.5: Rated strategies**

| Check list                                                                                   | Accuracy |   |   |    | Feasible |   |   |    | Relevant |   |   |    | Complete |   |   |   | User-friendly |   |    |    |
|----------------------------------------------------------------------------------------------|----------|---|---|----|----------|---|---|----|----------|---|---|----|----------|---|---|---|---------------|---|----|----|
|                                                                                              | 1        | 2 | 3 | 4  | 1        | 2 | 3 | 4  | 1        | 2 | 3 | 4  | 1        | 2 | 3 | 4 | 1             | 2 | 3  | 4  |
| Rating criteria 1 was strongly disagree, 2- disagree, 3- agree and 4 being strongly agree    |          |   |   |    |          |   |   |    |          |   |   |    |          |   |   |   |               |   |    |    |
| <b>4.2.3 Strategy 1 Educating and training caregivers regarding the subthemes identified</b> |          |   |   |    |          |   |   |    |          |   |   |    |          |   |   |   |               |   |    |    |
| <i>Subtheme</i>                                                                              |          |   |   |    |          |   |   |    |          |   |   |    |          |   |   |   |               |   |    |    |
| <i>(a) Nutrition and malnutrition</i>                                                        |          |   |   | 10 |          |   |   | 10 |          |   |   | 10 | 10       |   |   |   |               |   |    | 10 |
| <i>(b) Nutrition and malnutrition</i>                                                        |          |   |   | 10 |          |   |   | 10 |          |   |   | 10 | 10       |   |   |   |               |   |    | 10 |
| <i>(c) Preparation of food, hygienic maintenance of utensils and hands</i>                   |          |   |   | 10 |          |   |   | 10 |          |   |   | 10 | 10       |   |   |   |               |   |    | 10 |
| <i>(d) d) Introducing and adhering to a certain feeding pattern and frequency</i>            |          |   | 8 | 2  |          |   | 8 | 2  |          |   |   | 10 | 10       |   |   |   |               |   | 8  | 2  |
| <i>(e) Creation of small gardens, subsistence farming and use of recyclable water</i>        |          |   |   | 10 |          |   | 1 | 9  |          |   |   | 10 | 10       |   |   |   |               |   | 7  | 3  |
| <i>(f) Proper financial planning and budget</i>                                              |          |   | 1 | 9  |          |   | 6 | 4  |          |   |   | 10 | 9        |   |   |   |               |   | 10 |    |
| Strategy 2                                                                                   |          |   |   |    |          |   |   |    |          |   |   |    |          |   |   |   |               |   |    |    |
| <b>4.2.4 Motivate caregivers to enhance nutrition</b>                                        |          |   | 8 | 1  |          |   | 9 |    |          |   |   | 9  | 9        |   |   |   |               |   | 9  |    |

The major challenge that was brought to the researcher's attention by participants was related to completeness of all strategies outlined. Participants were strongly in disagreement of the completeness of all the strategies. For example, educating caregivers on food groups alone without simple meal plans and augmentation of available funds to buy those food groups is presently not enough. Drought, which leads to water restriction and lack of funds to buy seeds, also contributes to the strategy not being complete on its own without addressing water and financial issue. One participant did not comment on the last strategy without giving any reason.

Regarding creation of small gardens, one registered nurse highlighted the non-feasibility based on lack of crops as those caregivers had already reported their plight of lack of funds. The drought issue which imposes water restriction usage was also mentioned. All participants strongly agreed to the first three subheadings of education and training strategy in terms of accuracy, feasibility, relevance and practicality. In terms of relevance of all strategies, healthcare professionals strongly agreed that they were relevant.

Changes to the strategies were made if it was supported by 60% or more participants. Some suggestions from healthcare professionals formed part of the recommendations

### **4.3. CONCLUSION**

In the next chapter the recommendations made by the researcher to address under-nourishment based on the study findings will be presented and discussed at a scope that was above the researcher's capabilities and therefore professionals in specific paediatric health areas were involved. The final recommendations will address education, practice and research.

## CHAPTER 5: RECOMMENDATIONS

### 5.1. INTRODUCTION

The aim of the study was to develop strategies to improve feeding practices among caregivers on feeding practices of children aged 6 to 24 months in a township in Gauteng. The methodology the researcher used was a qualitative, exploratory descriptive design that was contextual in nature and allowed the researcher to gain a comprehensive view of the phenomenon under study. In this chapter recommendations based on the findings of the study are made.

### 5.2. CONCLUSIONS TO FINDINGS

The conclusions were based on the findings of the four objectives as set out next.

#### **Phase 1:**

Phase 1 comprised of two objectives. The purpose of the first objective was to explore and describe current caregivers' feeding practices of children aged 6 to 24 months. Refer chapter 4 for themes and subthemes identified for this objective outlined in Table 4.1.

The researcher found caregivers were predominantly providing carbohydrates to their children while other food groups were either given in minimal amounts or not at all. The second objective in Phase 1 was divided into two steps. In Step 1 the caregivers' perspectives on the challenges they faced to nourish their children aged 6 to 24 months to ensure they did not become under-nourished was identified. Only one theme with three subthemes of challenges identified by caregivers was noted as shown in Table 5.2.

**Table 5.1: Theme and subthemes identified as challenges in Phase 1: Objective 2 (Step 1)**

| THEME                                                                   | SUBTHEMES                                                                                                                                        |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Theme 1: The optimal use of available resources needed to be addressed. | <p>(a) <i>Resources</i></p> <p>(b) <i>Financial management</i></p> <p>(c) <i>Health education related to nutrition and under-nourishment</i></p> |

In Step 2 of the second objective in Phase 1 the suggestions of caregivers on how they could personally take action to prevent under-nourishment were analysed and clustered together to form one overarching theme with 4 subthemes as illustrated in Table 4.3 (Refer chapter 4).

**Table 5.2: Theme and subthemes identified by caregivers' suggestions regarding personal actions they could take to prevent under-nutrition**

| THEME                                                                         | SUBTHEMES                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Theme 1: Personal action taken by caregivers to prevent recurrence of problem | <p>(a) <i>Discarding old habits and adding new habits</i></p> <p>(b) <i>Introducing feeding pattern</i></p> <p>(c) <i>Providing knowledge regarding factors associated with nutritional status</i></p> <p>(d) <i>Access information regarding financial management</i></p> |

The researcher asserted that caregivers had become aware of the fact that the food they provided for the young children was not nutritious enough and that the preparation and frequency of food was important to ensure the children's nutritional status remained balanced. Caregivers acknowledge that what they were giving their children led to the latter's admission to hospital with under-nourishment. The researcher recognised the caregivers were concerned about their feeding practises and were willing to play their part in overcoming the problem. However, although realising the extent of the problem and coming up with solutions of their own, the caregivers did not know how to start or go about implementing it.

## Phase 2

The third objective was embedded in Phase 2. The researcher formulated preliminary strategies based on caregiver's feeding suggestions. This was achieved through inductive and deductive reasoning and is illustrated in Table 5.4.

**Table 5.3: Researcher's preliminary strategies based on caregivers' suggestions**

| THEME                                                                         | SUBTHEME                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Theme 1: Educating and training caregivers regarding the subthemes identified | <p><i>(a) Food groups</i></p> <p><i>(b) Nutrition and malnutrition</i></p> <p><i>(c) Preparation of food, hygienic maintenance of utensils and hands</i></p> <p><i>(d) Introducing and adhering to a certain feeding pattern and frequency</i></p> <p><i>(e) Creation of small gardens, subsistence farming and use of recyclable water</i></p> <p><i>(f) Proper financial planning and budget</i></p> |
| Theme 2: Motivate caregivers to enhance nutrition                             |                                                                                                                                                                                                                                                                                                                                                                                                        |

The researcher's conclusion was that caregivers still needed to be given continuous health education with regard to food groups, nutrition and under-nourishment, and outside support on how to start subsistence farming with the available resources caregivers in the township have at their disposal as well as proper financial planning regarding proper budgeting.

### 5.3. RECOMMENDATIONS

The researcher's recommendations drawn from the findings are given next. The goals with these recommendations are for it to be disseminated to healthcare professionals, caregivers and the National Department of Health (NDoH). The recommendations address education to caregivers, practice for healthcare professionals, the government and future research.



## EDUCATION

- Continuous health education to be provided by healthcare professionals in a concerted effort to educate caregivers on what nutrition is and on prevention of under-nourishment. Furthermore caregivers should be educated on the dangers of substance abuse
- Hands-on demonstration on preparation of oral rehydration solutions to be continuously done by healthcare professionals.
- Health care professionals to do work-based outreach at clinic level to homes of the previously admitted patients on discharge for follow ups.
- Elders to the caregivers of the patient to be brought in for health education to clarify cultural misconception/influences regarding malnutrition.
- Simplified versions of posters on formula milk preparation to be posted on hospital boards or supplied to caregivers as pamphlets in different languages to make it easy for caregivers to understand and use at home.
- Nurses to influence all stakeholders, for example, churches and schools to assist caregivers with nutrition for their children including encouraging caregivers to start up small gardens at their homes.
- The importance of garden projects should be included as part of the school curriculum.
- Caregivers should recycle tins, wheel tyres or any container which can be used for a vegetable garden for those who do not have adequate land to start small gardens on.
- Financial institutions including cash loan businesses (“abomashonisa”) to provide basic financial planning, budgeting and education to caregivers to empower them with financial knowledge and skills.
- The Department of Health in South Africa should have visual plays that show the clinical manifestations of kwashiorkor/marasmus and the predisposing factors like poor hygiene and food handling methods which predispose children to diarrhea played in waiting rooms prior to file collection and foyers of consulting rooms. The reason being visual memory works better than what is heard during discussion or teaching.
- Tablets with visual teaching methods could also be distributed to paediatric areas for healthcare professionals to teach caregivers on food preparation,

gardening ways, safe storage, cleaning of food utensils, hand hygiene, food groups/simple meals combination and subsistence farming.

## **PRACTICE**

- Whatever piece of land is available people should be allowed to make use of it to add value by converting it into vegetable gardens at no cost as an act of support to food security by the South African Government.
- Government should address and speed up the process of supplying adequate water to households that have no access to water from taps.
- The issue of recycling water should be addressed sometime so that this water is accessible to communities to be used for water subsistence farming.
- The researcher should provide seeds to caregivers.
- Caregivers could be encouraged and motivated by the researcher and healthcare professionals to sell Avon products, Tupperware, and so forth to generate extra income.
- Healthcare professionals could counsel and support caregivers to introspect in order to identify their gifts that will help them to start their business, for example, hair pleating.
- Adopt a crèche by supermarkets could be negotiated for by researcher in terms of groceries.
- E-Health as method of health education should be fast forwarded for implementation by the South African Government.
- Future plans should be made for having a monitoring system in place with regard to the use of the child grant. For example, food parcels can be made up to replace child grants.
- The government should consider imposing on companies producing formula milk to supply information in all 11 South African languages on how to prepare the milk.
- The Road to Health Booklet should be translated or written in all South African languages and caregivers should be issued with one in the language they understand best.

- Formula bottles sold in South Africa should be calibrated in millilitres only to avoid over- or under-dilution.
- Discount or food subsidies to be negotiated via NGOs with major supermarkets to grant caregivers who use child grants to buy nutritious food as part of their support to combat under-nourishment as recommended by the WHO.

## **DESSIMINATION OF FINDINGS**

The findings were validated by experts but not tested in real life. The implementation of the findings lies outside the scope of the researcher; however, it could serve as the topic for a doctorate.

Below are suggestions of possible methods for disseminating the findings of this study.

- Publication of articles in accredited scientific journals.
- Presenting the findings at national and international conferences.
- In-service presentations of the findings to healthcare professionals.
- Conducting further research on the topic.
- The strategies to be included as part of training programmes for student nurses.

## **5.4 LIMITATIONS**

The pilot study was done with one participant whereas if they were four or more data could have been captured. Despite being assured that this would not occur, caregivers who participated might have agreed to do so as they might have feared that their children would not be provided with care.

## **5.5 CONCLUSION**

Caregivers are the people most intimately involved with the minute-to-minute care of the young children and this care includes providing the latter with a healthy, balanced diet to avoid under-nutrition.

The objectives set for this study were achieved. The research question was answered. It was found that in the context of the study (the hospital in Gauteng where the study

was conducted) nutritional strategies were already in line with the suggestions made by the participating caregivers. However, a problematic issue is that young children between 6 and 24 months are still under-nourished and admitted or readmitted to hospital in spite of the fact that specific strategies and guidelines are available and accessible. Although this was a fruitful investigation which rendered important and insightful results, the challenge which remains is to convince caregivers to take decisive steps, implement the strategies and in this way help to eradicate under-nourishment in young children.

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## ANNEXURE A: DECLARATION REGARDING PLAGIARISM

I Dina B Matlala, declare that:

**Develop strategies to improve feeding practices among caregivers of children aged 6 to 24 in a township in Gauteng** is my original work. All sources that have been used or quoted have been acknowledged by means of complete references in the text and bibliography.

Dina B Matlala

Student number: 22350846

## **ANNEXURE B: FIRST DRAFT OF DATA COLLECTION**

### **INTERVIEW SCHEDULE TO ADDRESS FIRST OBJECTIVE**

BASED ON THE STIPULATED RECOMMENDATION OF WHO AND SUPPORTED BY THE NATIONAL INTEGRATED NUTRITION PROGRAMME OF S.A. THAT REQUIRES A BALANCED DIET BASED ON CARBOHYDRATES, PROTEINS, VITAMINS, MINERALS, AND FATS, THE INTERVIEW IS SCHEDULED AS FOLLOWS:

The researcher will explain the concept of nutrition to the participants at the hand of the poster of the Department of Health.

The following questions will then be asked:

1. Tell us about your feeding practices for your 6 to 24 months old children. What are the cultural practices that affect those feeding practices?
2. What do you think can be done to ensure that the children are nourished according to the Road to Health Booklet?
3. What are the challenges that you have in providing such nutrition?
4. How do you think can those challenges be overcome?
5. How can the following work for you to provide the necessary nutrition to the children?
  - Health education and information?
  - Healthcare for children?
  - The importance of safe and clean water?
  - Financial support to provide nutrition?
  - Food safety and hygiene?



## ANNEXURE C: INFORMED CONSENT FORM

### RESEARCH INFORMATION LEAFLET AND INFORMED CONSENT FOR CAREGIVERS.PAGE 1 OF 2

#### TITLE OF THE STUDY:

**DEVELOP STRATEGIES TO IMPROVE FEEDING PRACTICES AMONG CAREGIVERS OF CHILDREN AGED 6 to 24 MONTHS IN A TOWNSHIP IN GAUTENG.**

Dear Participant

#### • INTRODUCTION

I'm currently enrolled for M CUR at the university of Pretoria Nursing Department. I invite you to participate in a research study that aims to develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months in a township in Gauteng. This information leaflet will help you to decide if you want to participate. Before you agree to take part you should fully understand what is involved. If you have any questions that this leaflet does not fully explain, please do not hesitate to ask the researcher, Dina Betty Matlala. This research study has been approved by the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria, HW Snyman South Building , Level 2, Room 233, Gezina, Pretoria (012) 354 1677.

#### • THE NATURE AND PURPOSE OF THE STUDY

The aim of this study is to develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months in a township in Gauteng. The researcher would like to have you participate in a focus group discussion in order to have you give inputs on how best you can overcome obstacles that prevents you from nourishing your child adequately.

#### • EXPLANATION OF PROCEDURE TO BE FOLLOWED

This study involves a focus group discussion with caregivers in order to explore and describe caregivers perceptions on how they can nourish their children aged (6 to 24 months). You will be required to take part in the focus group discussion which will comprise of **10-15 people**. The results will be given as recommendation to the hospital for implementation in order to promote nutrition of children in this context.

The focus group discussions will be audio/video recorded and the interview will take about 30-45 minutes. We will expect of you to express yourselves freely. However, all that will be discussed in the focus group interview will be kept confidential.

#### • RISK AND DISCOMFORT INVOLVED

There are no risks in participating in this study. The information you provide will not be used against you and will not affect the care that you or your child will receive at the hospital. The interview session will take about 30-45 minutes of your time.

#### • POSSIBLE BENEFITS OF THIS STUDY

The study will be not benefit you directly but will help you to better improve the nutrition of your child. Furthermore it will equip you with the care that will prevent readmission of your child with regards to this problem of under-nourishment. The results will also assist /enable the researcher to make recommendations to the hospital management to address the challenges of nutrition in future.

• **WHAT ARE YOUR RIGHTS AS A PARTICIPANT?**

Your participation in this study is entirely voluntary. You can refuse to participate or stop at any time during the interview without giving any reason. Your withdrawal will not affect the care that you or your child will receive at the hospital in any way.

• **INFORMATION AND CONTACT PERSON**

The contact person for the study is Dina Betty Matlala.  
If you have any questions about the study please contact her at (012) 841 8493( Work)/cell 0719394812  
Alternatively you may contact my supervisor, Dr Carin Maree at cell 0832866696.  
The contact details of the Ethics Committee of the Faculty of Health Sciences are (012) 354 1677 and email: fhsethics@up.ac.za.

• **COMPENSATION**

Your participation is voluntary. No compensation will be given for your participation

• **CONFIDENTIALITY**

All information that you give during the focus group discussion will be kept strictly confidential. You will be requested to keep what is said in the focus group discussion confidentially. All the information that came out of the study will be kept in an undisclosed area until they are no longer required.

**CONSENT TO PARTICIPATE IN A FOCUS GROUP**

I confirm that the person asking my consent to take part in this study has told me about nature, process, risks, discomforts and benefits of the study. I understand that the interview will be audio/ video taped and the tapes will be stored at the Faculty of Health Science, Nursing Department and shall be kept for the minimal of fifteen years. I have also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to Participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect the care that my child and I will receive in this hospital in any way.

I have received a signed copy of this informed consent agreement.

Participant's name .....(Please print)  
Participant's signature: ..... Date.....  
Researcher's name Dina Betty Matlala  
Researcher's signature..... Date.....  
Witness's Name .....(Please print)  
Witness's signature ..... Date.....

**RESEARCH INFORMATION LEAFLET AND INFORMED CONSENT FOR CLINICAL (healthcare professionals).**

**TITLE OF THE STUDY:**

**DEVELOP STRATEGIES TO IMPROVE FEEDING PRACTICES AMONG CAREGIVERS OF CHILDREN AGED 6 to 24 MONTHS IN A TOWNSHIP IN GAUTENG.**

**Dear Colleague**

• **INTRODUCTION**

I'm currently enrolled for M CUR at the university of Pretoria Nursing Department. I invite you to participate in a research study that aims to **develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months** in a township in Gauteng.

This information leaflet will help you to decide if you want to participate. Before you agree to take part you should fully understand what is involved. If you have any questions that this leaflet does not fully explain, please do not hesitate to ask the researcher, Dina Betty Matlala. This research study has been approved by the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria, HW Snyman South Building , Level 2, Room 233, Gezina, Pretoria ( 012) 354 1677.

• **THE NATURE AND PURPOSE OF THE STUDY**

The aim of this study is to **develop strategies to improve feeding practices among caregivers of children aged 6 to 24 months in a township in Gauteng.** The researcher would like to have you participate in a focus group discussion in order to have you refine the preliminary strategies that she will be bringing to your attention .The strategies were derived from inputs given by the caregivers of children admitted in the hospital in phase one of this study.

• **EXPLANATION OF PROCEDURE TO BE FOLLOWED**

This study involves a focus group discussion whereby health care professionals will be issued with hard copies of the preliminary strategies one week before the discussion meeting date in order for them to refine strategies using a checklist with attributes/criteria. The participants will receive a hard copy of the strategies at least one week prior to the scheduled focus group meeting. At the focus group meeting, each strategy will be discussed individually according to the following criteria (refer to attached copy). **The results will be made available to the hospital as a form of a report.**

The focus group discussions will be audio/video recorded and the interview will take about 30-45 minutes. We will expect of you to express yourselves freely. However, all that will be discussed in the focus group interview will be kept confidential.

- **RISK AND DISCOMFORT INVOLVED**

There are no risks in participating in this study. The information you provide will not be used against you and will not affect your employment status and benefits from the hospital. The interview session will take about 30-45 minutes of your time.

- **POSSIBLE BENEFITS OF THIS STUDY**

The study will be not benefit you directly but will improve the nutrition of children in this Township. Furthermore it will equip caregivers with the knowledge of the required nutrition for their children that will prevent their readmission. The results will also assist /enable the researcher to make recommendations to the hospital management to address the challenges of under-nourishment in the Township.

- **WHAT ARE YOUR RIGHTS AS A PARTICIPANT?**

Your participation in this study is entirely voluntary. You can refuse to participate or stop at any time during the interview without giving any reason. Your withdrawal will not affect your employment status or benefits that you receive from your employer in any way.

- **INFORMATION AND CONTACT PERSON**

The contact person for the study is Dina Betty Matlala.

If you have any questions about the study please contact her at (012) 841 8493( Work)/cell 0719394812

Alternatively you may contact my supervisor at cell 0832866696

- **COMPENSATION**

Your participation is voluntary. No compensation will be given for your participation

- **CONFIDENTIALITY**

All information that you give during the focus group discussion will be kept strictly confidential. You will be requested to keep what is said in the focus group discussion confidentially. All the information that came out of the study will be kept in an undisclosed area until they are no longer required.

### **CONSENT TO PARTICIPATE IN A FOCUS GROUP**

I confirm that the person asking my consent to take part in this study has told me about

nature, process, risks, discomforts and benefits of the study. I understand that the interview will be audio/ video taped and the tapes will be stored at the Faculty of Health Science, Nursing Department and shall be kept for the minimal of fifteen years. I have also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to Participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect my employment status or my performance management benefits in any way.

I have received a signed copy of this informed consent agreement

Participant's name .....(Please print)

Participant's signature..... Date.....

Researcher's name Dina Betty Matlala

Researcher's signature..... Date.....

Witness's Name ..... (Please print)

Witness's signature ..... Date.....



## ANNEXURE D: SECOND DRAFT OF DATA COLLECTION INSTRUMENT

### INSTRUMENT FOR REFINEMENT OF STRATEGIES (THIRD OBJECTIVE)

The participants will receive a hard copy of the strategies at least one week prior to the scheduled focus group meeting. At the focus group meeting, each strategy will be discussed according to the following criteria:

| ATTRIBUTE                       | CLARIFICATION                                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Accuracy</b>                 | The strategies can accurately bring about change in caregivers with regards to nutrition of children in this context.                                                                                 |
| <b>Feasible</b>                 | The likelihood that the implementation and sustainability of the strategies to promote nutrition of children in this context for caregivers could be achieved.                                        |
| <b>Relevant</b>                 | The strategies are relevant in terms of implementing sustainable programmes for nutrition of children in this context.                                                                                |
| <b>Completeness</b>             | The strategies in this context have the necessary steps or components required by WHO.                                                                                                                |
| <b>Practical /user-friendly</b> | The strategies are suitable and easy to understand by the health care workers and are also likely to be successful in achieving for caregivers with regards to nutrition of children in this context. |

A rating scale will be used for the above criteria.

| ATTRIBUTE                 | RATING SCALE               |                |             |                         |
|---------------------------|----------------------------|----------------|-------------|-------------------------|
| CHECKLIST                 | STRONGLY<br>DISAGREE<br>=1 | DISAGREE<br>=2 | AGREE<br>=3 | STRONGLY<br>AGREE<br>=4 |
| ACCURATE                  |                            |                |             |                         |
| FEASIBLE                  |                            |                |             |                         |
| RELEVANT                  |                            |                |             |                         |
| COMPLETE                  |                            |                |             |                         |
| PRACTICAL/<br>SERFRIENDLY |                            |                |             |                         |



## ANNEXURE E: ETHICS COMMITTEE APPROVAL LETTER

**Title:** Developing strategies to improve feeding practices among caregivers of children aged 6 to 24 months in a township, Gauteng

Dear Ms DB Matlala

The **New Application** as supported by documents specified in your cover letter for your research received on the 30/05/2014, was approved, by the Faculty of Health Sciences Research Ethics Committee on the 7/07/2014.

Please note the following about your ethics approval:

- Ethics Approval is valid for 1 year
- Please remember to use your protocol number (**201/2014**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

**Ethics approval is subject to the following:**

- The ethics approval is conditional on the receipt of 6 monthly written Progress Reports, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

**Dr R Sommers**; MBChB; MMed (Int); MPharmD.

Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

*The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45, Part 46.*



# ANNEXURE F: HOSPITAL ETHICS COMMITTEE APPROVAL LETTER



## MAMELODI HOSPITAL

Private Bag x 0032 P.O. Rethabile 0122  
Tel no. +27 12 841 8300/8301

Enquiries: Dr Gumbo B.C.  
Tel no : 012 841 8301  
E-mail: botsangumbo@gmail.com

**Re:Develop strategies to improve feeding practices among caregivers on feeding practices of children aged 6 to 24 months in a township in Gauteng**

Dear Miss Matlala D.B.

Mamelodi research committee has approved your request to conduct the above mentioned research in the hospital.The committee requests that you provide a form for the clinical manager of the hospital to complete as proof of approval prior to commencing.

Thank you  
DrGumbo.B.C.  
Chairperson Mamelodi hospital research committee

Date:15/08/2014

## NEXURE G: CONSENT FORM FROM PARTICIPANTS

- COMPENSATION

Your participation is voluntary. No compensation will be given for your participation

- CONFIDENTIALITY

All information that you give during the focus group discussion will be kept strictly confidential. You will be requested to keep what is said in the focus group discussion confidentially. All the information that came out of the study will be kept in an undisclosed area until they are no longer required.

### CONSENT TO PARTICIPATE IN A FOCUS GROUP

I confirm that the person asking my consent to take part in this study has told me about nature, process, risks, discomforts and benefits of the study. I understand that the interview will be audio/ video taped and the tapes will be stored at the Faculty of Health Science, Nursing Department and shall be kept for the minimal of fifteen years. I have also received, read and understood the above written information (Information Leaflet and Informed Consent) regarding the study. I am aware that the results of the study, including personal details will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study and my withdrawal will not affect the care that my child and I will receive in this hospital in any way.

I have received a signed copy of this informed consent agreement.

Participant's name

..Mathebula Susan.....(Please print)

Participant's signature: ..S. Mathebula.....

Date: 04.11.2014.....

Researcher's name Dina Betty Matlala

Researcher's signature: ..Dina Matlala.....

Date: 04.11.2014.....

Witness's Name ..Salome Moyo.....(Please print)

Witness's signature ..Salome Moyo.....

Date: 04.11.2014.....