

FIELD TESTING OF THE REVISED PAEDIATRIC FOOD-BASED DIETARY GUIDELINES AMONG SISWATI SPEAKING MOTHERS/CAREGIVERS OF CHILDREN AGED 0–36 MONTHS IN KABOKWENI, MPUMALANGA, SOUTH AFRICA

by
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DECLARATION

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ABSTRACT

INTRODUCTION

The significant occurrence of malnutrition among South African children necessitated the formulation of the Paediatric Food-Based Dietary Guidelines. These guidelines are short, nutrition messages aimed at improving the nutritional status of children. The formulation of the Paediatric Food-Based Dietary Guidelines has been revised, but they still require testing in different communities in order to determine the applicability and feasibility thereof.

AIM

To determine the comprehension and feasibility of the revised Paediatric Food-Based Dietary Guidelines among SiSwati-speaking mothers/caregivers of children aged 0–36 months living in Kabokweni, Mpumalanga, South Africa.

METHODS

A qualitative research approach was used to achieve the aim. The study was set in Kabokweni, and the mothers/caregivers living in this community were selected as the study population. Purposive and snowball sampling were used to recruit a total of 75 participants, who formed 12 groups. Data was collected by means of focus group discussions.

RESULTS

The results indicated that this community was generally aware of the nutrition messages presented in the Paediatric Food-Based Dietary Guidelines and that they had a fair comprehension thereof. Comprehension of the guidelines was linked to the feasibility thereof and to the socio-economic status of the participants. Enablers to the feasibility of the guidelines were mainly the importance of the messages and the positive impacts that they have on children. Barriers included misinterpretation of the guidelines, specific disease conditions and lack of money and resources. Generally, these barriers could be overcome by thorough and appropriate nutrition education and education on the sustainable use of available resources.

CONCLUSION

Nutrition is one of the many aspects that affects the development of young children. It is thus an important factor to consider in ensuring that children grow and develop adequately. The Paediatric Food-Based Dietary Guidelines can be used to educate children, parents, caregivers, healthcare providers and educators on the correct nutritional practices for children aged 0–5 years, thereby ensuring the healthy growth and development of young children in South Africa.

OPSOMMING

INLEIDING

Die opmerklieke voorkoms van wanvoeding onder Suid-Afrikaanse kinders het aanleiding gegee tot die ontwikkeling van die Pediatriese Voedsel-Gebaseerde Dieetriglyne. Die doel van die kort voedingsverwante boodskappe is om die voedingstatus van kinders te verbeter. Die riglyne is al hersien sedert die ontwikkeling daarvan, maar is nog nie getoets in verskillende gemeenskappe om te bepaal of dit toepaslik en haalbaar is nie.

DOELWIT

Om die begrip en toepaslikheid van die hersiene Pediatriese Voedselgebaseerde Dieetriglyne onder SiSwati-sprekende moeders/versorgers van kinders tussen die ouderdom van 0 en 36 maande wat in Kabokweni, Mpumalanga, Suid-Afrika woon te bepaal.

METODES

Kwalitatiewe navorsing is gebruik om die doel te bereik. Die studie het plaasgevind in Kabokweni en die moeders/versorgers wat in die gemeenskap bly is gebruik vir die studiepopulasie. Doelgerigte - en sneeubal steekproefneming is gebruik om 75 deelnemers te werf, wat 12 groepe gevorm het. Data is ingesamel deur middel van fokusgroepbesprekings.

RESULTATE

Die resultate het aangedui dat hierdie gemeenskap in die algemeen bewus was van die voedingsboodskappe wat uitgebeeld word in the Pediatriese Voedselgebaseerde Dieetriglyne en dat hulle dit redelik goed verstaan het. Dit is gevind dat die begrip en toepaslikheid van die riglyn verwant was, asook die begrip en sosio-ekonomiese status van deelnemers. Die erkenning van die belangrikheid van die riglyne asook die positiewe impak wat dit op kinders het was hoofsaaklik aansporing vir toepassing van die riglyne. Faktore wat as struikelblokke vir toepassing van die riglyne gedien het, sluit in waninterpretasie van die riglyne, spesifieke siektetoestande en 'n tekort aan geld en hulpbronne. Hierdie struikelblokke kan in die algemeen oorkom word deur deeglike en toepaslike

voedingsonderrig asook onderrig oor die volhoubare gebruik van die beskikbare hulpbronne.

GEVOLGTREKKING

Voeding vorm deel van verskeie aspekte wat die ontwikkeling van jong kinders beïnvloed. Dit is dus `n belangrike faktor om aan aandag te gee om te verseker dat kinders voldoende groei en ontwikkel. Die Pediatriese Voedselgebaseerde Dieetriglyne kan gebruik word om kinders, ouers, versorgers, gesondheidswerkers en opvoeders op te voed oor die korrekte voedingspraktyke vir kinders 0-5 jaar, en so gesonde groei en ontwikkeling van kinders in Suid-Afrika verseker.

CONTRIBUTIONS

The primary investigator, Ms I Möller, developed the study protocol, planned the study, undertook data collection, analysed and interpreted the data and drafted the thesis.

The fieldworker, Ms NA Ntimane, assisted with participant recruiting and acted as facilitator during the focus group discussions.

The supervisor, Dr LM du Plessis, and co-supervisor, Mrs L Daniels, provided input at all stages and revised the protocol and the thesis.

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LIST OF ABBREVIATIONS

ADSA	Association for Dietetics in South Africa
CHC	Community health centre
DoH	Department of Health
EBF	Exclusive breastfeeding
ECD	Early childhood development
FBDGs	Food-Based Dietary Guidelines
FGD	Focus group discussion
HIV	Human immunodeficiency virus
HREC	Health Research Ethics Committee
IMCI	Integrated Management of Childhood Illnesses
INP	Integrated Nutrition Programme
NFCS-FB-I	National Food Consumption Survey – Fortification Baseline
NIP	National Integrated Programme
NSSA	Nutrition Society of South Africa
PDF	Portable Document Format
PFBDG	Paediatric Food-Based Dietary Guideline
PHC	Primary health care
SADHS	South African Demographic and Health Survey
SANHANES-1	South African National Health and Nutrition Examination Survey
SES	Socio-economic status
SU	Stellenbosch University
UNICEF	United Nations Children’s Fund
WASH	Water, sanitation and hygiene
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTORY COMMENTS

Early childhood development (ECD) affects the physical, emotional and mental health of children; educational performance and school attendance; and the economic status of a country. ¹ Aspects that contribute to development include health, nutrition, education, safety, security and responsive caregiving. ² The nutritional status of infants and young children is thus a vital focal point on national and global agendas. ³

Thorough and effective nutrition interventions are crucial to maintain and achieve optimal nutritional status of infants and young children in South Africa. ³ Nutrition education of parents, caregivers and children has been proven to be one of the most effective and cost-saving interventions in improving the nutritional and general health status of children. ⁴ The Paediatric Food-Based Dietary Guidelines (PFBDGs) are a tool for nutrition education that is scientifically developed and used to educate parents and caregivers on optimum feeding and caring of infants and young children. The PFBDGs contain short, simple messages that are specifically targeted at nutrition for children between the ages of 0 and 5 years and aim to address current nutritional problems and prevent nutrient-related diseases in the future. ⁵

The revised PFBDGs mainly focus on breastfeeding, complementary feeding, healthy eating behaviour, oral health and food hygiene and sanitation. ^{3,6-9} These guidelines are evidence-based and were specifically developed for South Africa, but they have not been tested sufficiently. In order to determine whether these guidelines are applicable, feasible and comprehended by the target population, it needs to be field tested in the different South African languages.

This study aimed to test the revised PFBDGs in the SiSwati community, specifically among mothers/caregivers of children aged 0–36 months. Focus group discussions (FGDs) and a short demographic questionnaire were used to collect information. The FGDs were aimed at determining the exposure, feasibility and comprehension of the guidelines. The questionnaires together with the FGDs were used to determine the comprehension of the

guidelines in relation to the socio-economic status (SES) of the participants. See Table 1.1 for the guidelines that were tested for children aged 0–36 months.

Table 1.1: The revised Paediatric Food-Based Dietary Guidelines for children aged 0–36 months ⁵

0–6 months
- Give only breast milk, and no other foods or liquids, to your baby for the first six months of life.
6–12 months
- At six months, start giving your baby small amounts of complementary foods, while continuing to breastfeed to two years and beyond.
- Gradually increase the amount of food, number of feeds and variety as your baby gets older.
- Feed slowly and patiently and encourage your baby to eat, but do not force him or her.
- From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible.
- Give your baby dark-green leafy vegetables and orange coloured vegetables and fruit every day.
- Start spoon-feeding your baby with thick foods, and gradually increase to the consistency of family food.
- Hands should be washed with soap and clean water before preparing or eating food.
- Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your baby.
12–36 months
- Continue to breastfeed to two years and beyond.
- Gradually increase the amount of food, number of feedings and variety as your child gets older.
- Give your child meat, chicken, fish or egg every day, or as often as possible.
- Give your child dark-green leafy vegetables and orange coloured vegetables and fruit every day.
- Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your child.
- Hands should be washed with soap and clean water before preparing or eating food.
- Encourage your child to be active.
- Feed your child five small meals during the day.
- Make starchy foods part of most meals.
- Give your child milk, maas or yoghurt every day.

The results from the socio-demographic questionnaires indicated that the sample consisted of mothers and caregivers between the ages of 19 years and 63 years. The general level of education was Matriculation (Matric), and slightly more than one-half of the participants were employed. The FGDs delivered interesting results and indicated that there were barriers to the feasibility of specific guidelines and to the guidelines in general. Some guidelines were better understood than others, with some guidelines being misinterpreted due to their phrasing.

In the next section, detail is provided of the research question, the aim and the objectives of the study. Chapter 2 presents background to the development and the need for the PFBDGs and includes the importance of testing the guidelines. In Chapter 3, the details of the study methodology is discussed, stating the study setting and sample, data collection and analysis as well as ethical considerations. The results from the socio-demographic questionnaires together with the FGDs are presented in Chapter 4. The discussion of the results can be found in Chapter 5, and the results in relation to other studies and evidence are demonstrated. Chapter 6 is the concluding chapter and includes recommendations for future research and the study limitations.

1.2 RESEARCH QUESTION

What is the comprehension and feasibility of the revised PFBDGs among SiSwati-speaking mothers/caregivers of children aged 0–36 months living in Kabokweni, Mpumalanga, South Africa?

1.3 RESEARCH AIM

To determine the comprehension and feasibility of the revised PFBDGs among SiSwati-speaking mothers/caregivers of children aged 0–36 months living in Kabokweni, Mpumalanga, South Africa.

1.4 RESEARCH OBJECTIVES

- To determine the exposure to the revised PFBDGs among SiSwati-speaking mothers/caregivers
- To assess the comprehension of the revised PFBDGs among SiSwati-speaking mothers/caregivers
- To determine the feasibility of the revised PFBDGs among SiSwati-speaking mothers/caregivers
- To determine the enablers to the feasibility of the revised PFBDGs among SiSwati-speaking mothers/caregivers

- To determine the barriers to the feasibility of the revised PFBDGs among SiSwati-speaking mothers/caregivers
- To determine whether there is a difference in the comprehension of the PFBDGs among the different socio-economic groups of SiSwati-speaking mothers/caregivers

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The Food-Based Dietary Guidelines (FBDGs) for South Africa are short, concise messages that aim to inform and educate the public on the improvement of their overall nutrition and health and the prevention of nutrient-related and non-communicable diseases. These guidelines were scientifically developed and are based on the latest available evidence.⁵

The Nutrition Society of South Africa (NSSA) initiated the process of developing the original FBDGs in 2003, and these guidelines were aimed at people aged 7 years and older. Following this process, specific guidelines for children aged 0–7 years were subsequently developed due to the prevalence of stunting in school-going children. The PFBDGs were later reviewed and revised in 2012 to accommodate children aged 0–5 years.⁵

In the following section, the preliminary PFBDGs and the testing thereof are discussed together with the newly revised PFBDGs, the importance of establishing these guidelines and the testing thereof.

2.2 THE PRELIMINARY PAEDIATRIC FOOD-BASED DIETARY GUIDELINES

The original South African FBDG Working Group recognised that malnutrition was a major problem in school children, and this led to the decision that specific guidelines should be compiled for mothers and caregivers of young South African children. A working group with a specific paediatric focus was formed that consisted of various health professionals and was supported by the NSSA, the Association for Dietetics in South African (ADSA) and the Nutrition Directorate of the Department of Health (DoH).¹⁰

The co-existence of over- and undernutrition in South African children together with the human immunodeficiency virus (HIV) pandemic that generates other nutrition-related diseases and the poor food-security status that a large proportion of South Africans experience were considered by the PFBDG Working Group. The mentioned nutrition problems together with specific health concerns of children compared with adults

necessitated a completely different and specialised set of guidelines for the children of South Africa. ¹¹

The Working Group incorporated the importance of breastfeeding, growth monitoring, oral hygiene, maternal/child interaction, the relationship with feeding and regular follow-up clinic visits when composing the guidelines. ¹⁰ The aim was to address diet-related problems in South African children and prevent non-communicable nutritional diseases later in life. ¹¹ The guidelines were developed to educate mothers/caregivers in healthy eating practices in order to improve the nutritional situation of infants and young children. ¹² The preliminary PFBDGs are presented in Table 2.2 according to the messages for the different age groups.

Table 2.1: The preliminary Paediatric Food-Based Dietary Guidelines of South Africa for children aged 0–7 years ¹⁰

0–6 months
<ul style="list-style-type: none"> - Enjoy time with your baby - Breastfeeding is best for your baby for the first 6 months - Clean your baby's mouth regularly - Take your baby to the clinic every month
6–12 months
<ul style="list-style-type: none"> - Enjoy time with your baby - From 6 months start giving your baby small amounts of solid foods - Gradually increase your baby's meals to five times a day - Keep on breastfeeding your baby - Offer your baby clean safe water regularly - Teach your baby to drink from a cup - Take your baby to the clinic every month
1–7 years
<ul style="list-style-type: none"> - Encourage children to eat a variety of foods - Feed children 5 small meals a day - Make starchy foods the basis of a child's main meals - Children need plenty of vegetables and fruit every day - Children need to drink milk every day - Children can eat chicken, fish, meat, eggs, beans, soya or peanut butter every day - If children have sweet treats or drinks, offer small amounts with meals - Offer children clean, safe water regularly - Take children to the clinic every 3 months - Encourage children to play and be active every day

However, these preliminary PFBDGs were not adopted by the DoH because they were not sufficiently tested due to issues relating to funding and research capacity. ⁵

2.3 TESTING OF THE PRELIMINARY PAEDIATRIC FOOD-BASED DIETARY GUIDELINES

Three studies have been published on the testing of the preliminary PFBDGs. In 2004, Van der Merwe ¹³ conducted a qualitative assessment of the preliminary FBDGs for children

aged 6–12 months in the greater Oudtshoorn area. Information was obtained via questionnaires and FGDs from 64 participants, forming 10 groups in total. The study included participants from Afrikaans-, English- and Xhosa-speaking communities. Van der Merwe¹³ found that the guidelines were perceived as important by the sample but were initially not well understood. The guideline that was most problematic was the guideline regarding breastfeeding. Poor applicability of prolonged breastfeeding was reported. The study recommended that if the guidelines were presented to the public, they had to be accompanied by educational materials.¹³

Scott et al.¹⁴ tested the preliminary FBDGs in 2008. The study was conducted on the guidelines for children aged 1–7 years and included Afrikaans- and English-speaking mothers residing in Cape Town. Scott et al.¹⁴ conducted a qualitative assessment to test the comprehension, exposure and applicability in meal planning. The sample included a total of 75 participants of lower, middle and higher SES. Results of this study indicated that the sample understood the guidelines, but they did not use them in everyday life. The guidelines that presented difficulties were those regarding milk, starch and sweet snacks. Specifically, there was great uncertainty among the participants on the benefits of milk consumption. Regarding the guideline concerning starch – higher educated participants were of the opinion that ‘starchy food’ should be replaced. They disagreed with the statement that starch should be included in all meals. Lastly, the guideline regarding sweet snacks presented confusion in terms of the word ‘with’ in the guideline, participants also reported poor feasibility of the guideline. It was also found that participants with a higher SES showed a better comprehension of the guidelines. Scott et al.¹⁴ recommended that people with a lower SES would benefit most from education in these guidelines.

Murray et al.¹⁵ also published a study in 2008 regarding consumer testing of the preliminary PFBDGs. This study aimed to determine the comprehension of the guidelines and tested the guidelines on mothers with infants younger than six months of age who resided in the Western Cape. The sample consisted of mothers living in rural, urban formal and urban informal areas who were of white, coloured or black ethnicity. The FGDs were conducted with 89 participants (20 groups in total) in Afrikaans, English and Xhosa. The results indicated a general good comprehension and feasibility of the 0–6 month guidelines among the participants. Problems arose with the breastfeeding guideline and the oral hygiene guideline. Participants were not clear on whether they could give food to their

infants/children while breastfeeding. Confusion also arose with the word 'regular' in the oral hygiene guideline. Murray et al.¹⁵ recommended that one set of guidelines be developed for infants 0–6 months of age and that the guidelines be issued with educational material.

2.4 THE REVISED PAEDIATRIC FOOD-BASED DIETARY GUIDELINES

The DoH, Directorate Nutrition, started the development of a food guide in 2011. The FBDGs were reviewed as part of this process. New working groups were formed to develop revised guidelines specifically for adults and separate guidelines for children younger than five years of age. The set of revised adult FBDGs and the food guide, which is a visual diagram of food groups, were finalised and adopted in 2012.⁵

A process to update the guidelines was initiated to ensure that the guidelines were specific to the South African situation and that the guidelines were aligned with the recently developed food guide of the DoH. This process also included the revision of the PFBDGs to ensure that they became part of the basic and general messages concerning healthy eating and the feeding of children.¹⁶

The nutritional status of South African children has slightly improved over the past few years; notably for underweight and wasting. Stunting prevalence, however, remains a major public health problem. Another concern is the co-existence of under- and over-nutrition, as the overweight and obesity prevalence among children is also increasing.^{17,18}

The cause of this may be the nutrition transition that South Africa is experiencing. This refers to the change of diet practices from a more 'traditional diet' consisting of whole foods that are low in fat and rich in fibre to a 'Westernised' diet that is higher in fat and energy and lower in fibre. The nutrition transition is the cause of economic, social and technological changes. Both the high prevalence of obesity and undernutrition have serious consequences on children's health and their futures.^{18,19}

Obesity and overweight in children pose an increased risk for the development of cardiovascular diseases, type 1 and 2 diabetes and psychosocial morbidity. Not only do obesity and overweight affect children in the present but also, obese/overweight children are likely to become obese/overweight adults. Overweight/obese adults are consequently

also at risk for non-communicable diseases such as diabetes and cardiovascular illnesses, and in addition, impaired psychological, social and economic functioning and ultimately, premature mortality.¹⁹ Conversely, undernutrition poses major complications and implications. Undernutrition is a deficiency state of macro- and micronutrients and is present in three main forms: wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age). Wasting is an indicator of acute undernutrition, whereas stunting indicates chronic undernutrition.²⁰ Undernutrition may impair the growth and development of children,²¹ predispose them to various infections and diseases and ultimately, can directly lead to death.²² It weakens the child's immune system and ability to fight new or previously diagnosed infections that also impair absorption and metabolism of nutrients and add to the malnourished state. Thus, this creates a chain of circumstances that link malnutrition and disease.²³ Undernutrition also has an impact on later life; early undernutrition and micronutrient deficiencies have been associated with impairment of intellectual performance, work capacity, overall health and nutritional status during adolescence and adulthood.²⁴

The nutritional status of children is thus a critical issue and a focal point at global and national levels. Achieving and maintaining optimal nutritional status in children is essential in ensuring good health and development. To ensure improvement of the current nutrition situation in South African children, effective communication of consistent nutrition messages is crucial. The PFBDGs function as a tool in nutrition education to help caregivers of young children to feed their children optimally and to implement healthy eating habits early in life.²⁵ The guidelines mainly focus on: breastfeeding⁶; complementary feeding³; healthy eating behaviour⁷; oral health⁸; and food hygiene and sanitation.⁹

Many guidelines, policies and strategies exist to promote and support exclusive breastfeeding (EBF) and general breastfeeding practices, but implementation has not been sufficiently successful.^{6,20} The nutritional status of children in South Africa gives an indication of poor feeding practices.¹⁷ The Tshwane Declaration of Support for Breastfeeding in South Africa was adopted in 2011 and is a declaration for the commitment of South Africa to the promotion and support of breastfeeding.²⁵ However, a few challenges still exist. Although the resources and the political commitment to improve breastfeeding practices are in place, confusing and often contradictory messages regarding breastfeeding is communicated; often by healthcare workers.²⁶ This resulted in the proposal of the

guideline, “Give only breast milk, and no other foods or liquids, to your baby for the first six months of life”.⁶

Another factor leading to high malnutrition rates is the poor complementary feeding practices of children.²⁷ In turn, poverty, poor knowledge of mothers with regard to infant feeding, different messages conveyed to mothers and cultural practices further contribute to poor complementary feeding.³ This situation necessitated nutrition messages addressing the complementary feeding period from six months onwards.³ The following guidelines were proposed for this period:

From six months of age, start giving your baby small amounts of complementary foods, while continuing to breastfeed for up to two years and beyond.

Gradually increase the amount of food, number of feeds and food variety as your child gets older.

From six months of age, give your baby meat, chicken, fish, liver and eggs every day, or as often as possible.

Start spoon-feeding thick foods, and gradually increase to the consistency of family food.

Give your child dark-green leafy vegetables and orange-coloured vegetables or fruit every day.

Avoid giving tea, coffee, sugary drinks, and snacks that are high in sugar, fat or salt.³

Although the type and the amount of food provided for children influence their nutritional status, how they are fed is also important. Children are able to self-regulate feeding, which is enhanced with cause-effect learning. This means that the mother/caregiver responds in a positive and supporting manner to signals and signs from the child. Good self-regulation and good interaction with the caregiver improve nutritional status because the child is able to regulate what he/she needs and, therefore, consumes the amount of food needed. Feeding abilities such as self-regulation are aligned with the development of the child, which is greatly influenced by the stimulation provided by the parent/caregiver. Thus, the relationship between the child and the parent/caregiver significantly influences the feeding behaviour of the child and ultimately, the nutritional status of the child.⁷ The following guidelines were thus suggested:

Feed slowly and patiently, and encourage your baby to eat, but do not force them. Assist your child when they feed themselves, and encourage them to eat, but do not force them. ⁷

Dental caries is a common disease among children and has an impact on their quality of life, their general health and their nutritional status. If not treated, consequences such as pain, infection, poor growth and development, speech and language disorders, poor self-esteem and damage to permanent dentition may occur. Nutrition and dietary intake have a direct impact on the development and progression of dental caries, and it has been proven that sugar is the main cause thereof. ⁸ It has also been proven that excessive dietary intake of sugar, salt and fat could lead to renal and cardiovascular diseases later in life, as well as overweight and obesity. ^{28,29} This has led to the proposal of the guidelines:

Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks.
Use sugar and food and drinks high in sugar sparingly. ⁸

One of the main causes of childhood death are diarrhoeal diseases, which are mainly preventable through basic hygienic measures. Pathogens are mainly transmitted via the hands and, therefore, hand washing is of major importance, especially before working with food and before eating. Mothers, caregivers and children should constantly be made aware of the importance of washing hands with soap and water. ⁹ The following guideline was, therefore, proposed:

Hands should be washed with clean water and soap before preparing, feeding or eating, and after going to the toilet. ⁹

Because children have different nutritional needs at different life stages, one set of guidelines for all children would not be appropriate and thus, the developed guidelines were grouped into four categories: 0–6 months, 6–12 months, 12–36 months and 3–5 years. ⁵ The specific set of guidelines for each age category is presented in Table 2.2.

Table 2.2: Revised Paediatric Food-Based Dietary Guidelines ⁵

- 0–6 months
- Give only breast milk, and no other foods or liquids, to your baby for the first six months of life.
- 6–12 months
<ul style="list-style-type: none"> - At six months, start giving your baby small amounts of complementary foods, while continuing to breastfeed to two years and beyond. - Gradually increase the amount of food, number of feeds and variety as your baby gets older. - Feed slowly and patiently and encourage your baby to eat, but do not force him or her. - From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible. - Give your baby dark-green leafy vegetables and orange coloured vegetables and fruit every day. - Start spoon-feeding your baby with thick foods, and gradually increase to the consistency of family food. - Hands should be washed with soap and clean water before preparing or eating food. - Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your baby.
- 12–36 months
<ul style="list-style-type: none"> - Continue to breastfeed to two years and beyond. - Gradually increase the amount of food, number of feedings and variety as your child gets older. - Give your child meat, chicken, fish or egg every day, or as often as possible. - Give your child dark-green leafy vegetables and orange coloured vegetables and fruit every day. - Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your child. - Hands should be washed with soap and clean water before preparing or eating food. - Encourage your child to be active. - Feed your child five small meals during the day. - Make starchy foods part of most meals. - Give your child milk, maas or yoghurt every day.

- 3–5 years

- | |
|--|
| <ul style="list-style-type: none"> - Enjoy a variety of foods. - Make starchy foods part of most meals. - Lean chicken or lean meat or fish or eggs can be eaten every day. - Eat plenty of vegetables and fruit every day. - Eat dry beans, split peas, lentils and soya regularly. - Consume milk, maas or yoghurt every day. - Feed your child regular small meals and healthy snacks. - Use salt and foods high in salt sparingly. - Use fats sparingly. Choose vegetable oils, rather than hard fats. - Use sugar and food and drinks high in sugar sparingly. - Drink lots of clean, safe water and make it your beverage of choice. - Be active! - Hands should be washed with soap and clean water before preparing or eating food. |
|--|

2.5 TESTING OF THE REVISED FOOD-BASED DIETARY GUIDELINES

Although the guidelines discussed in section 2.4 have been proposed and are supported by technical support papers,⁵ they have not been fully tested. Even if the guidelines are perfect in theory, if they are not implemented due to various constraints, they are of no value. Therefore, testing of these guidelines is crucial.¹⁶

It is recommended by Vorster¹⁶ that the testing of the guidelines should be based on adequacy for recommended nutrient needs and comprehension by South African citizens of all communities.¹⁶

The official South African languages are English, Southern Sotho, Tsonga, Afrikaans, Twana, English, Zulu, Northern Sotho, Swati, Xhosa, Venda and Ndebele. According to the 2011 census of Statistics South Africa, isiZulu is the mother tongue of 22.7% of South Africa's population. This is followed by isiXhosa at 16%, Afrikaans at 13.5%, English at 9.6%, Setswana at 8% and Sesotho at 7.6%. The remaining official languages are spoken at home by less than 5% of the population. isiZulu, isiXhosa, SiSwati and isiNdebele are collectively referred to as the Nguni languages, and they have many similarities in syntax and grammar. The Sotho languages (Setswana, Sesotho sa Leboa and Sesotho) also have much in common.³⁰

The PFBDGs are currently being tested for comprehension in isiXhosa-, English- and Afrikaans-speaking communities in the Western Cape (Ethics Reference number: N14/09/122). SiSwati is one of the Nguni languages that is closely related to isiZulu³⁰ and hence the motivation to test the guidelines in a SiSwati-speaking community.

The University of Venda has indicated interest in testing the guidelines in one of the Sotho languages in collaboration with Stellenbosch University. In this way, the guidelines will potentially be tested in the most common or the most-closely related, spoken South African languages. After completion of the research projects, the recommendations from the research will be sent to the PFBDG Working Group. This group will consider these recommendations and make final recommendations to the DoH, proposing final wording of the official PFBDGs of South Africa.

CHAPTER 3: METHODOLOGY

The aim of this study was to determine the comprehension and feasibility of the revised PFBDGs among SiSwati-speaking mothers/caregivers of children aged 0–36 months living in Kabokweni, Mpumalanga, South Africa. To achieve this aim, a qualitative research study was conducted with FGDs as the means of data collection. A demographic questionnaire was also used to collect applicable data. In this chapter, the methodology of the study is discussed in depth and includes the study design and setting, sampling, data collection and analysis as well as ethical considerations.

3.1 STUDY DESIGN

The aim of the study was to determine the comprehension and the feasibility of the PFBDGs among the study population in order to obtain an in-depth understanding of what the mothers/caregivers feel, think and understand about the proposed guidelines. A qualitative research approach was, therefore, appropriate and was conducted as outlined in the following sections.³¹

3.2 STUDY SETTING

The study was conducted in Kabokweni, a small town situated in the Ehlanzeni District of Mpumalanga, South Africa. See Figure 3.1 for a map of the location of the town in Mpumalanga and Figure 3.2 for an overview of the town. The area was purposively selected since it is well established in terms of infrastructure and is familiar to the researcher. This aided in terms of logistical arrangements and safety issues.

3.3 STUDY POPULATION AND SAMPLING

3.3.1 Study population

The study population consisted of SiSwati-speaking mothers/caregivers of children aged 0–36 months living in Kabokweni.

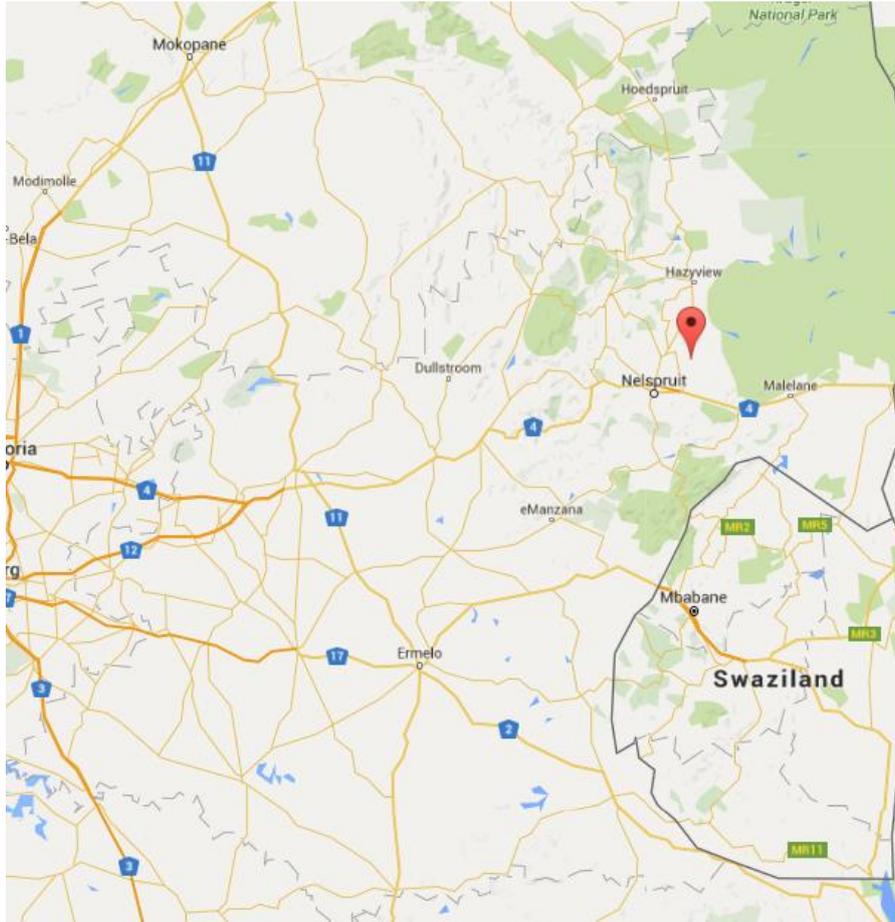


Figure 3.1: Map of location of Kabokweni in Mpumalanga ³²

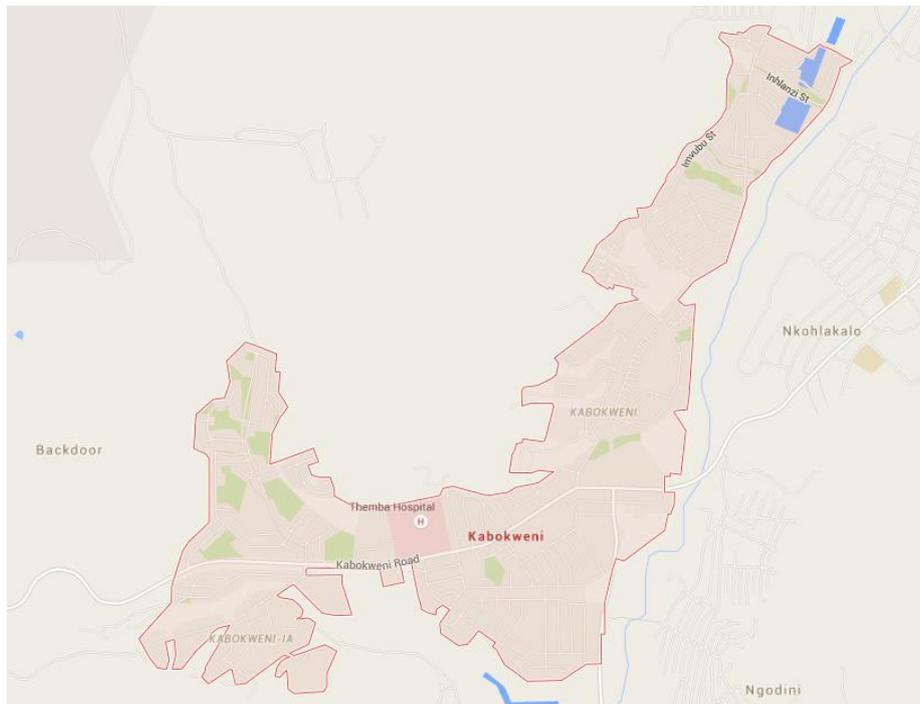


Figure 3.2: Map of Kabokweni ³³

3.3.2 Inclusion and exclusion criteria

Inclusion criteria:

- SiSwati-speaking
- Residing in Kabokweni for the duration of the data-collection period
- Mothers/caregivers with one or more children between 0 months and 36 months of age
- Mothers/caregivers older than 18 years
- Participants who gave informed consent to participate in the research study

Exclusion criteria:

- Not SiSwati-speaking
- Not residing in Kabokweni for the duration of the data-collection period
- Mothers/caregivers with a child/children outside the age group of 0–36 months
- Mothers/caregivers younger than 18 years
- Participants who did not give informed consent

Mothers/caregivers younger than the age of 18 years were excluded due to the fact that they are not of consent-giving age. Mothers as opposed to fathers were included since they

are normally the primary caregivers of children. In the case of the mother not being able to care for the child, a caregiver such as a relative or friend intercedes.

3.3.3 Sampling method

The intent was to select a sample that was representative of all socio-economic groups within the study population; therefore, the aim was to stratify the area into formal and informal settlements. Participants living in formal settlements were regarded as participants with a medium to high SES, whereas participants living in informal settlements were regarded as participants with a low to medium SES. However, this was not feasible. As discussed below, mothers were recruited outside a community health centre (CHC) and at crèches and thus, there was no separation between those living in formal and informal settlements.

In order to retrieve data on a certain population, participants were selected purposively and via snowball sampling. Purposive sampling is the basic sampling method used in qualitative research in which participants with certain characteristics are required.³¹ Snowball sampling entails selecting a few participants and asking them to select other participants with certain characteristics.³⁴ Participants who met the inclusion criteria were recruited outside the Kabokweni CHC and at crèches in Kabokweni.

Participants were recruited outside the CHC by the principal investigator and the field worker. At the local crèches, participants were recruited via snowball sampling. Crèche owner(s) / manager(s) were informed of the study, The owner(s) / manager(s) subsequently recruited mothers/caregivers according to the inclusion criteria. All possible participants were given an information leaflet, informing them of the aim and purpose of the study and the details of the FGDs. See Addendum A and Addendum B for the information leaflet in English and SiSwati.

3.3.4 Sample size

The sample population was grouped into mothers/caregivers of infants aged 0–12 months and mothers/caregivers of children aged 12–36 months. It was planned that three to four

focus groups would be conducted within each group, and each focus group would consist of six to eight participants. Therefore, in total, 72 to 128 participants would be included in the sample. The exact number of focus groups and, therefore, number of participants to be selected, was dependant on the data collected. If data saturation was not reached after three focus groups had been conducted, more data would need to be collected. A fourth focus group would be conducted in such a case.

3.4 DATA COLLECTION

Self-administered socio-demographic questionnaires

Socio-demographic questionnaires were developed in English and translated to SiSwati (Addendum G and Addendum H). At the start of the FGD, participants were given a socio-demographic questionnaire to complete. The field worker guided the participants through the questionnaire by reading all the questions aloud. The field worker, facilitator and fellow participants assisted participants who struggled or who were illiterate. The facilitator ensured that all questionnaires were completed.

Focus group discussions

An FGD involves a group of people who discuss a certain topic. A facilitator who directs the conversation according to a pre-compiled discussion guide leads the specific discussions.

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Since the primary investigator is familiar with the SiSwati language but is not fluent in the language, a field worker fluent in SiSwati was recruited. The fieldworker acted as the facilitator of the FGDs, and the primary investigator acted as co-facilitator. The fieldworker was a registered dietitian, fluent in SiSwati and familiar with the Kabokweni community and the basics of research methodology through her undergraduate studies. The combination of her nutrition and research knowledge, her mother tongue and her familiarity with the study setting made her the ideal candidate for the position of field worker.

The FGDs were held in various venues that were clean, safe, enclosed and easily accessible to the participants. A specific venue was selected to conduct the FGDs with the participants who were recruited by the fieldworker and primary investigator. The boardroom

at the Kabokweni Municipal Offices and a church hall were used. The FGDs conducted at the crèches were held at each crèche in an enclosed room. All FGDs were held on weekdays because this best suited the participants. Data collection took place from 25 July 2016 until 17 August 2016.

An FGD guide was compiled by the primary investigator in English and was translated to SiSwati. Double copies of each were printed for the fieldworker and the primary investigator. See Addendum I and Addendum J for the discussion guides. The PFBDGs were also translated into SiSwati, and each set of guidelines were printed on separate A2 posters. Consent forms for partaking in the study and consent forms for the audio recording of the discussions were compiled and translated into SiSwati (See Addendum C to Addendum F).

The fieldworker led the discussions and opened each focus group with introductions and a brief explanation of the purpose of the FGD. Numbers were assigned to each participant by placing a numbered sticker on the participant's clothing so that it was visible to the facilitator. Each participant was given a pen and a set of forms that comprised the consent form for partaking in the study, the consent form for the audio recording and the socio-demographic questionnaire. All the forms were completed and checked with the assistance of the fieldworker and the primary investigator.

As the fieldworker announced that the main discussion would commence, the audio recording was started. The device used for this purpose was the primary investigator's mobile phone. An application named Dictaphone was purchased and downloaded on the device. The application was tested several times before using it for recording the FGDs. The PFBDGs were discussed guideline by guideline according to the discussion guide. Recording was stopped at the closure of each group, at which time, participants were welcome to ask any additional questions regarding the FGDs or nutrition in general. Each participant was thanked and left with a pre-prepared parcel containing an orange, a packet of peanuts and a yoghurt. They could also keep the pen that was given to them at the start of the group. The pen together with the parcel was given as an expression of gratitude for taking part in the study.

In addition to the audio recordings of the groups, the primary investigator took notes during each FGD. Recordings were transcribed and translated into English by a private transcription service.

3.5 QUALITY CONTROL

The following strategies were implemented to ensure reliability and validity of the study in order to minimise bias and to ensure that the data collected was a true reflection of reality.³¹

A fieldworker was selected and trained by the primary investigator on the revised PFBDGs. In addition, the aim, objectives and methodology of the research study were explained. The fieldworker was a SiSwati-speaking registered dietitian who was familiar with the Kabokweni community.

Detailed note-taking was done throughout the data collection. The primary investigator took notes during the FGDs and recorded the non-verbal behaviour of the participants.

A pilot study was conducted prior to the start of the research to test the FGD guide for applicability and practicality and to identify gaps so that adaptations could be made.³¹ The pilot study consisted of three FGDs conducted on three different days. The data obtained from these focus groups were not transcribed, translated or analysed. However, feedback from the participants and gaps and problems identified by the fieldworker and primary investigator were used to adapt and improve the follow-on FGDs.

After the documents were transcribed by the private transcription services, the principle investigator read the documents to ensure that they represented and documented all that had occurred during the FGDs.

3.6 DATA ANALYSIS

The socio-demographic information was recorded and analysed by the primary investigator in Microsoft Excel 2013. Means were calculated across each category in each group and for the category in total.

Content analysis was used by the primary investigator to analyse the data obtained from the FGDs. This method of analysis entails reading and re-reading the transcribed data and summarising, organising and classifying the data collected. The goal of content analysis is to identify themes, patterns and significant findings in the collected data. It provides possible answers to the research question and assists in understanding the sample population.³⁵

The FGD data was entered into Microsoft Excel 2013 and analysed manually by the primary investigator. In the initial data analysis process, the primary investigator thoroughly familiarised herself with the transcribed discussions from the FGDs. Notes taken during the FGDs were recorded in the transcribed document for each group. Codes were developed, keeping the specific objectives in mind. The text was coded according to the objectives. Thematic frameworks were subsequently developed in Microsoft Excel 2013 for each focus group according to the groups of 0–12 months and 12–36 months.

3.7 ETHICAL AND LEGAL CONSIDERATIONS

The study was explained to the participants prior to the start of the FGDs, and they were free to withdraw. Participants willing to participate gave informed consent prior to the start of the FGDs and informed consent for the audio recording of the FGDs. Confidentiality of participants was ensured by not including the names or identification numbers on any documents and not mentioning names in any of the recordings. Translated documents were safely secured on a password-protected laptop. All recordings will be destroyed after completion of the study. The study received ethical approval from the Health Research Ethics Committee (HREC), Faculty of Medicine and Health Sciences, Stellenbosch University (Ethics Reference number: S16/02/028).

CHAPTER 4: RESULTS

4.1 INTRODUCTION

A qualitative research study was conducted in order to field test the revised PFBDGs among SiSwati mothers/caregivers of children aged 0–36 months living in Kabokweni, Mpumalanga, South Africa. The objectives were to determine exposure, comprehension, feasibility, enablers and barriers to the feasibility as well as the difference in comprehension among different socio-economic groups.

Participants were recruited via purposive sampling and snowball sampling. Mothers/caregivers with children aged 0–12 months and 12–36 months were recruited. Six focus groups were conducted within each group, and groups consisted of six to seven participants, resulting in a total of 75 participants.

It was observed that the smaller the focus group, the easier it was to achieve interaction with the participants and obtain detailed feedback from them. Therefore, where possible, the principal investigator and fieldworker tried to limit the number of focus group participants to six. This was the minimum number of participants per group originally planned. Only one group consisted of five participants due to a participant not keeping the appointment and the lack of time to recruit another participant.

Twelve (12) FGDs were the minimum number of FGDs to be conducted as set out by the protocol (6 FGDs for mothers/caregivers of children aged 0-12 months and 6 FGDs for mothers/caregivers of children aged 12-36 months.) It was noted during the 5th and 6th FGDs of each age group category, that no new information was emerging and it was therefore decided to end data collection after the 6th FGDs.

Socio-demographic data was collected by means of a questionnaire, and the data gathered from the FGDs was recorded and transcribed. The information gathered from each method is described below.

4.2 SOCIO-DEMOGRAPHIC INFORMATION

4.2.1 Introduction

Socio-demographic information was obtained from the participants by means of a multiple-choice questionnaire. The same socio-demographic information was obtained for all participants. However, the focus groups were conducted under two main groups: 0–12 month PFB DGs and 12–36 month PFB DGs. Since the socio-demographic information was linked to the discussion from each focus group, the reporting on the socio-demographic information was also divided according to the two main groups. Because each group represented a unit, the mode of each category was calculated for each group, and statistics were calculated according to the modes as well. For the sake of completeness, statistics were also calculated for the total number of participants.

4.2.2 Mothers/cargivers of children 0–12 months of age

The youngest participant was 19 years old, and the oldest participant was 60 years old. For statistical analysis, ages were divided into the following categories: 19–29 years, 30–39 years, 40–49 years, 50–59 years and 60–69 years. When taking all participants and the modes of the groups into consideration, most participants were 19–29 years of age. All of the participants were of black ethnicity. All of the participants could speak SiSwati, but some participants had other home languages. Sepedi (Northern Sotho) and isiZulu were mentioned as other home languages. Most participants had a Grade 8–11 level of education, with Matric being the second-most attained grade. When considering the distribution of the group modes, however, most participants' highest level of education was Matric, with Grade 8–11 being the second-most attained grade. Concerning employment status, one-half of the participants were employed and one-half were unemployed.

Because all participants were mothers or caregivers of children aged 0–12 months, they had to specify their relation to the child. The list of options was: mother, sister, aunt, grandmother, no relation or other; the latter had to be specified. When examining the distribution of all the participants and the modes of the groups, most of the participants were mothers. Refer to Table 4.1.

4.2.3 Mothers/caregivers of children 12–36 months of age

All participants except one knew their date of birth. The youngest participant was 19 years of age, and the oldest was 63 years. In considering both the total number of participants and the mode of the groups, most of the participants were in the age group of 30–39 years. All participants were of black ethnicity. Even though all participants could speak SiSwati, not all of them stated that it was their home language. Sepedi, isiXhosa and English were mentioned as other home languages. Considering the education level of participants, one participant had no education and the highest level of education was tertiary. Taking all participants and the modes of the groups into consideration, most participants' highest level of education was Matric. Approximately one-half of the participants were employed and the other half were unemployed, with a 60/40 ratio among all participants. When considering the distribution of the participants, most of them selected 'other', and all specified that they were caregivers at a crèche. However, reviewing the modes of the groups indicated that one-half of the groups represented mothers and one-half represented 'other'. All were specified as caregivers at a crèche. Refer to Table 4.1.

Table 4.1: Socio-demographic indicators of mothers of children aged 0–12 months and 12-36 months

Indicator		0-12 months	12-36 months
		%	%
Age	19-29 years	38	13
	30-39 years	19	34
	40-49 years	32	24
Ethnicity	Black	100	100
Home language	SiSwati	84	92
Education	Gr.8-11	38	29
	Matric	32	50
	Tertiary	19	13
Employment	Employed	49	61
Relation to child	Mother	57	29
	Grandmother	14	18
	Caregiver crèche	22	39

4.3 FOCUS GROUP DISCUSSION

4.3.1 Introduction

Conversations were structured around a discussion guide, which was aligned with the aim and objectives of the study. The transcribed documents were analysed according to the PFBDGs, the objectives of the study and other occurring themes. The results of the FGDs are presented according to the guidelines for Group 0–12 months and Group 12–36 months.

4.3.2 Guidelines for children 0–12 months

Guideline 1: Give only breast milk, and no other foods or liquids, to your baby for the first six months of life

Most of the mothers/caregivers reported familiarity with this guideline and had heard this nutritional message at home or at the primary health care (PHC) facility, the clinic. The mothers/caregivers had a good understanding of this guideline and interpreted it correctly, understanding it to mean that breastmilk should be given as the sole source of nutrition for the first six months of the child's life. The participants also displayed a good understanding of why it is important to implement this guideline, stating that breastmilk provides all the necessary nutrients, it protects the baby against disease, no financial costs are involved, it is readily available, and it ensures the proper growth of the infant.

I say that mother's milk is so important. It equips the child with energy to grow appropriately. It stays warm at all times, unlike having to warm it up from scratch. It is always clean. (FG11108 to Möller)

We have been taught that a child's intestines are very small. If you give the child solids before the right time they might be damaged. She might be hurt and get other infections. (FG11708 to Möller)

Even though the mothers/caregivers had knowledge of the benefits of exclusively breastfeeding a baby for the first six months, not all of them felt that the guideline was feasible or that the community would be able to understand and follow it. Many stated that they and people in the community felt that breastmilk alone is not sufficient for a child

younger than six months. A few participants remarked that only educated people know the importance of exclusive breastfeeding. Some participants also felt that it is not easy to breastfeed exclusively when you are a working mother.

Because not all of us are educated. Because others are used to that, if the child is born today, and when she cries they say she is hungry, and they take soft porridge and feed her. (FG31707 to Möller)

I see that it will be a problem because I am working, and I leave her at home. She must get the formula milk that she can drink while I am away. Or maybe, I can use a bottle and extract milk from my breast and put it in the fridge. But I do not know if the person who minds the child during the day will give the milk. (FG11707 to Möller)

Guideline 2: At six months, start giving your baby small amounts of complementary foods, while continuing to breastfeed to two years and beyond

All of the participants were aware of this guideline, and most stated that they had heard it at clinics. The mothers/caregivers had a good understanding of what complementary foods imply and could give practical examples. Most of the examples were starchy foods or instant foods such as baby cereals or 'Purity'. Most participants stated that they practised the first part of this guideline.

The phrase, "continuing to breastfeed", was also well understood and reportedly practised. Mothers/caregivers felt that it was important to continue breastfeeding because it provides nutrition and ensures adequate growth. However, much controversy was raised about the section of the guideline that states that breastfeeding should continue for two years and beyond. Some mothers/caregivers felt that this time period was practical, but most were of the opinion that it is too long. Participants said that, children wean themselves before then; if children breastfeed for that long, they have a poor appetite for food; children tend to bite the mother's nipples; breastfeeding for that long is old fashioned; and mothers tend to lose weight if they breastfeed for an extended period.

He then loses weight because once the child focuses on the breast milk until two years, he will not grow well. He does not want to eat food and only wants breastmilk. (FG20208 to Möller)

Those who have children now cannot be patient. You see, those mothers from the olden days, they were breastfeeding even if the child was old ... Mothers of children of today perceive breastfeeding as old fashioned. (FG11108 to Möller)

A misconception occurred regarding the cessation of breastfeeding of mothers who are HIV positive. According to the participants, continuation of breastfeeding for two years was not possible for HIV-positive mothers. A request was made for a specific guideline for mothers who are HIV positive.

Guideline 3: Gradually increase the amount of food, number of feeds and variety as your baby gets older

The participants all stated that they were familiar with this guideline. Most participants indicated they heard the message at clinics, and some stated that they read it in the *Road to Health* booklet. This booklet is issued at all birthing units in South Africa and contains information on the health of the mother and child, as well as information and guidelines on infant and young child feeding and development.³⁶ The mothers/caregivers understood this guideline very well, and it was reportedly practised by all. Participants interpreted the guideline to mean they should give more food as the child gets older because as the child is growing, he/she needs more energy and nutrients. They interpreted “variety” as different types of food and understood that children need a variety of nutrients and become bored with the same type food. One participant mentioned food allergies in the context of this guideline, explaining that one should try different types of food in small amounts to monitor whether the child is allergic to any food. A few participants suggested that the guideline should elaborate on the meaning of “variety” by giving examples of food groups.

Guideline 4: Feed slowly and patiently and encourage your baby to eat, but do not force him or her

The participants were familiar with this guideline, and most had heard the message at clinics. They had a good understanding of the guideline and could interpret “encourage”

well. They understood the negative impact of force-feeding. For example, the child could vomit, the child could choke on the food and the child would not enjoy eating if forced to eat regularly. However, the mothers/caregivers did not feel that this guideline would be feasible for everyone or would be understood by everyone. Some of the participants were of the opinion that if you do not force-feed a child, he/she will not eat well. It was also mentioned that some people do not have time to sit and slowly feed a child. However, participants were also of the opinion that if you train mothers/caregivers properly, they would be able to follow the guideline.

Some will understand it when you explain it to them. Others are in a hurry.
(FG12907 to Möller)

And children of today like to be forced. If you leave them not to eat, they will not eat and will leave the food. It requires you to hold them and feed them when they actually cry because when you leave them they do not eat, and they become lean and do not grow properly. (FG11108 to Möller)

Guideline 5: From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible

All but one group were familiar with this guideline and had heard it mainly at clinics. One participant stated that she had heard it on a radio show. The participants understood the importance of including these foods in a child's diet. They mentioned factors such as the stated foods are important for growth, are nutritious and provide strength. Many recognised the mentioned items as protein sources. However, the guideline was interpreted incorrectly by most groups. Mothers/caregivers understood this guideline to mean that you should give meat, chicken, fish *and* egg every day. Participants expressed that they would be able to give one of these foods per day but not all in one day.

It is not well written. A child cannot eat meat now, and then she eats fish. She should eat fish in one day, eat meat the following day, and eat egg. (FG11708 to Möller)

Or stipulate that you give them one of these in a day when I have it, another item tomorrow. (FG11108 to Möller)

It was also mentioned that the guideline is not feasible due to financial constraints, availability of the food items at local shops and food preferences of the children. One participant recommended that beans should be added to the guideline because beans are also a protein source.

Guideline 6: Give your baby dark-green leafy vegetables and orange coloured vegetables and fruit every day

Most of the participants had heard of this guideline before and were familiar with it. They understood that these vegetables and fruits are beneficial to children because of the nutrients they contain. However, not all of the groups could provide examples of dark green, leafy vegetables or orange vegetables. All of the groups recommended that examples of these vegetables should be included in the guideline. Not all participants felt this guideline was feasible. They mentioned factors such as “children do not want to eat vegetables”, “it causes diarrhoea”, “children are too small to eat green vegetables” and “mothers/caregivers are not always able to afford them”.

However, many participants thought that this guideline was feasible because of the nutritious value of fruit and vegetables. The participants also provided valuable statements for ways to follow this guideline. They suggested that a vegetable garden could be planted so that one would always have access to vegetables. They also suggested that one should blend the vegetables to make them easier for smaller children to eat.

Guideline 7: Start spoon-feeding your baby with thick foods, and gradually increase to the consistency of family food

All the groups were aware of this guideline but struggled to state where they had heard it. One participant stated that she heard it at a clinic. The same participant also recommended that there should be a guideline stating that mothers/caregivers should regularly go to clinics because that is where they will hear information such as this. The groups understood thick foods to be soft foods that you could feed with a spoon. They also understood why it is important to progress with the consistency of the food. Most groups explained that children

cannot begin with eating hard, solid food because they are not yet developed enough to tolerate and chew such foods. Participants further explained that one should increase the consistency as the child develops and grows. Even though the groups understood the concept, they struggled to explain the term, “family food”.

Guideline 8: Hands should be washed with soap and clean water before preparing or eating food

All participants were aware of this guideline and had mainly heard it at clinics. This was the guideline with which all groups were most familiar, and it was claimed to be practised by all. The groups had a good understanding of the term, “clean water”, and possessed good knowledge of how to clean dirty water, naming methods such as boiling and adding ‘Jik’ (bleach). They understood that following this guideline would prevent disease and the spreading of germs.

We wash our hands so that bacteria from our hands should not be passed on to the food and affect the child whilst preparing the food. (FG12907 to Möller)

Participants mentioned that it is sometimes difficult to implement this guideline because they struggle with water availability. The women in the rural areas have to fetch water from small streams, and sometimes there is no clean water or soap available when travelling. Crèches have devised a smart invention to overcome the challenge of not having running water close by. A hole is made in the bottle cap of a two-litre bottle and water is then squirted from the bottle onto the children’s hands when necessary.

One participant also recommended that the guideline should include not washing hands in water that someone else has already used. One group stated that the community will not necessarily follow this guideline because it believes that dirt is healthy and it “heals the stomach.”

Guideline 9: Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your baby

This guideline was poorly comprehended and poorly implemented. In addition, almost one-half of the groups were not familiar with it. There was, however, much discussion of this

guideline in all of the groups. Few participants could name examples of sugary drinks, and few were able to name and identify high-sugar or high-fat snacks properly. Some participants also gave incorrect examples. The groups also had misconceptions of why sugary drinks, high-sugar snacks and high-fat snacks needed to be avoided. Only a few mentioned tooth decay, and a few none-related diseases were also indicated. Many participants did not understand the reason behind this guideline.

Some mothers/caregivers felt that this guideline is not feasible because children specifically ask and cry for these drinks and snacks. It was also stated that these snacks and drinks are easy to carry when travelling. Mothers/caregivers who implemented the guideline mentioned that this guideline would be feasible if you taught the child from the beginning not to eat and drink these items. Participants also stated that this guideline would be feasible if they themselves followed it because children want to eat and drink the same foodstuff as their parents.

Oh, we do not know because these things vary. Some say you should consume a lot of sugar as it is an addition of something, others say you should not consume sugar too much because it causes illness. So now we can no longer clearly understand as to where sugar is danger. (FG11108 to Möller)

There were also much confusion regarding rooibos tea because of the fact that one can obtain rooibos tea that is marketed for children, thus implying that one can give it to children. A few participants also stated the same in regard to biscuits for children.

Tea is important. Juice is important but not coffee. I am pleased because at the shops there are things specifically made for kids. (FG20208 to Möller)

4.3.3 Guidelines for children 12–36 months

Guideline 1: Continue to breastfeed to two years and beyond

All of the groups were aware of this guideline. Most had heard it at clinics, and one group mentioned that they heard it at the hospital. All the groups were very vocal about this guideline. The mothers/caregivers had a good understanding of why continuation of

breastfeeding is important, naming factors such as ensuring good development and growth and an optimal nutritional status. All of the groups felt it was feasible to breastfeed, but none felt it was feasible to breastfeed for two years and beyond. The reasons given were that children tend to prefer breastfeeding above eating food, children wean themselves before two years, it is painful to breastfeed for that length of time and mothers tend to lose weight when they breastfeed for an extended period.

Similar to the guidelines for children aged 0–12 months, the mothers/caregivers raised concerns regarding breastfeeding and HIV. There were misconceptions regarding the time period that HIV-positive women are allowed to breastfeed. A few groups emphasised that a specific guideline should be made for women who are HIV positive.

In these times, there are problems of certain diseases that prevent you from breastfeeding the child until she is two years old or/and above ... like HIV.
(FG51707 to Möller)

Guideline 2: Gradually increase the amount of food, number of feedings and variety as your child gets older

All the groups were aware of this guideline; some heard it at clinics and others at the hospital. The participants had a good understanding of the guideline, explaining that a child eats more as he/she grows. Even though they understood the guideline, not everyone felt it was always feasible to provide a wide variety of food for the child, mainly because of financial restrictions.

You need to alternate. If you have given her this in the morning, then in the evening, you will give her that and something else. Because if you give her one and the same food, she will get these diseases such as kwashiorkor. (FG22907 to Möller)

It depends on the availability of money. (FG22907 to Möller)

Guideline 3: Give your child meat, chicken, fish or egg every day, or as often as possible

All of the groups were aware of this guideline. Most participants heard it at the clinic, but a few also heard it on the radio, read it in the *Road to Health*³⁶ booklet or saw it on television. The participants understood the importance of giving these foods, and most stated that it is important for proper growth and development. Participants mainly felt that it was feasible to give one of the foods mentioned in the guideline per day despite difficulties such as lack of finances.

As in the guidelines for children aged 0–12 months, many of the groups understood this guideline to mean that all the foods mentioned should be given every day. In most of the groups, the participants requested that the guideline should clearly state that mothers/caregivers should give one of these foods per day. One group also requested that beans should be included in this guideline.

They were supposed to write that you must give your child one of these every day. (FG41708 to Möller)

A few misconceptions were also noted regarding different types of protein sources. Some participants had heard that certain sources mentioned in the guideline are better than others or that some sources should be avoided. In some instances, it appeared that the participants had accessed outdated eating guidelines for adults and understood that these also applied to children. A few statements illustrate this point:

I think what is important is the egg and fish because the chicken is no longer healthy. Beef has gout. The thing I hear is important, sister, is the fish and the eggs. (FG10208 to Möller)

However, there is a belief that a person should not eat eggs daily. Others say there will be effects on the heart. (FG21708 to Möller)

White meat is better. Red meat is not good. (FG21708 to Möller)

Guideline 4: Give your child dark-green leafy vegetables and orange coloured vegetables and fruit every day

The groups were all familiar with this guideline; most heard it at clinics and one group stated they saw it on television. The participants all knew the importance of following this guideline, naming factors such as fruit and vegetables to ensure growth and development and ensure a healthy immune system. Some mentioned that it is not easy to implement this guideline because some children dislike vegetables and because there is not always money available to buy fresh produce. However, many participants contradicted this with suggestions such as growing one's own vegetable garden and teaching children to eat fruit and vegetables from a young age. Overall, the importance of giving fruit and vegetables was the main reason that participants felt this guideline was feasible.

Even though the groups could name examples of green, leafy vegetables and orange-coloured vegetables, a few groups stated that they would prefer the guideline to mention examples.

I can stipulate that you must include a carrot. You must mention it. Mention it clearly. We are also confused. (FG41708 to Möller)

Or they can say an example, and put the example in brackets. (FG41708 to Möller)

Two misconceptions emerged from one group. The first was that children aged 12–36 months would not be able to eat green, leafy vegetables, and the second was that spinach causes diarrhoea.

Guideline 5: Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your child

Most of the groups stated that they were familiar with this guideline and that they heard it at clinics. As in the guidelines for children aged 0–12 months, this guideline was not completely understood and was not well practised. There was much discussion in all of the groups regarding this guideline. Most groups could name examples of sugary drinks, snacks and high-fat, salty snacks but also requested and recommended that examples be mentioned in

the guideline. The importance of this guideline was only partially comprehended. Participants mentioned tooth cavities and children becoming hyperactive, and one participant indicated obesity. However, there were many misconceptions with regard to the reasons that the foods mentioned in the guideline should be avoided.

Chips, they are not right. They cause ringworms. They get ringworm on their heads, and tonsillitis. (FG41708 to Möller)

When children consume too sugary things, the Danones, it gives them bile. You find them having a diarrhoea. (FG41708 to Möller)

Others become obese. (FG41708 to Möller)

I wish all parents were listening to this. I wish they were here. Children don't have teeth. They are rotten, and they eat sugar. (FG10208 to Möller)

Another thing is that it makes the child to be too hyper. (FG12507 to Möller)

Once they eat sugary foods, they then do not want to eat food. It spoils their appetite, and then they do not want to eat anymore. (FG10208 to Möller)

Personally, I have noticed that when a child has drunk a cool drink, the child refuses to eat. They also become hyperactive. (FG21708 to Möller)

Participants in the groups felt this guideline could be feasible if it were practised and if children were taught from a young age to follow it. However, some participants felt it was not practical because children are already familiar with salty and sugary snacks. In addition, such snacks are easy to pack and are useful for travelling. Participants were also confused by the term, "snacks", because it is also recommended that children be given snacks between meals. Therefore, participants felt that there should be differentiation and specification when snacks are mentioned.

We do not understand it. They should differentiate it well for us that there are biscuits and there are snacks. (FG41708 to Möller)

Because it is important, you do not buy these foods and keep them in the house. In actual fact, the child should not get these things. If she does, she must rather get them from outside the home. The teaching should start with the parent ... (FG22907 to Möller)

But the snacks that are full of sugar are bit confusing because there are those that are packaged in small plastic bags, and they also call them snacks, and I don't know if that is also included in the list (FG21708 to Möller)

Similar to the guideline for children aged 0–12 months, rooibos tea for children is mentioned. Participants believed that rooibos tea in general is good for children.

I think they can get tea, especially during winter time when it is cold. But we should give them rooibos not Joko or Five Roses tea. (FG21708 to Möller)

Guideline 6: Hands should be washed with soap and clean water before preparing or eating food

As stated in the corresponding section of the guidelines for children aged 0–12 months, water supply is a major problem in the Kabokweni area. This could potentially contribute to the fact that all the groups were familiar with this guideline and to the reason that it was seen as important and necessary. Similar to the groups with children aged 0–12 months, these groups also make use of the method of filling a two-litre bottle with water and piercing a hole in the cap. Participants expressed that the water shortages are an obstacle, but they were familiar with ways to overcome this difficulty. The only barrier mentioned for not implementing the guideline was the availability of soap. All the groups understood the meaning of the term “clean water” and explained ways of cleaning dirty water, naming methods such as boiling or adding ‘Jik’ (bleach).

[W]e do teach the children that they must wash their hands before they eat, when they come back from the toilet, before touching anything to eat. And a child who is less than five years does not forget the routine. (FG51708 to Möller)

Guideline 7: Encourage your child to be active

Initially, it appeared as though the message of this guideline was lost in the translation of the guideline. In the translated documents, the field worker sometimes read the guideline as “Encourage your child to be active” and sometimes as “Encourage your child to be alert and enthusiastic”. However, with both versions, the participants understood the meaning of the message to be that one should motivate a child to play. In addition, one participant mentioned that not all people would be able to understand the guideline since SiSwati has different dialects. However, none of the groups was familiar with this guideline. Participants stated that this guideline was important because it enables children to learn, and a parent can easily determine that when a child is not active, he/she is not well. None of the participants, however, linked the guideline with preventing overweight/obesity or helping to maintain a healthy body weight.

To be clever and to be active. You make her do things. She must not just sit and watch TV, looking so inactive all day long. (FG51708 to Möller)

Guideline 8: Feed your child five small meals during the day

Most of the groups claimed that they were familiar with this guideline; however, not all comprehended the meaning. In general, it was not well received by the groups. Some participants understood feeding a child small meals throughout the day and stated that this is important because children’s digestive systems are still developing and this will teach them to eat smaller portions as they grow up. However, others felt that: this will leave a child hungry; some children are not able to eat only small amounts; and five times a day is too many. Certain groups even recommended that this guideline be removed completely since they did not perceive it to be important. Upon further discussion in some of the groups, some participants came to understand that the five small meals include healthy snacks in-between larger meals. One group recommended that examples should be presented of the meals and that the guideline should state that cautious feeding should be implemented.

I would like them to write that you should not overfeed your child. Do not exceed the amount of food you are supposed to give her. But also, not starve the child. And also, not force the child to over eat and sleep ... (FG12507 to Möller)

It means that when we give her food, we should not give her food that will make her too full. She must just eat lightly so that she may be hungry again after two hours. (FG10208 to Möller)

She can look so chubby and yet when she eats bit by bit, she grows up well because she should have space, so it builds her body up. (FG41708 to Möller)

Guideline 9: Make starchy foods part of most meals

This guideline was the most familiar and was practised by all groups. Participants were of the opinion that the message conveyed in the guideline is obvious since starches (mainly porridge) are their staple food. The guideline was not challenging and did not require much thought. The groups explained it is important to give starches to a child because starches provide them with energy and they are necessary for optimal growth.

Beside porridge, it is the main one that we know. Because once the sun sets, you remember to cook porridge ... (FG41708 to Möller)

Yes, it is eaten by a family. It's staple ... (FG10208 to Möller)

Guideline 10: Give your child milk, maas or yoghurt every day

There was much discussion and opinions regarding this guideline. Most groups were aware of the guideline or part of the guideline. Participants understood the reason it is important to implement this guideline, stating that it is essential for bone development and general growth. Some felt it was feasible, but some felt that they could not afford to follow this guideline. There was also confusion in the sense that some understood that one should give milk, maas and yoghurt every day. A few participants grasped the guideline and explained it to the others in the following ways:

Everyday ... Whereas today she eats milk, tomorrow she eats yoghurt and the day after that, she eats sour milk. Do you see that? (FG21708 to Möller)

Most participants only understood the importance of giving milk daily, not giving yoghurt and maas. There was a great deal of controversy around yoghurt. Some participants stated that it was not good for children and that it made them sick. Some participants considered sweet yoghurt as a sweet snack and felt one should give plain yoghurt. A few groups mentioned that they were told at the clinics not to give yoghurt to children because it causes diarrhoea, excessive mucus production and is simply not good in general. Recommendations were also made for the guideline to state that milk should be given every day but yoghurt only a few times a week. Other participants recommended that yoghurt be removed from the guideline.

4.3.4 Enablers and barriers to the feasibility of the guidelines for children 0 – 36 months

The section below describes the general enablers and barriers to the feasibility of the PFBDGs that occurred in both age groups (0–12 and 12-36 months).

The fact that the PFBDGs are in place to promote the nutritional status and health of children was a significant enabler to the implementation of the PFBDGs. Mothers/caregivers were of opinion that they would follow the guidelines mentioned because it is beneficial to their child/children. Participants were also more eager to say that the mentioned guideline was feasible if they themselves have practiced or is practicing the guideline. Another factor enabling the feasibility of the mentioned guideline, was if the guideline was easy to understand. Therefore, the simplicity of the guideline did influence the proclaimed feasibility thereof. The more difficult it was for participants to understand the guideline, the less feasible it was for them. Misunderstanding of wording in a guideline negatively influence the reported feasibility thereof. Misconception, also related to a lack of knowledge, was another barrier to the feasibility of the guidelines. Many myths were mentioned, which was said to prevent mothers/caregivers of implementing the guidelines.

Affordability and availability of financial resources was mentioned as a significant barrier, but also an enabler. Many guidelines were stated as unpractical because participants could not afford to follow the guideline. However, if the foods mentioned in a specific guideline were affordable, participant were able to implement the guideline. Lack of other resources,

such as water supply, also surfaced as a barrier. Lastly, lack of parental care was mentioned as a factor that would lead to poor feasibility of the PFBDGs.

4.4 SOCIO-ECONOMIC STATUS OF MOTHERS/CAREGIVERS IN COMPARISON TO THEIR COMPREHENSION OF THE GUIDELINES FOR CHILDREN 0-36 MONTHS OF AGE

Socio-economic information was collected by means of demographic questionnaires. Results from these questionnaires, specifically the highest level of education as well as the employment status of participants, were compared to the participants' comprehension of the PFBDGs. Findings from the 0-12 month group as well as the 12-36 month group were combined as the results agreed.

It was found that the participants of FGDs that had a matric or tertiary education and who were employed, demonstrated a better understanding of the PFBDGs. The opposite was found to be true as well. Participants with an education level of Grade 11 or below and who were unemployed did not comprehend the PFBDGs well. Therefore it can be concluded that participants with a higher level of education and who were employed had a better comprehension of the PFBDGs.

CHAPTER 5: DISCUSSION

The revised PFBDGs are a set of concise messages regarding the nutritional management of children under the age of five years. These guidelines are aimed at mothers/caregivers and provide guidance on how to feed and care for their children. To date, the revised guidelines have not been introduced to the public and have only been published in a scientific, peer-reviewed journal. Despite this, the community of Kabokweni, Mpumalanga, South Africa were familiar with the messages portrayed in the guidelines, indicating that the participants had previous exposure to nutrition messages similar to those portrayed in the PFBDGs.

It is important to determine whether South African mothers/caregivers are familiar with and can understand and implement the nutrition messages stated in the PFBDGs because this has an impact on the nutritional status and development of children. The most critical influential experiences of young children originate when they are in the care of parents and caregivers. Early childhood is a period that is sensitive to risk factors but also to positive interventions.² Evidence indicates that children from low- and middle-income countries who are exposed to poverty and undernutrition later lag behind in emotional and cognitive development and educational and income status and are at increased risk of chronic disease.³⁷ Conversely, early childhood interventions can lead to improved health, improved financial and social status and general wellbeing.²

Studies reported in *The Lancet* in 2004 and 2010 that focus on children younger than five years who are exposed to poverty indicate that the highest prevalence of the nutritional disorder, stunting, occurs in Sub-Saharan Africa.³⁷ In 2016, the new South African Demographic and Health Survey (SADHS)¹⁷ was compiled. The report indicated that 27% of children under the age of five years are stunted, 3% are wasted and 6% are underweight. Conversely, 13% of children under the age of five years are overweight. This is more than double the global estimate of 6.1% indicated by the International Food Policy Research Institute in 2016.¹⁷ The above-mentioned data illustrates the nutrition transition currently taking place in South Africa. This further emphasises the importance of implementing interventions to improve the nutritional status of South African children.

In this study, FGDs together with demographic questionnaires were used to collect the data needed to field test the revised PFBDGs. The exposure, feasibility, general comprehension and comprehension in relation to the SES of SiSwati-speaking mothers/caregivers of children aged 0–36 months were determined. The results obtained indicated good exposure and fair comprehension of the messages, with a few barriers and enablers regarding the feasibility and the full comprehension thereof.

All the groups were familiar with most of the nutrition messages portrayed in the guidelines and stated that they had previously been exposed to the messages. The participants were mainly exposed to the messages at the clinics, while some had heard of them at hospitals, on the radio, on television or read about them in the *Road to Health* booklet. As mentioned previously, the *Road to Health* booklet is an A5-sized booklet that is issued at a child's birth and is indicated for monitoring the health of children 0 to 5 years of age. It contains vital information such as the child's identification details, the mother's pregnancy, information on the birth process, neonatal anthropometry, immunisation record, infant-feeding and development guidelines, health and nutrition promotion messages, growth charts for plotting weight-for-age, length/height-for-age and weight-for-length/height, disease history and hospital admissions.³⁶ The *Road to Health* booklet thus provides many opportunities for education and advocacy of nutrition. However, these are not effectively practised and implemented. It was evident in this study that not all participants were aware of the nutritional messages contained in the booklet. Tarwa et al found that the *Road to Health* booklet was not used as intended because mothers were never educated on the health and nutrition information as well as the importance of the booklet.³⁶ A study done by Mudau on the use of the *Road to Health* booklet by nurses at PHC facilities also found that the *Road to Health* booklet was ineffectively used. This study found that data recorded in the *Road to Health* booklets were incomplete and that information that was filled in was not utilized effectively – this specifically included feeding information and growth monitoring. It was also found that caregivers were not involved in the growth and development of the child.³⁸ Taking this into consideration, there is a need for informing mothers/caregivers and training of health care staff on the *Road to Health* booklet, as well as the use thereof.

As mentioned above, participants were also exposed to the nutrition messages through radio and television. Currently in South Africa, there are various nutrition professionals and non-nutrition professionals voicing their opinions on infant and child feeding on television,

radio and social media. These media forums are excellent ways of educating and informing mothers and caregivers on the nutrition messages. However, it is important to communicate uniform and evidence-based messages to the public in order to avoid confusion and avoid the presentation of incorrect infant and child-feeding practices, which could have negative effects on the nutritional status and growth of children. ^{39,40,41}

The fact that most of the nutrition messages were heard at clinics indicates the importance of educating clinic staff on the correct nutrition guidelines. In 2007, Hendricks et al. ⁴² recognised the importance of incorporating the FBDGs into existing PHC interventions. There are currently a few nutrition and health programmes in place at PHC facilities that are aligned with WHO and UNICEF guidelines. The Roadmap for Nutrition in South Africa (2013-2017) ²⁰ is a framework for the implementation of new and existing policies and programmes in PHC. The main “key nutritional interventions” set out in the Roadmap for Nutrition include: exclusive breastfeeding promotion; improved complementary feeding; supplementary feeding where needed; healthy eating during pregnancy and lactation; implementation of practices to detect malnutrition during pregnancy; improved hygiene practices; nutrition education and information on healthy eating and health risks associated with poor diets; vitamin A, zinc, iron folate and calcium supplementation; fortification of staples; salt iodation; deworming; micronutrient supplementation and targeted supplementation to undernourished individuals, treatment of severe acute malnutrition; and prevention and treatment of moderate acute malnutrition. ²⁰ Aspects included and addressed in the Roadmap for Nutrition relate to the PFBDGs, highlighting the fact that there is a place for the implementation of PFBDGs at PHC level. It is important that the PFBDGs are consistent and aligned with information distributed by PHC facilities. This would not only assist in improving the nutritional status of children but would also lead to the strengthening of nutrition education and its promotion at PHC level. ⁴²

Breastfeeding has multiple benefits, including protection against infections and diseases, positive effects on the intelligence of children and protective effects for mothers in terms of cancer. ⁴³ The mothers/caregivers in this study were aware of the benefits of breastfeeding. They understood the importance of exclusive breastfeeding for six months and continuing breastfeeding for two years and beyond. Challenges were mentioned to breastfeeding for two years and beyond. Many of the participants had the misconceptions that children tend to want to breastfeed only and thus develop a poor appetite for food and that children wean

themselves before two years. The 2016 SADHS found that breastfeeding rates decrease with an increase in age – 47% of children aged 12–17 months were breastfed compared with 19% of children aged 18–23 months.¹⁷ Barriers raised to breastfeeding exclusively included the belief that breastmilk alone is not sufficient for children aged six months and that it is difficult for working mothers to combine breastfeeding and employment. In terms of the law in South Africa, the Basic Conditions Employment Act, 75 of 1997⁴⁴ allows for breastfeeding at the work place. The Act states that for the first six months of a child's life, breastfeeding mothers should get two 30-minute breaks during each workday for breastfeeding or expressing milk.⁴⁴ Even though this may be challenging and the above-mentioned Act does not provide much time for breastfeeding/expressing milk at work, it is possible to provide breastmilk for a child while one is employed. Results from a study conducted by Van der Merwe⁴⁵ in the province of Mpumalanga found that exclusive breastfeeding rates were approximately 50% in the Mbombela region (under which Kabokweni falls) and that the introduction of solids ranged from 0 months to 4 months.⁴⁵ The 2016 SADHS also found that nationally, only 32% of infants were solely given breastmilk for the first six months of life. In addition to breastmilk, 1% of infants received non-milk liquids, 11% received other types of milk, 14% received water and 18% received solid foods. A total of 25% of infants less than six months were not breastfed at all.¹⁷

As indicated by the above statistics and the results from this study, mothers do not give their infants solely breastmilk for the first six months of life. This implies and is illustrated by statistics that mothers give other types of milk and liquids. Mothers are thus likely to feed children with feeding bottles. Bottle-feeding requires proper and thorough hygiene practices to ensure that infants and children do not contract infections since these in turn, can have an impact on the nutritional status of children.⁴⁶ Poor sanitation, poor hygiene and unsafe water can directly and indirectly lead to undernutrition in children. The main direct causes are diarrhoea, intestinal worms and environmental enteric dysfunction. Enteropathy, a chronic disease caused by inflammation of the gastrointestinal tract, is directly linked to stunting, which in turn, affects development.⁴⁷ Indirect causes include the time taken to retrieve water and the cost involved in purchasing water when it is not available at home. The latter affects nutrition since it influences the quality and the amount of water consumed as well as the quality of hygiene practices. It also takes time away from education, resulting in consequences that have many long-term implications such as poverty, ill-health and general ill-being.⁴⁶

The guideline in the PFBDGs, “Hands should be washed with soap and clean water before preparing or eating food” targets water, sanitation and hygiene (WASH). This guideline was understood and reportedly practised very well by all the groups. Participants viewed the guideline as a necessary action that they perform automatically. This was the consensus even though water supply is a major problem in the Kabokweni area. Most people in rural communities must travel to collect water, and those who have running water at home experience water shortages frequently. As a result, residents have become very creative regarding the washing of hands. A method whereby a two-litre bottle is filled with water and the cap is pierced in order to squirt water into the hands is used. Sometimes liquid soap is added to the water. Participants were also very familiar with ways in which to clean water. Even though the guideline was very familiar and perceived to be feasible by the participants, there are still high rates of diarrhoeal diseases in health facilities in Kabokweni. The 2016 SADHS indicates that 10% of children experienced diarrhoea in the two weeks preceding the survey.¹⁷ This questions true WASH implementation. Poor hygiene may affect other areas such as bottles used in bottle-feeding. The promotion and education of good hygiene and sanitation thus needs to incorporate all areas, including child-feeding utensils.

Another significant issue pertaining to breastfeeding that was presented across both age groups was confusion of HIV and breastfeeding. Many misconceptions surfaced regarding the duration of breastfeeding for mothers who are HIV positive. Participants were of the opinion that the two guidelines, “Give only breast milk, and no other foods or liquids, to your baby for the first six months of life” and “At six months, start giving your baby small amounts of complementary foods, while continuing to breastfeed to two years and beyond” were not applicable to HIV-infected mothers. The current South African infant-feeding recommendation for HIV-positive mothers (on lifelong antiretroviral therapy or not) is to encourage breastfeeding.⁴⁸ The previous South African recommendations stated that if the infant is HIV negative, the mother can breastfeed until 12 months, if the infant is HIV positive, the mother can breastfeed until two years and beyond.⁴⁸ However, in 2016, the WHO released an update on HIV and infant feeding, stating that all mothers should breastfeed for at least 12 months and can continue to breastfeed for two years and beyond, regardless of their HIV-status.⁴⁹ This updated guideline has been formally adopted by the South African government.⁵⁰ Therefore, guidelines regarding breastfeeding in the PFBDGs are now applicable to all mothers in South Africa, both HIV positive and HIV negative.

Participants also mentioned that breastfeeding was an old-fashioned practice and was not the norm. For breastfeeding to be successfully established and practised, it needs to be seen as normal practice in society today. *The Lancet Series on Breastfeeding 2016*⁵¹ found that there are various components that help to enable a supportive environment for breastfeeding. The determinants of breastfeeding include social and cultural components, family, community, healthcare services, the workplace, the mother, the infant and their relationship. These determinants could be targeted by various sectors, including legal and political interventions, social and community support, employment and work environments, healthcare services and individual counselling and support. To establish breastfeeding as the norm, collaboration and input from all sectors is needed.⁵¹

A few guidelines were unfamiliar to some groups. These included: “Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your baby”; “Encourage your child to be active”; “Feed your child five small meals during the day”; and “Give your child milk, maas or yoghurt every day”. However, although not all the groups claimed they had been exposed to the above-mentioned guidelines, no participants reported not practising the guidelines. This indicates that there is not only a problem with the exposure to the guidelines but with the comprehension or the wording of the guidelines as well.

Other wordings that posed a challenge were: “From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible” and “Give your child milk, maas or yoghurt every day”. The barriers were not related to the message portrayed but to the wording or phrasing of the guideline. Most of the participants understood the messages to mean that one should give all of the options mentioned in one day, not one per day. Attention clearly needs to be paid to the phrasing of these guidelines to make them more understandable to the public. Other challenges also arose with the above-mentioned guidelines. In terms of the guideline, “Give your child milk, maas or yoghurt every day”, mothers/caregivers felt it was not feasible to give yoghurt to their children. The comment that mostly occurred was that yoghurt was not healthy for children, a perception that was acquired from clinics and communities. This indicates that communities and PHC facilities require more nutrition education on the health benefits of plain, unsweetened yoghurt. Yoghurt is nutrient dense, contains probiotics and high-quality proteins, is easily digestible and is an appetising and satiating snack.⁵² Possible rewording of the guideline to specify

plain, unsweetened yoghurt should be considered. In terms of the guideline, “From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible”, some participants were of the opinion that beans should be included in the food items. Legumes (beans, peas and lentils) are not only a plant-based protein source but also have various other health and nutritional benefits. They are high in a range of micronutrients, high in fibre and have anti-oxidant properties.⁵³ Legumes are also cost-effective, increasing the benefits of including them in the diets of children within all communities.

As stated above, “Avoid giving tea, coffee and sugary drinks and high-sugar, high-fat salty snacks to your baby” was one of the guidelines that was unfamiliar to some participants. Participants were of the opinion that it is a good idea to give rooibos tea to children, especially since there is a rooibos tea marketed for children in South Africa. Rooibos tea is a local tea made from the South African plant, *A. linearis*, and is a popular drink among the South African population.⁵⁴ Some rooibos tea brands have included the words “for kids” or “junior” on the label, indicating that they are specifically suited to children. All teas, including rooibos tea, are not indicated for use in infants (0–12 months) because of the poor nutrient content and the fact that tea contains polyphenols that inhibit iron absorption and could thus lead to iron-deficiency. The consumption of tea by infants aged 6–12 months has been linked to anaemia, which has been associated with impaired growth.³ In South Africa, the Regulations Relating to Foodstuffs for Infants and Young Children (R991 of 2012) were released in 2012.⁵⁵ Section 4 in these regulations focuses on specific labelling for complementary foods and other drinks and states that products indicated for use by children should indicate recommended age groups.⁵⁵ These regulations are important in preventing misleading marketing. Monitoring of the implementation of these regulations is essential to ensure compliance.

The guideline that was by far the best understood and was implemented by all groups was “Make starchy foods part of most meals”. This can be perceived positively or negatively. The positive aspect is that no change to the guideline is called for, and children appear to receive sufficient amounts of starches and, therefore, energy. The negative aspect is that there is a possibility that the majority of children’s diets consists of starches and therefore, the diets lack variety. In 2005, the National Food Consumption Survey Fortification Baseline (NFCS-FB-I)⁵⁶ indicated that 90% of households in South Africa procured maize meal, 75% procured wheat flour and 80% of households procured bread.⁵⁶ As a result, children could

be taking in an excess amount of energy-rich food (starches), which could lead to overweight or obesity. Conversely, children are confronted with the risk of suffering from protein and micronutrient deficiencies even though staples have been fortified with micronutrients in South Africa since 2003.⁵⁷ In 2003, mandatory fortification of maize meal and wheat flour was introduced by the South African government. This regulation applies to all companies and manufacturers that import, sell or manufacture maize meal and wheat flour and to any food that consists of at least 90% maize meal or wheat flour. The fortification includes a mixture of micronutrients, namely vitamin A, riboflavin, thiamine, niacin, pyridoxine, folic acid, iron and zinc.⁵⁷ However, results found by the NFCS-FB-I indicated that not all people living in South Africa benefit from this. Only 40% of women interviewed were aware of the food-fortification legislation. Upon further inspection, maize meal samples obtained from households indicated that only 60% of the samples were fortified.⁵⁶ Therefore, even if starches are the staple diets of children, they will not necessarily be starches that are fortified, resulting in children not obtaining the required nutrients. In addition, if only fortified starches are consumed, children will need to consume large volumes of bread or maize meal to reach their micronutrient requirements, and this is often not practical or advisable. A major reason why this PFBDG may also be feasible is that starches are generally affordable and easily available, eliminating the obstacles of availability and affordability.

The availability of financial resources is a significant factor that prevents the optimal feasibility of the PFBDGs. During the discussion of most of the guidelines, participants stated that they or the community would not be able to implement the guidelines because they are not financially viable. The South African National Health and Nutrition Examination Survey (SANHANES-1)⁵⁸ of 2013 found that one-third of the people in the survey reported that they had no income, and of these, 47% were living in Mpumalanga. In the survey, 39% of households indicated that they did not have enough money for basic requirements such as food and clothes. Food security is thus related to financial income and can be referred to as 'hunger' since the absence of hunger indicates food security. The SANHANES-1 indicated that 26% of participants experienced hunger and 28.3% were at risk thereof.⁵⁸ The NFCS-FB-I also found that families at risk or experiencing hunger bought less fortified foods, tended to live in informal settlements, had a lower total monthly income and spent the least amount of money on the procurement of food. Mothers of these households also had the lowest levels of education.⁵⁶ The latter corresponds with results found by the

SADHS in 2016. The survey found that the mother's education and income was inversely related to the stunting levels of the children in the household.¹⁷ The above-mentioned statistics correspond with results found in this study; the participants who had a higher level of education and were employed had a better understanding of the nutrition messages. Comprehension of nutrition messages could in turn, influence the implementation thereof and thus influence the nutritional status of children.

The above-mentioned issues indicate how poverty and undernutrition are intertwined. A low household income leads to poor food availability and thus food insecurity. This results in poor and inadequate nutrient intake, causing undernutrition in children and adults.^{59,60} Undernourished adults have poor productivity and economic input, directly leading to low income and thus poverty. An undernourished pregnant woman leads to a poor nutritional status of the baby, which results in a physically and mentally stunted child. Undernourished children have poor educational capacities, poor physical capabilities and poor social skills, leading again to a low income as an adult and thus poverty.^{60,61} In order to improve the overall economic and nutritional status of the country, this cycle needs to be broken. Only long-term, socio-economic upliftment of South Africans is likely to cause an improvement in the nutritional status of the population.⁵⁶ The most feasible way of achieving this is intervening in the development of young children, and this should start in the home.

Proper care provided by parents or caregivers promotes a healthy relationship between the child and the parent/caregiver. This, in turn, leads to responsive feeding, increased attachment and encourages learning, playing, good discipline, good care and feeding and the attainment of problem-solving skills relating to the child's development.⁶² However, the care provided by parents/caregivers differs. In this study, participants highlighted that not all parents take care of their children in the same manner, and some parents neglect to feed their children. Parents/caregivers thus need to be targeted and educated on correct parenting-care skills because this could have a significant effect on a child's social, cognitive and emotional development.⁶² Currently in South Africa, the availability of parenting support services and access to these services are lacking.⁶³ This may indicate that the implementation of parent-support programmes that form part of the ECD services in the country is not up to standard.

As stated in the Constitution of South Africa and in international law, all children have the right to survival, health, protection and development. As a result, the Children's Act, 38 of 2015, stipulates that a comprehensive national strategy should be in place to enable a holistic ECD programme.⁶³ The National Integrated Programme (NIP) for ECD and the Integrated Programme of Action for ECD 2013–2018 incorporate a multi-sectoral approach. Early childhood development services are currently being provided by the DoH, the Department of Social Development and the Department of Basic Education, non-profit organisations and the private sector.⁶⁴ This is as set out by the policy, but does not necessarily mean that this is what is practised. As indicated by the Diagnostic Review on ECD,⁶⁵ more than 80% of the children aged 0–4 years in the poorest 40% of the South African population are completely excluded from registered ECD programmes. The country thus needs increased political commitment and investment in effective ECD services and programmes to prevent further health, social and economic disadvantages in communities.

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Early childhood is a sensitive period in which interventions focusing on development could yield the most significant impacts in later life.⁶⁷ There are various factors that influence the growth and development of a child. These include the health and nutritional status of the mother and the child, the presence of a clean and safe physical environment, the care and nurture provided by parents, caregivers and the community and the education and learning opportunities.^{1,2} Evidence strongly suggests that focusing and strengthening these factors will have long-term effects on the child, his/her family, the community and the economy.¹ Early childhood interventions need an integrated, multi-sectoral approach.⁶² The health sector serves as a good entry point for existing health and nutrition services to expand. The PFBDGs are a tool that can be used to improve parental care and education, improve the nutrition and health status of children and ultimately, positively influence their future.

CHAPTER 6: CONCLUSION

This study was conducted to field test the revised PFBDGs among SiSwati-speaking mothers/caregivers of children aged 0–36 months in Kabokweni, Mpumalanga, South Africa. The results illustrated the participants' exposure to the nutrition messages and demonstrated the barriers and enablers for participants and the general community in practising the guidelines. The level of comprehension of each guideline in general and in relation to the participants' SES was also investigated.

9.1 CONCLUSION

The PFBDGs are short, concise nutrition messages that were developed ultimately to improve and maintain the nutritional status of South African children. Nutrition is a crucial aspect that affects the development of young children and is thus an important factor that must be considered in ensuring that children grow and develop adequately. The PFBDGs can be used to educate children, parents, caregivers and healthcare practitioners on the correct nutritional practices for children aged 0–5 years.

This study assessed whether the guidelines aimed at children aged 0–3 years are known and if they would be feasible and comprehended in the SiSwati community of South Africa. The results proved that this community was generally aware of the nutrition messages and that community members had a fair comprehension thereof. It was determined that the comprehension of the guidelines was linked to the feasibility thereof and to the SES of the participants. Enablers to the feasibility of the guidelines were mainly the importance of the messages and the important and positive impacts that the messages have on children. Barriers included misinterpretation of the guidelines, specific disease conditions and lack of money and resources. Generally, these barriers could be overcome by thorough and appropriate nutrition education and education on the sustainable use of available resources. Parents and caregivers should be equipped with the relevant knowledge and skills to ensure the healthy growth and development of young children in South Africa.

9.2 RECOMMENDATIONS

The following general recommendations are made based on the findings of the study:

- The guidelines, “From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible” and “Give your child milk, maas or yoghurt every day” should be re-phrased to emphasise the word ‘or’.
For example: “From six months of age, give your baby either meat, chicken, fish or egg every day, or as often as possible” and “Give your child either milk, maas or yoghurt every day”.
- The guideline, “Give your child milk, maas or yoghurt every day” should specifically include ‘plain, unsweetened yoghurt’.
For example: “Give your child milk, maas or plain, unsweetened yoghurt every day”.
- Plant-based protein sources should be included in the guideline, “From six months of age, give your baby meat, chicken, fish or egg every day, or as often as possible”.
For example: “From six months of age, give your baby either meat, chicken, fish, egg or beans every day, or as often as possible”.
- Thorough and comprehensive WASH promotion (including hygiene of feeding utensils) should be practised by all healthcare and ECD sectors.
- The tested PFBDGs should be adopted by the South African government as standardised nutrition messages and included in all relevant documents (e.g. the *Road to Health* booklet).
- Educational documents containing additional detailed information on each PFBDG should be compiled.
- Educational material and the PFBDGs in all South African languages should be distributed and made available to all healthcare facilities and ECD centres.
- All healthcare practitioners, with emphasis on nurses at PHC facilities and ECD educators, should be trained on the PFBDGs.
- When providing education on the feeding of infants and children, the PFBDGs should be presented on different forms of media such as radio and television.
- There should be improved monitoring of the labelling of foodstuff for children, which must be according to the R991.
- The advocacy of the South African legislation regarding breastfeeding at work (Basic Conditions Employment Act, 75 of 1997, ⁴⁴) should be improved.

- Results and recommendations found in this study should be presented to the PFBDG Working Group for consideration for adoption.

9.3 LIMITATIONS

As mentioned in section 3.2, the study setting was not stratified according to formal and informal settlements as intended. This was due to the fact that participants were recruited outside the CHC and at crèches and therefore, there was no separation of those living in different settlements. This could possibly be overcome by including a question on living conditions in the short demographic questionnaire.

Qualitative studies are characteristically subjective, which could influence the reliability and validity of the results if quality control measures are not taken. Ideally, multiple investigators would strengthen the design of the study. Validation of the coding of the data by at least one additional investigator would strengthen the reliability of the results.³¹ However, this was not possible due to the nature of the project. Other quality control measures were introduced in this study in order to minimise bias.

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ADDENDA

ADDENDUM A: INFORMATION LEAFLET ENGLISH

ADDENDUM B: INFORMATION LEAFLET SISWATI

ADDENDUM C: INFORMED CONSENT FORM FOR RESEARCH STUDY ENGLISH

ADDENDUM D: INFORMED CONSENT FORM FOR RESEARCH STUDY SISWATI

ADDENDUM E: INFORMED CONSENT FORM FOR AUDIO RECORDING ENGLISH

ADDENDUM F: INFORMED CONSENT FORM FOR AUDIO RECORDING SISWATI

ADDENDUM G: QUESTIONNAIRE FOR MOTHERS/CAREGIVERS ENGLISH

ADDENDUM H: QUESTIONNAIRE FOR MOTHERS/CAREGIVERS SISWATI

ADDENDUM I: FOCUS GROUP DISCUSSION GUIDE ENGLISH

ADDENDUM J: FOCUS GROUP DISCUSSION GUIDE SISWATI

ADDENDUM K: RECRUITMENT LETTER TO CRÈCHES ENGLISH

ADDENDUM L: RECRUITMENT LETTER TO CRÈCHES SISWATI

ADDENDUM M: LETTER OF ETHICAL APPROVAL