

**FOOD-BASED DIETARY GUIDELINES  
AS A NUTRITION EDUCATION TOOL:  
A STUDY AMONG TSONGA WOMEN  
IN THE LIMPOPO PROVINCE**

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## **ABSTRACT**

### **FOOD-BASED DIETARY GUIDELINES AS A NUTRITION EDUCATION TOOL: A STUDY AMONG TSONGA WOMEN IN THE LIMPOPO PROVINCE**

#### **Background and motivation**

South Africa is a developing country with a heterogeneous socio-economic multi-cultural society. It is experiencing a nutrition transition characterized by changes from traditional eating patterns to those typical of a Western lifestyle. The consequences of this are the incidence of malnutrition, with diseases of both under and over-nutrition creating a burden on the health resources. A working group representing different stakeholders developed food-based dietary guidelines (FBDGs) for South Africa over a period of four years. These guidelines will be adopted by the Department of Health during 2004. It is important for all South Africans to clearly understand the messages from this FBDG in order to successfully implement these guidelines in health policies.

#### **The objectives of this study were:**

- To test the understanding of consumers in a Tsonga-Shangaan community on the new food-based dietary guidelines,
- To evaluate the outcomes of gained knowledge on good nutrition practises through focus group discussions by using the new FBDGs.

#### **Method**

Tsonga speaking women in the Greater Tzaneen municipality participated in the study. A total of 64 women were sampled. The population was classified in four strata with 16 participants each, namely:

- Group 1 – Rural,
- Group 2 - Farm dwellers,
- Group 3 - Urban informal,
- Group 4 - Urban formal.

The participants were selected according to availability on the meeting dates and who met the following criteria:

- Adult African female,
- Tsonga- speaking,
- Responsible for the planning and preparation of meals for their households, without any formal nutrition training.

A structured questionnaire was used at baseline and after the focus group discussions to measure the knowledge and understanding of the participants on the FBDGs. The focus group discussions were used to educate the participants on good nutrition practices.

### **Results**

The use of the FBDGs as an education tool during the focus group discussions to improve the knowledge of the participants on nutrition practices had mixed results in this study. It was found that the understanding of the messages carried by some of the food-based dietary guidelines was interpreted differently by the different groups. At the end of the focus group discussions, some groups reflected an increase in knowledge of the guidelines, while other groups reflected a “decrease” in knowledge in the same guideline. A variety of factors had an influence on the understanding of the FBDGs, such as household preferences, affordability and availability of foods, taboos, tradition, ignorance and acculturation of consumers.

### **Conclusion**

The overall conclusion reached was that most of the messages of the FBDGs were well understood by the participants and that the FBDGs per se may be used as an education tool to educate consumers in good nutrition practises. However, from this study it seems as if there are five guidelines that need to be addressed with specific care if used in future education programmes:

1. “Be active”
2. “Make starchy foods the basis of most meals”
3. “Eat salt sparingly”

4. "Eat fat sparingly"
5. "If you drink alcohol, drink sensibly"

### **Recommendations**

More time should be spent on focus group discussions, especially when dealing with people of a low education level. More sessions can be scheduled to include all the FBDGs (not all guidelines at one session) and should be repeated after some time. Specific caution should be taken to make sure that the way FBDGs are explained to the consumer fell within the experience field of the consumer. In this regard the socio-economic status of participants in the project should be taken into consideration, because their low income status can serve as a barrier to the success in the understanding of the messages. Traditions and the use of indigenous foods and the availability thereof, as well as the affordability of the other foods must also be taken into account. Foods that are used to explain the guidelines should be foods that the consumers are familiar with in order to avoid any misunderstanding when trying to interpret the message carried by the guidelines.

## **ABSTRAK**

### **VOEDSELGEBASSEERDE DIEETRIGLYNE AS 'N VOEDINGSINTERVENSIE PROGRAM: 'N STUDIE ONDER TSONGA VROUE IN DIE LIMPOPO PROVINSIE**

#### **Agtergrond en motivering**

Suid-Afrika is 'n ontwikkelende land met 'n heterogene sosio-ekonomiese en multi-kulturele gemeenskap. Die land ondervind tans 'n voedingsoorgang wat gekenmerk word deur die verandering van tradisionele eetpatrone na die van 'n tipiese Westerse leefstyl. Die gevolge hiervan is dat wanvoeding voorkom, wat siektes van oor- en ondervoeding veroorsaak en 'n gevolglike las plaas op die gesondheidshulpmiddele van die land. 'n Werkgroep wat verskillende belanghebbendes verteenwoordig het voedselgebaseerde dieetriglyne (FBDGs) vir Suid-Afrika oor 'n tydperk van vier jaar ontwikkel. Hierdie riglyne sal deur die Departement van Gesondheid gedurende 2004 aanvaar word. Dit is belangrik dat alle Suid-Afrikaners die boodskappe van hierdie voedsel gebaseerde dieetriglyne goed verstaan sodat hierdie dieetriglyne suksesvol in die gesondheidsbeleid geïntegreer word.

#### **Die doelstellings van hierdie studie was:**

- Om die mate waartoe verbruikers in 'n Tsonga-Shangaan gemeenskap die voedselgebaseerde dieetriglyne verstaan te ondersoek,
- Om die uitkomste van fokusgroepe oor goeie voedingspraktyke deur middel van fokusgroep besprekings te evalueer deur die gebruik van die nuwe FBDGs.

#### **Metode:**

64 Tsonga-sprekende vroue in die Groter Tzaneen Munisipaliteit was geselekteer om aan die studie deel te neem. Die populasie het uit vier strata met 16 deelnemers elk bestaan, naamlik:

- Groep 1 – Landelik,
- Groep 2 – Plaasbewoners,

- Groep 3 - Stedelik informeel,
- Groep 4 - Stedelik formeel.

Die deelnemers was geselekteer volgens hul beskikbaarheid op die bepaalde geleentheid en moes aan die volgende kriteria voldoen:

- Volwasse Afrika vroue,
- Tsonga-sprekend,
- Verantwoordelik vir die beplanning en voorbereiding van maaltye vir hul huishoudings, sonder enige formele voedingsopleiding.

'n Gestruktureerde vraelys was as basislyn gebruik en voor en na fokusgroep besprekings gebruik om die kennis van die deelnemers oor FBDGs te toets. Die fokusgroep besprekings is gebruik om die deelnemers oor goeie voedingspraktyke te onderrig.

### **Resultate**

Die gebruik van FBDGs as 'n opvoedkundige hulpmiddel om die kennis van deelnemers ten op sigte van voedings praktyke te verbeter het 'n verskeidenheid resultate in hierdie studie opgelewer. Daar is bevind dat sommige boodskappe van die voedselgebaseerde dieetriglyne deur verskillende groepe verskillend geïnterpreteer word. Na afloop van die fokusgroepe het sommige groepe se kennis van die riglyne toegeneem terwyl ander groepe se kennis oor dieselfde riglyn verminder het. 'n Verskeidenheid faktore het 'n invloed op die mate waartoe die FBDGs verstaan word gehad, soos huishoudelike voorkeure, bekostigbaarheid en beskikbaarheid van voedsels, taboes, tradisies, onkunde en akkulturasie van die verbruikers.

### **Gevolgtrekking**

Die oorkoepelende gevolgtrekking was dat die boodskappe van die riglyne goed deur die deelnemers verstaan is en dat die FBDGs as 'n opvoedkundige hulpmiddel gebruik kon word om verbruikers goeie voedingspraktyke te leer. Volgens hierdie studie is daar aanduidings dat die volgende vyf riglyne omsigtig gebruik moet word wanneer dit in toekomstige opvoedkundige praktyke gebruik word:

1. “Wees aktief”
2. “Maak stysel die basis van die meeste maaltye”
3. “Eet sout spaarsamig”
4. “Eet vet spaarsamig”
5. “As jy alkohol drink, drink dit omsigtig”

### **Aanbevelings**

Meer tyd moet aan die fokusgroepbesprekings spandeer word, veral wanneer met mense van 'n lae inkomste groep gewerk word. Meer sessies kan geskeduleer word om meer aandag aan verskillende riglyne te gee (nie al die riglyne in een sessie nie) en die proses moet na 'n sekere tyd herhaal word. Spesifieke aandag moet gegee word sodat die riglyn se verduideliking binne die verbruiker se verwysingsveld val. Die sosio-ekonomiese status van die deelnemers moet in aanmerking geneem word want lae sosio-ekonomiese status kan die mate waartoe deelnemers boodskappe verstaan, beïnvloed. Tradisionele gebruik en beskikbaarheid van inheemse voedsel, sowel as die bekostigbaarheid van ander voedsel moet ook in aanmerking geneem word. Voedsel wat gebruik word om die riglyne te verduidelik moet ook voedsel wees wat aan verbruikers bekend is om enige misverstande tydens die interpretasie van die boodskappe te voorkom.



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## **LIST OF ABBREVIATIONS**

FAO/WHO = Food and Agricultural Organization / World Health Organization

FBDGs = Food-Based Dietary Guidelines

n = Number

NSSA = Nutrition Society of South Africa

WG = Working Group

UNICEF = United Nations Children's Fund





# **CHAPTER 1: INTRODUCTION**

## **1.1 INTRODUCTION**

South Africa is a developing country with a heterogeneous socio-economic multi-cultural society. South Africa is experiencing a nutrition transition, characterized by changes from traditional eating patterns to those typical of a Western lifestyle. The consequences of this are the incidence of malnutrition, with diseases of both under and over-nutrition creating a burden on the health resources (FAO/WHO, 1992). This can be noticed in most rural areas.

To support the statement above Love and Sayed (2001) state that nutrition-related problems in South Africa clearly reflect the double burden of diseases associated with the nutrition transition that accompanies increasing urbanisation trends. Apart from the rapid urbanisation, poverty is universally accepted as a fundamental cause of under-nutrition (Love and Sayed, 2001). This is a serious problem in our country, especially among Blacks and Coloureds, the majority of whom live in non-urban areas. Nutrition education can be a means to solve such nutrition related problems.

## **1.2 NUTRITION EDUCATION**

Nutrition education may be defined as a process by which nutrition information, beliefs, attitudes and environmental influences about food lead to practices that are scientifically sound, practical and consistent with individual need and available food sources (Anon, 1985).

Love and Sayed (2001) indicate that as a means to address nutrition related problems, the World Declaration and Plan of Action for Nutrition, held in Rome in 1992, places nutrition education and the promotion of appropriate diets and lifestyle as a priority issue to address nutrition related problems. So far, nutrition education in South Africa has been addressed by both Government and Non-Governmental Organizations through a multitude of programmes of which some

failed (Greyvenstein *et al.*, 1999). If nutrition education is presented to people, especially women, it could help to change the nutritional status of many families, because with the knowledge they will have gained, they will be in a position to choose nutritious food and prepare it properly for their families.

### **1.3 NUTRITION EDUCATION INTERVENTION**

According to UNICEF (1993), nutrition education as an intervention came into prominence with the realisation that malnutrition to a large extent, is due not only to inadequate food availability, but also to faulty food habits, some of them often based on food prejudices, superstition and taboos. These can hinder the progress of nutrition intervention programmes. The effectiveness of programmes that are being implemented might fail because they are not based on an understanding of the real problem, not targeted at the most needy or designed without adequate information. In order to design more effective nutrition intervention programmes, we need adequate information on the existing nutritional status and specific nutritional problems of specific target groups.

When a nutrition education intervention programme is drawn up, the following aspects must be taken into consideration: availability and affordability of food, culture, tradition and religion, because the programme influences the eating patterns of many people. According to Vorster *et al.* (2001) it must be culture-sensitive. The socio-economic circumstances of the targeted consumers must also be considered.

### **1.4 FOOD-BASED DIETARY GUIDELINES**

According to Vorster *et al.* (1997), failure of nutrient-based guidelines to substantially influence dietary patterns of different populations stimulated another FAO/WHO initiative to establish a scientific basis for developing and using food-based dietary guidelines, based on practices and prevailing diet-related public health problems. The aim of these guidelines is to address the consequences of

the double burden of over- and under-nutrition, often occurring within the same household.

These food-based dietary guidelines will also make it easy for the health professionals to plan food and nutrition policies, design food products and also evaluate dietary habits of large groups of healthy people. They have been developed for South Africa to attempt to resolve public health problems because literature indicates that this country has a problem of nutrition (FAO/WHO, 1992; FAO/WHO, 1996).

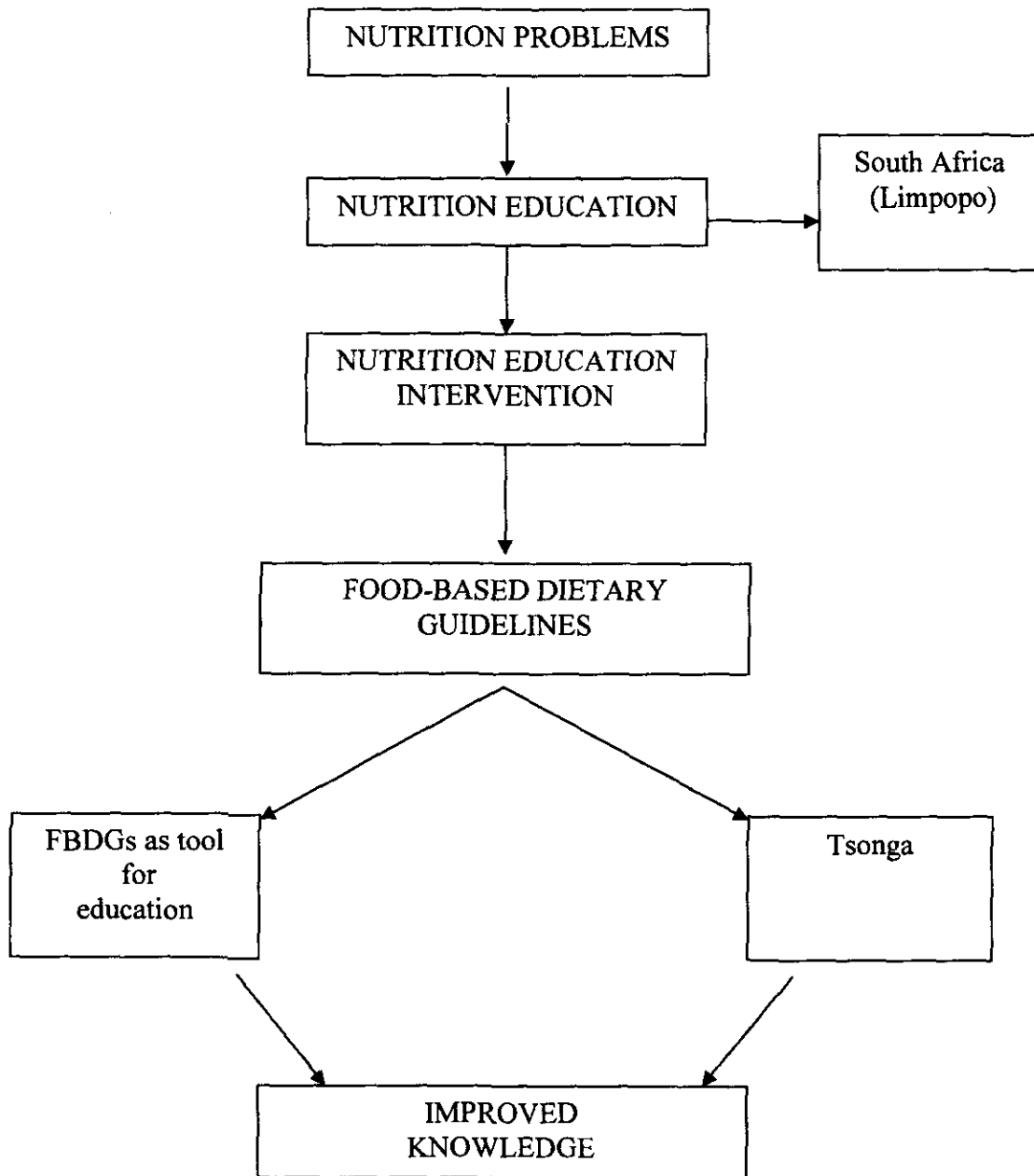
In 1997 a South African work group (WG) was established to develop a core set of food-based dietary guidelines for the promotion of health to South Africans older than five years of age, because they are the most vulnerable (Vorster *et al.*, 2001). A study was also undertaken to evaluate the perceptions and understanding of coloured Afrikaans-speaking women and black Xhosa women in the Western Cape, regarding the preliminary food-based dietary guidelines, in order to investigate the plausibility of developing one set of guidelines applicable to all South Africans (Smale-Lovely *et al.*, 2000). So far the proposed food-based dietary guidelines have been tested in KwaZulu Natal and in Western Cape Province among the Xhosa people. They have not been tested among Tsonga women in the Limpopo Province, therefore a question arises as to the appropriateness of these food-based dietary guidelines for the Tsonga speaking population, since cultural differences play a big role in food habits and preferences.

## **1.5 OBJECTIVES**

The objectives of this study were to:

- To test the understanding of consumers in a Tsonga-Shangaan community on the new food-based dietary guidelines.
- To evaluate the outcomes of gained knowledge on good nutrition practises through focus group discussions by using the new FBDGs.

**1.6 FRAMEWORK**



**Figure 1: CONCEPTUAL FRAMEWORK DIAGRAM**

Nutritional problems characterise populations universally, especially in the developing countries it seems to be a significant issue. Various interventions, amongst others nutrition education have met with limited success. In an effort to seek more acceptable solutions FBDGs was implemented worldwide and specific guidelines was developed for South Africa. To date the success of the FBDGs as an educational tool and its comprehension by different ethnic groups within the South African context has not been researched extensively. The aim of this study was to find out if the Tsonga women will understand the FBDGs and if it can be used successfully as an educational tool.

## **1.7 STRUCTURE OF THE MINI-DISSERTATION**

The mini-dissertation is divided into six chapters. A short discussion outlines the structure and contents of each chapter.

In Chapter one the rationale behind this mini-dissertation, as well as its objectives, are discussed. It also indicates how this mini-dissertation is structured.

The second Chapter of this mini-dissertation consists of a review of the relevant literature. The history of the development of the food-based dietary guidelines (FBDGs) internationally, as well as in South Africa, is discussed. The implication of the development of the food-based dietary guidelines (FBDGs) is also discussed. The indigenous Tsonga food is discussed in this Chapter.

In Chapter three the methodology of the study is presented, showing how the study will be conducted. This includes the subjects, where they are located and the instruments used to collect data. The method used to analyse the results will also be discussed.

In Chapter four the results are presented in tables, per group and per food-based dietary guideline.

In Chapter five the results of the study are discussed, per question and per food-based dietary guideline.

In Chapter six, conclusions are drawn and recommendations for the application of the food-based dietary guidelines (FBDGs) are made.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 INTRODUCTION**

Our health and well being, quality of life and ability to learn, work and play depend on how well we are nourished. Good nutrition and nutritional status are the outcome of many complex and interrelated determinants such as access to adequate, safe, affordable and nutritious food, care and health services (Vorster *et al.*, 1997). Dietary patterns have varied over time depending on agricultural practices and climate, ecological, cultural and socio-economic factors that determine the food availability (Spiller, 1993).

According to a FAO/WHO (1998) report, most naturally-occurring dietary patterns satisfy or even exceed the nutritional needs of most individuals except where agricultural and socio-economic conditions limit food availability, food purchasing or cultural practices restrict the choice of foods.

Knowledge of the population's dietary habits is necessary in the development of dietary guidelines. Valid food consumption data representation for the target population should be ideal (Becker and Welten, 2001).

### **2.2 BACKGROUND ON FOOD-BASED DIETARY GUIDELINES**

#### **2.2.1 Definition of food-based dietary guidelines**

According to a FAO/WHO (1998) report, dietary guidelines are sets of advisory statements that give dietary advice to the population in order to promote overall nutritional well-being and to address all diet-related conditions. FBDGs can also be defined as a selection guide and as an educational and promotional tool that converts scientific knowledge of food composition and nutritional requirements for health into a practical guide for food selection. These food guidelines organize information about food and nutrition so that they can be applied to making food selections that promote health (Smith *et al.*, 1999). The food-based

dietary guidelines are also understood as the expression of the principle of nutrition and education mostly of foods.

### **2.2.2 History of food-based dietary guidelines**

In the first part of the twentieth century, nutrition researchers focused very successfully on the nutrient requirements to assure proper growth and development and to prevent the so-called deficiency diseases. Some of these diseases, such as scurvy and pellagra, had been a scourge of humanity for centuries (Spiller, 1993).

According to Vorster *et al.* (2001) the failure of nutrient-based guidelines to substantially influence dietary patterns of different populations, stimulated another FAO/WHO initiative to establish the scientific basis for developing and using food-based dietary guidelines relating to practices and prevailing nutrition-related public health problems. There has therefore been a change in focus from the traditional attention to nutrients to locally available foods (Vorster *et al.*, 2001). As a result of all this research (Spiller, 1993), the first recommended dietary allowances were published in the United States in 1943 and have been updated every few years since then. Similar guidelines were published in many other countries. The primary purpose of the recommended dietary allowances was, and still is, to recommend a desirable allowance to maintain good nutrition.

According to Love and Sayed (2001), as a means to address nutrient-related problems, the world declaration and plan of action for nutrition was adopted at the international conference on nutrition held in Rome in 1992, where South Africa was one of the 159 participating countries. One of the goals of the World Declaration and Plan of Action for Nutrition adopted at the FAO/WHO International Conference on Nutrition in Rome (1992), is the global elimination or substantial reduction of malnutrition, micronutrient malnutrition and diet-related communicable and non-communicable diseases.



In response to the above-mentioned, the WHO and FAO convened an international consultation in Cyprus in 1995 to discuss the need for more effective nutrition education interventions. The meeting concluded that disseminating information through food-based dietary guidelines can be a valid strategy for public health nutrition, because consumers think in terms of food rather than nutrients. Food-based dietary guidelines can take account of considerable epidemiological data, linking specific food consumption patterns with low incidence of certain diseases, while not receiving a complete understanding of the underlying biological mechanisms (Love and Sayed, 2001).

### **2.3 CHARACTERISTICS OF FOOD-BASE DIETARY GUIDELINES**

According to Vorster *et al.* (2001), food-based dietary guidelines should be based on locally-consumed foods. They should address existing nutrient deficiencies and excesses and the resulting nutrition-related public health problems of a specific community.

#### **Food-based dietary guidelines should allow for the following:**

- Formulated or illustrated in such a way that people from different cultures and literacy backgrounds will grasp their meaning,
- be user friendly and not confusing,
- be formulated in a positive way,
- be compatible with different cultures and eating patterns of the target population,
- be based on affordable, available foods that are widely consumed,
- be sustainable,
- encourage environmentally friendly agriculture,
- lead to choosing foods that are usually eaten together in groupings that are compatible with existing dietary practices,
- address both over- and under-nutrition,

- emphasize the joy of eating,
- be formulated and communicated to the target population using marketing skills, based on knowledge, perception, attitudes and behaviours of the target population (Vorster *et al.*, 2001).

## **2.4 INTERNATIONAL DIETARY GUIDELINES**

### **2.4.1 Dietary guidelines**

Dietary guidelines have been published in at least 20 countries. Table 2 gives a summary of some countries that published dietary guidelines. From Table 2 it is clear that there is almost complete agreement among countries on the following recommendations:

- eat a nutritionally adequate diet composed of a variety of foods,
- adjust energy balance for weight balances,
- eat plenty of foods containing carbohydrates and fibre,
- use salt sparingly,
- eat a low fat diet,
- drink alcohol in moderation, if at all.

One can also see from Table 2 that food-based dietary guidelines are set to address specific health problems in countries as indicated in the guidelines. In all countries the dietary guidelines are continually modified to suit the needs of the people of that particular country.

## 2.4.2 Dietary guidelines from other countries

**Table 2: Summary of dietary guidelines of different countries (adapted from The South African Sugar Association 2000)**

Australia (adopted 1982)	South Africa (adopted 1998)	Canada (adopted 1989)	Asian region (adopted 1997)	Developing Countries (FAO) (adopted 1995)	America (1995 fourth edition)	Britain Danish (1995)
Eat a wide variety of nutritious foods	Enjoy a variety of foods	Enjoy a variety of foods	Eat variety of foods	Enjoy a variety of foods	Eat a variety of foods	-
Eat plenty of breads and cereals (preferably whole grain), vegetables including legumes and fruits	Make starchy foods the basis of most meals	Emphasise cereals, breads, other grain products, vegetables and fruits	Eat whole grain cereals, legumes, roots and tubers	-	Choose a diet with plenty of grain products, vegetables and fruits	Eat plenty of bread and cereals. Eat potatoes, rice or pasta everyday
Eat a diet low in fat and in particular low in saturated fat	Use fat sparingly	Choose low fat dairy products, vegetables and fruits	Eat plenty of vegetables and fruits regularly	-	Choose a diet low in fat, saturated fat and cholesterol	Use only small amounts butter, margarine and oil
Maintain a healthy body weight by balancing physical activity and food intake	Be active	Achieve and maintain a healthy body weight by enjoying regular physical activity and healthy eating	Eat enough food to meet body needs and maintain healthy body weight	Keep active, stay fit	Balance the food you eat with physical activity, maintain or improve your weight	-
Eat only moderate amount of sugars and foods containing added sugars	-	-	Moderate sugar intake	-	Choose a diet moderate in sugar	-
Choose low salt foods and use salt sparingly	Use salt sparingly	Limit salt, alcohol and caffeine	Limit salt intake	-	Choose a diet moderate in sat and sodium	-
If you drink alcohol limit your intake	If you drink alcohol drink sensibly	Limit alcohol	Avoid or limit alcohol	-	If you drink alcohol beverages, do so in moderation	-
-	Eat plenty of fruits and vegetables everyday	-	Eat plenty of vegetables and fruits regularly	-	-	Eat fruit and plenty of vegetables everyday
Encourage and support breastfeeding. Eat food containing calcium. This is particularly for girls and women. Eat foods containing iron. This applies to girls, women, vegetarians and athletes	Eat legumes. Foods from animals can be eaten daily. Drink lots of clean, safe water	Limit caffeine	Eat clean and safe food	Eat to meet your need. Protect the quality and safety of your food	-	Eat fish and fish products often. Select low fat meat and meat products. Select low-fat milk and milk products

## **2.5 SOUTH AFRICAN FOOD-BASED DIETARY GUIDELINES**

### **2.5.1 Basis for development of dietary guidelines**

According to Lambe and Kearney (1999), the development of food-based dietary guidelines involves the classification of individuals by their food and nutrient intakes, to assess which foods discriminate between those with desirable and those with undesirable intakes of specific nutrients such as fat and fibre, which have been linked to particular health outcomes.

Haralsdottir (1999), state that the main aim of the nutrient recommendations is to serve as a set of tools for professionals working within the areas of food, nutrition and health. The Danish food-based dietary guidelines are mainly aimed at communicating simple messages to the general public.

Gibney (1999a), state that in Ireland they followed two principles: the first was that dietary guidelines be based on existing public health problems rather than a difference between prevailing nutrient intake and some recommended ideal nutrient intake.

The second principle was that food-based dietary guidelines should be developed in a cultural context which among other things implied that the food-based dietary guidelines be derived from prevailing patterns of food intake rather than from some epidemiological-based ideal. Therefore, food-based dietary guidelines should be aimed at communicating simple messages to the general public to influence their choice of food intake and to serve as a springboard for planning, implementing and evaluating public health strategies (Gibney, 1999a).

### **2.5.2 Proposed food-based dietary guidelines for South Africa – Rationale**

Vorster *et al.* (1997) state that, although good nutrition is universally accepted as a basic human right, it is estimated that globally more than 800 million people suffer from malnutrition and that in developing countries more than 20 % of the

population are hungry. According to the literature widespread outspoken hunger may be a major problem but the health and nutritional status of millions of South Africans are far from optimal (Vorster *et al.*, 1997).

A recent comparison of a few health indicators (infant mortality rate, life expectancy at birth, incidence of tuberculosis and money) on health services, compared with those of other countries at similar levels of economic development, indicate that we are not using our resources optimally (Vorster *et al.*, 1997).

Large sectors of the South African working population are food-insecure, particularly black and coloured children (Vorster *et al.*, 1997). Steyn *et al.* (1992) state that, because of this insecurity, household stunting among South African children is very common.

The high mortality rate among black women, high infant mortality among black infants and low life expectancy for black and coloured adults caused concern about public health, thus making it necessary to develop food-based dietary guidelines. It was also discovered that among black dwellers, protein intakes were adequate in volume but not in quality. This further necessitated the development of food-based dietary guidelines (Vorster *et al.*, 2001).

A study was also undertaken to evaluate the perceptions and understanding of coloured Afrikaans-speaking and black Xhosa women in the Western Cape regarding ten food-based dietary guidelines, in order to investigate the plausibility of developing one set of guidelines applicable to all South African cultures (Smale-Lovely *et al.*, 2000).

According to Vorster *et al.* (2001) the massive global burden of diet-related diseases and the growing perception that nutrient-based dietary guidelines are not

effective in appropriate diets and healthy life-styles, have motivated a number of countries and regions to develop food-based dietary guidelines.

The proposed South African food-based dietary guidelines are defined and motivated in technical support papers for nutrition scientists and professionals and are to replace the existing guidelines which are either nutrient-based or aimed only at people eating a typical Western diet (Gibney *et al.*, 2001). A work group representing different stakeholders has developed the guidelines over a period of four years. The process recommended by a joint FAO/WHO expert consultation was followed.

According to Vorster *et al.* (1997), there is a perception that the few national government programmes are not effective. One of the main reasons is probably because these programmes are not based on an analysis and understanding of the need. To design strategy, policy and a programme to tackle the problem of malnutrition, more should be known about the nutritional status of South African people.

### **2.5.3 South African food-based guidelines**

The new guidelines are based on existing consumption of locally available foods and aim to address identified nutrition-related public health problems. The food-based dietary guidelines consist of eleven short, clear and simple messages that have been tested for comprehension, appropriateness and applicability in consumer groups of different ethnic backgrounds in both rural and urban areas (Smale-Lovely *et al.*, 2000).

**The guidelines are as follows:**

- “Enjoy a variety of foods”
- “Be active!”
- “Make starchy foods the basis of most meals”

- “Eat plenty of vegetables and fruits every day”
- “Eat dry beans, peas, lentils and soy bean regularly”
- “Chicken, fish, meat, milk or eggs could be eaten daily”
- “Use sugar and sugar containing foods and drinks in moderation”
- “Eat salt sparingly”
- “Eat fat sparingly”
- “Drink lots of clean, safe water”
- “If you drink alcohol, drink sensibly”

#### **2.5.4 Implication for the implementation of food-based dietary guidelines**

If food-based dietary guidelines are appropriately developed for South Africans, nutrition education is more likely to be effective in addressing the nutrition transition experienced by many South Africans.

The food-based dietary guidelines will be used by people conducting nutrition education to run their intervention programmes. Such programmes will help to improve consumer’s knowledge of and attitudes towards feeding practices. Those who are responsible for the evaluation of the nutritional status of consumers will also make use of the food-based dietary guidelines. It is however, not clear if the messages (although short and clear) are understood by rural consumers.

According to Love and Sayed (2001) cultural differences in the interpretation of a number of food-based dietary guideline messages exists, such as the guideline for foods from animal sources and the linguistic misunderstanding of the term legumes.

## **2.6 THE TSONGA POPULATION GROUP**

In order to attain desirable results by the use of FBDGs, the cultural context of the population for which they are intended, must be taken into account (Leclercq *et al.*, 2001).

### **2.6.1 Cultural influences on dietary patterns of black South Africans**

To properly understand the possible differences in knowledge and understanding between population groups in South Africa of the FBDGs, it is important to understand the background of these populations.

According to Vorster *et al.* (1997), the influences on the dietary patterns of black South Africans depend upon the availability and affordability of foods, culture, tradition and religion.

Knowledge of these influences and specific taboos is necessary to analyse the adequacy of nutrient intakes and also to ensure that dietary recommendations and food choices are specifically nutritional and programmes are culture sensitive. Traditional eating patterns and taboos of the different black groups in South Africa have been described. Although there are several unique features and taboos of individual groups, there are common habits and patterns. One is that traditionally, only two meals are eaten daily (Vorster *et al.*, 1997).

### **2.6.2 Historical background**

The people of former Gazankulu were usually referred to as the Shangaan-Tsonga and two main groups, namely Tsonga and Shangaan (Junod, 1962a). They are the descendants of Soshangane and originate from Mozambique. Currently the Tsonga people are found in the North-Eastern part of Limpopo Province.

### **2.6.3 Eating habits**

South Africa is a developing country with a heterogeneous socio-economic multicultural society. Nutrition in transition has been noticed, characterised by a change from traditional eating patterns to those typical of a Western lifestyle, with the increased risk of non-communicable diseases (Bourne *et al.*, 2002).



Food habits are dynamic and therefore constantly changing. These changes are mainly due to acculturation after urbanisation (Popkin, 1994; Walker, 1995; Van Eden and Gericke, 1996).

#### **2.6.4 Indigenous foods**

Agriculture and gathering plants wild from the field were the main ways in which the Shangaan-Tsonga obtained their food. Women were allocated land where they could cultivate their crops. Because the fields were not fertilized they used a system of migrant farming (Junod, 1962b).

- **Cereals** - maize is the mostly cultivated and the main staple food (Junod, 1962a). The next important staple food comes from mavele (millet), its main use is to provide the yeast in indigenous beer.
- **Legumes and nuts** - these play a considerable part in the feeding of the Tsonga tribe. They are found in three types, namely the groundnuts, peas and beans traditionally eaten by the Tsonga people. The groundnuts (timanga) are extensively cultivated and used in every day's cooking. It is also used for seasoning. Peas (tindluwa) is a frequently cultivated legume and grows like ground nuts, it is much coarser than the European pea, but twice or three times as large and very nourishing. The beans (tinkuhlu) are from the nkuhlu tree, have a greenish-black colour, tastes bitter and is oily (Junod, 1962a).
- **Vegetables of other families** - sweet potatoes are also cultivated and are regarded as a great resource and used as a vegetable. Pumpkin also is one of the main dishes of the Tsonga. There are several kinds namely medium size (rhanga), pear-shaped (shilutana) and huge watermelon (khalavatla), which can be consumed either raw or cooked. Pumpkin leaves are sometimes used as a good substitute for spinach, the flowers are also greatly appreciated by some cultures and some kinds of pumpkins are also used to make calabashes (Junod 1962b). Thyeke is used to prepare excellent dishes and can also be

used as a medicine to reduce forgetfulness. Nkaka, a creeping vegetable is also used as food.

- **Fruits** - played an important role in the diet of traditional Tsonga-Shangaan, but mainly wild fruits were consumed. They neither planted nor cultivated trees, when clearing the ground they simply spared the fruit bearing kinds, which grew naturally. The indigenous fruit were varied and numerous. One of the native fruits was sala, which took a leading place in the diet of the Tsonga-Shangaan. Sala is a large, shining, green ball, taking on a yellowish tint when ripening and consists of a thin shell which is easily broken, containing twenty flat oval stones, covered with a yellowish coloured pulp.
- **Meat** – the people only ate meat from cattle (tihomu), goats (timbuti), sheep (tinyimpfu) and pigs (nguluve). Because of lack of storage facilities, cattle were generally slaughtered only during large feasts where all the meat would be used. Meat of game was also used. Chicken, duck, guinea fowl and birds were also used, except birds like hawks and vultures, because it was believed that these birds were used by magicians (Junod, 1962a). Other animals that are considered as meat are tortoises (xiboze), rodents (maphephe) and mice (mavuti). Caterpillars such as mopani worms (masonja), insects such as locusts (tinjiya) and white ants were also desired (Junod, 1962a).

#### **2.6.5 Implication for the implementation of food-based dietary guidelines**

If the food-based dietary guidelines are appropriately developed for South Africans, nutrition education is more likely to be effective in addressing the nutrition transition experienced by many South Africans. The food-based dietary guidelines will be used by people conducting nutrition education intervention programmes. Such programmes will help to improve consumer's knowledge and attitudes towards feeding practices. Those who are responsible for the evaluation of the nutritional status of consumers will also make sure of the food-based dietary guidelines.

## **CHAPTER 3: METHODOLOGY**

### **3.1 INTRODUCTION**

This research project formed part of the indigenous knowledge study to investigate the knowledge and understanding of the FBDGs among different ethnic groups in South Africa.

South Africa consists of a variety of ethnic groups that differ culturally. Each group has its own eating habits; this may make it difficult to have one set of common FBDGs. The aim of this study was to come up with information that could be used in education programmes for the Tsonga people using the FBDGs of South Africa.

### **3.2 STUDY DESIGN**

This was an intervention study. Baseline data on knowledge of the South African FBDGs were obtained before and after the participants were educated through focus group discussions on good nutrition practises.

### **3.3 STUDY PARTICIPANTS**

The population was classified in four strata, namely:

- Group 1 – Rural,
- Group 2 - Farm dwellers,
- Group 3 - Urban informal,
- Group 4 - Urban formal.

The participants were selected according to availability on the meeting date.

#### **3.3.1 Rural women stratum**

Contact was made with one of the health clinic staff members at Jamela Clinic at Mafarana Village which is about 30 Km to the East of Tzaneen. She spread the message to the patients who were visiting the Clinic. A date was set to meet; a

venue was organized at the local Agricultural Show grounds where they normally met for their care group activities.

### **3.3.2 Farm dwellers stratum**

The Du Roi Nursery was selected to conduct the study because most dwellers are Tsonga-speaking. The farm is about 32 km Northeast of Tzaneen.

The researcher visited the farm and spoke to the farm manager and asked for permission to conduct the research on the farm. Permission was granted. Sixteen Tsonga-speaking women, living on the farm and available on the day of the interviews, were included in the sample. The farm seminar hall was arranged for conducting interviews and focus group meetings.

### **3.3.3 Informal settlement stratum**

For this group, contact was made through one of the Pastors at Mbamba Mencisi. The message was spread to the women at Church. A date was set to meet the prospective participants. The Pastor's wife organized the venue at their shanty built church building. The purpose of the study was explained to them. Most of the houses in the settlement were made of unrefined wood, corrugated iron and raw bricks. There was also no electricity supply during the time of this study. Candles were mostly used as a source of light and wood were used for cooking.

### **3.3.4 Formal stratum**

Nkowankowa Township was selected as a formal residential area because initially it was meant for Tsonga-speaking people around the Tzaneen area, even though people speaking other languages are also found here and there. Here the message was spread through friends. One of the participants offered accommodation at her home, for the focus group meetings. The demographic and baseline interviews were conducted at their homes. A date for focus group meetings was arranged.

### **3.4 SELECTION CRITERIA**

Participants who met the following criteria were included in the sample:

- adult African female,
- Tsonga- speaking,
- responsible for the planning and preparation of meals for their households, but had received no nutrition training.

Some people were excluded because they were employed and would not be available for the focus group discussions. Other participants withdrew from the study because they felt the study would not benefit them as individuals.

### **3.5 SAMPLE SIZE**

Due to financial constraints, participants were limited to a maximum of 64 people. Each stratum consisted of 16 women.

### **3.6 METHODOLOGY**

#### **3.6.1 Questionnaire designing, testing and implementation**

Both the demographic and baseline knowledge questionnaires were developed. When the knowledge questionnaire was designed, all the eleven current food-based dietary guidelines for South Africa were taken into consideration (Annexure I). Questions were asked in order to find out each participant's pre-knowledge about each guideline. Questions were formulated in English and translated to Tsonga beforehand, to ensure that the meaning of the question is not distorted (Annexure II). These questionnaires were pre-tested by interviewing Tsonga-speaking women who did not form part of the study and adjusted where necessary.

Participants who formed part of the study were interviewed either at their homes or at the organized venues. Both the demographic and food-based dietary

guidelines questionnaire took about 30 to 45 minutes to complete, depending upon the response of the interviewee.

The same questionnaire was used to test the knowledge gained after the focus group discussions.

### **3.6.2 Focus group**

Qualitative data was collected by interviews, and recorded both in writing and on audio tape. A focus group is a small number of individuals meeting together under the moderation of a facilitator to discuss a specific issue (Stewart and Shamdasani, 1990). Focus group meetings were held in all strata. All discussions were recorded during the focus group meeting and later translated and transcribed, by the researcher, together with the assistant.

Structured questions relating to the food-based dietary guidelines were discussed. Participants in each and every stratum were allowed to come up with their own answers and then discussions were held by the researcher to improve the participant's knowledge on good nutrition practices.

Refreshments were served at the end of the session, which took about 2 hours. A take-home parcel of fruit was given as a token of appreciation.

## **3.7 STATISTICAL ANALYSIS**

The Statistic Analysis System (SAS) version 8 was used to process the data. The responses to the questions were coded, computerized and analysed. Descriptive statistical analysis was done on the questionnaires. Results were displayed in frequency tables.

### **3.7.1 Reliability of the Knowledge Questionnaire**

Exploratory factor analyses were applied to determine the correlation between different factors, in order to ensure construct validity. For each factor a Cronbach

alpha coefficient was calculated to determine the reliability of each factor. Cronbach alpha coefficient is a measure of internal consistency. A value of 0.5 for Cronbach alpha coefficient is regarded as acceptable. For the knowledge questionnaire a value of 0.76 was calculated and it can be assumed that the questionnaire was reliable.

### **3.7.2 Analysis of the Knowledge Questionnaire**

Paired T-tests were used to calculate differences in knowledge between baseline and post-intervention knowledge and practise values. Practical significance was calculated for all p-values and it indicated significant differences ( $p \leq 0.05$ ). The effect size was then calculated to demonstrate the practical significance of the intervention. Results with a d-value  $\approx 0.8$  were regarded as of practical significance (Steyn, 2000).

## **3.8 ETHICAL CONSIDERATIONS**

Ethical clearance was obtained from the Ethical Committee of the North-West University.

## **3.9 LIMITATIONS OF THE STUDY**

Due to financial constraints, it was decided to limit the sample to the Tzaneen area of the Limpopo Province. The subjects were selected on their availability on the set date for the meetings. Therefore the results of this study are not representing the Tsonga people.

## CHAPTER 4: RESULTS

### 4.1 INTRODUCTION

In this Section, the results of this study are given and explained.

### 4.2 DEMOGRAPHIC RESULTS

The sample comprised 64 participants of which 16 were from a rural area, 16 from a farm, 16 from an informal settlement and the last 16 from a formal settlement. The question numbers referred to in Table 4.1 are found in Appendix I.

**Table 4.1 Age distribution of subjects**

Question number 7	Stratum	Number of subjects				
		10-20 years	21-30 years	31-40 years	41-50 years	>51 years
How old are you?	Rural n=16	1 = 6.3%	8 = 50%	4 = 25%	2 = 12.5%	1 = 6.3%
	Farm n=16	-	3 = 20%	8 = 53.3%	4 = 26.7%	-
	Informal n=16	1 = 6.3%	10 = 62%	4 = 25%	1 = 6.3%	-
	Formal N=16	2 = 12.5%	5 = 31.3%	4 = 25%	4 = 25%	1 = 6.3%
	<b>TOTAL</b> 64	<b>4</b> = 6.4%	<b>26</b> = 41.3%	<b>20</b> = 31.8%	<b>11</b> = 17.5%	<b>2</b> = 12.6%

According to the results in Table 4.1, the rural group had participants of the following ages, 1 aged between 10 and 20 years, thus forming 6.3% of the group, 8 participants aged between 21 and 30 years forming 50% of the group. The 31 to 40 years group had 4 participants who formed 25% of the group and 2 participants aged 41 to 50 years made up 12.5%. There was one participant older than 51 years (6.3% of the group).

Table 4.1 indicates that farm dwellers had no participants aged between 10 and 20 years. There were 3 participants aged between 21 and 30 years, this formed 20%



of the group. Participants aged between 31 and 40 years were 8 in number and formed 53.3% of the group. The 41 to 50 years had 4 participants who formed 26.7% of the group. None was older than 50 years.

In the informal settlement group there was only 1 participant aged 10 to 20 years who formed 6.3% of the group, 10 participants in this group belonged to the age group between 21 and 30 years, forming 62.5% of the group. The 31 to 40 years group had 4 participants who formed 25% of the group. The 41 to 50 years group had only 1 participant who formed 6.3% of the group. None was older than 50 years.

The formal settlement group had 2 participants of 10 to 20 years forming 12.5% of the group. The 21 to 30 years group had 5 participants, this formed 31.3% of the group. The 31 to 40 years and the 41 to 50 years groups had 4 participants each, these formed 25% of each group. One participant was older than 50 years (6.3% of the group).

**Table 4.2a Family composition per household**

Question number 9	Stratum	Number of people in a family and the % thereof			
		0 to 2 people	3 to 5 people	6 to 8 people	8 upwards
How many family members are staying with you in your house? (including yourself)	Rural n=16	1 = 6.3%	9 = 56.5%	4 = 25%	2 = 12.5%
	Farm n=15	1 = 6.7%	6 = 40%	3 = 20%	4 = 26.7%
	Informal n=16	1 = 6.3%	11 = 68.8%	4 = 25%	-
	Formal n=16	2 = 12.5%	7 = 43.8%	5 = 31.3%	2 = 12.5%

From Tables 4.2a to 4.2c it is evident that the highest number of participants in all strata live with an average number of people between 3 to 5 and that they cooked for 3 to 5 people.

**Table 4.2b Family composition per household**

Question number 10 A	Stratum	Number of people cooking for and the % thereof												
		1	2	3	4	5	6	7	8	9	10	11	12	13
For how many family members do you cook?	Rural n=16	1 = 6.3%	.	2 = 12.5%	6 = 37.5%	2 = 12.5%	1 = 6.3%	2 = 12.5%	.	.	.	.	.	.
	Farm n=15	1 = 6.7%	1 = 6.7%	.	5 = 33.3%	3 = 20%	4 = 26.7%	.	.	.	.	.	.	1 = 6.7%
	Informal n=16	1 = 6.3%	3 = 18.8%	3 = 18.8%	5 = 31.3%	.	2 = 12.5%	2 = 12.5%	2 = 12.5%	.	.	.	.	.
	Formal n=16	2 = 12.5%	3 = 18.8%	3 = 18.8%	3 = 18.8%	3 = 18.8%	1 = 6.3%	.	.	.	1 = 6.3%	.	.	.

**Table 4.2c Family composition per household**

Question number 10 B	Stratum	Number of adults in your family and the % thereof												
		1	2	3	4	5	6	7	8	9	10	11	12	13
How many adults are in your family?	Rural n=16	1 = 6.3%	10 = 62.5%	1 = 6.3%	4 = 25%	.	.	.	.	.	.	.	.	.
	Farm n=15	1 = 6.7%	7 = 46.7%	3 = 20%	1 = 6.7%	2 = 13.3%	1 = 6.7%	.	.	.	.	.	.	.
	Informal n=16	1 = 6.3%	10 = 62.5%	4 = 25%	.	.	.	.	.	.	.	.	1 = 6.3%	.
	Formal n=16	2 = 12.5%	8 = 50%	5 = 31.3%	.	.	.	.	.	.	.	.	.	.

From Table 4.2d it is evident that the majority of participants had less than five children in their homes.

**Table 4.2d Family composition per household**

Question number 10 C	Stratum	Number of children in your family and the % thereof												
		1	2	3	4	5	6	7	8	9	10	11	12	13
How many children are in your family?	Rural n=16	4 = 25%	3 = 18.8%	3 = 18.8%	3 = 18.8%	1 = 6.3%	-	-	2 = 12.5%	-	-	-	-	-
	Farm n=15	2 = 13.3%	3 = 20%	5 = 33.3%	2 = 13.3%	-	-	2 = 13.3%	1 = 6.7%	-	-	-	-	-
	Informal n=16	5 = 31.3%	3 = 18.8%	4 = 25%	1 = 6.3%	2 = 12.5%	1 = 6.3%	-	-	-	-	-	-	-
	Formal n=16	4 = 25%	5 = 31.3%	3 = 18.8%	3 = 18.8%	-	-	-	-	-	-	-	-	-

**Table 4.3a Information on employment status per household**

Question number 11	Stratum	Number of subjects unemployed	Number of subjects Part-time employed	Number of subjects Permanently employed
What is your employment status?	Rural n=16	16 = 100%	-	-
	Farm n=15	-	-	15 = 100%
	Informal n=16	15 = 93.8%	1 = 6.3%	-
	Formal n=16	10 = 62.3%	3 = 18.8%	3 = 18.8%

**Table 4.3b Information on monthly income per household**

Question number 12	Stratum	Number of subjects with an own income					
		R1 to R100	R101 to R500	R501 to R1000	R1001 to R2000	R2001 to R3000	R3001 and more
What is your own income?	Rural n=16	16 = 100%	-	-	-	-	-
	Farm n=15	-	-	15 = 100%	-	-	-
	Informal n=16	14 = 87.5%	-	2 = 12.5%	-	-	-
	Formal n=16	8 = 50%	-	2 = 12.5%	1 = 6.3%	2 = 12.5%	1 = 6.3%

From Tables 4.3a and 4.3b it is evident that although the majority of subjects reported to be unemployed (Table 4.3a) only 2 subjects in the formal stratum reported not to have any own income (Table 4.3b).

**Table 4.3c Information on total monthly income per household**

Question number 13	Stratum	Total income per family: number of other people in the household who earns income					
		R1 to R100	R101 to R500	R501 to R1000	R1001 to R2000	R2001 to R3000	R3001 and more
What is your household's total income	Rural	2 = 12.5%	2 = 12.5%	3 = 31.5%	6 = 37.5%	1 = 6.3%	-
	Farm	-	-	13 = 86.7%	2 = 13.3%	-	-
	Informal	-	3 = 18.8%	7 = 54.9%	3 = 18.3%	1 = 6.3%	2 = 2.5%
	Formal	2 = 12.5%	-	1 = 6.3%	5 = 31.3%	8 = 50%	-

The results of Table 4.3c show that in all the households more people than only the subjects were responsible to add to the household income. The majority of extra income for the subjects in the rural strata was between R500.00 and R2000.00 per month. For the subjects from the farms and informal strata it was mainly between R501.00 and R1000.00. For the formal stratum 50% was between R2001.00 and R3000.00 per month and 31.3% was between R1001.00 and R2000.00 per month.

**Table 4.4a Level of education per household**

Question number 8	Stratum	Number of subjects per level of education				
		Grade 0-3	Grade 4-6	Grade 7-9	Grade 10-12	Grade 12 and up
What is your education level?	Rural n=16	-	1 = 6.3%	2 = 12.5%	11 = 68.8%	2 = 12.5%
	Farm n=15	5 = 33.3%	3 = 20%	4 = 26.7%	3 = 20%	-
	Informal n=16	1 = 6.3%	2 = 12.5%	3 = 18.8%	10 = 62.5%	-
	Formal n=16	2 = 12.5%	-	1 = 6.3%	5 = 31.3%	8 = 50%

According to Table 4.4a the level of education of the participants varies. The majority of participants in the rural and formal groups received higher education than grade 9. No participants from the farming and informal groups, received education higher than grade 12. The farming group had the highest percentage of participants with an education level of less than grade 4.

**Table 4.4b Other socio-economic indicators per household**

Question number 14	Stratum	Number of subjects with access to electricity	
		Have access	No access
Do you have electricity?	Rural = 16	10 = 62.5%	6 = 37.5%
	Farm = 15	8 = 53.3%	7 = 46.7%
	Informal = 16	-	16 = 100%
	Formal = 16	16 = 100%	-

Table 4.4b indicates that more than half of the participants have electricity in their homes. This group forms 54% of the entire group. Even though the majority of them do have electricity, 53% of them still use firewood for cooking. Participants who use paraffin and gas for cooking are in the minority.

**Table 4.4c Other socio-economic indicators per household**

Question number 15	Stratum	Number of subjects with access to water					
		Rivers	Well	Communal outside tap	Tank	Individual outside tap	Indoor tap
What source of water do you household use?	Rural n=16	-	-	16 = 100%	-	-	-
	Farm n=15	-	1 = 6.7%	13 = 86.7%	1 = 6.7%	-	-
	Informal n=16	-	-	9 = 56.3%	7 = 3.2%	-	-
	Formal n=16	-	-	-	-	1 = 6.3%	15 = 93.8%

The information in Table 4.4c indicates that a large group of participants have access to clean water from pipes. This group forms 68.3% of the total. Participants who use water from communal taps or from tanks are in the minority, forming only 1.6% of the total respectively.

**Table 4.4d Other socio-economic indicators per household**

Question number 16	Stratum	Number of subjects and type of fuel used for cooking				
		Fire wood	Paraffin	Gas	Electricity	Coal
What source of energy do you use for preparing food?	Rural = 16	10 = 66.7%	3 = 20%	1 = 6.7%	1 = 6.7%	-
	Farm = 15	11 = 68.8%	-	-	2 = 12.5%	-
	Informal = 16	8 = 50%	4 = 25%	4 = 25%	-	-
	Formal = 16	-	-	-	15 = 93.8%	-

Table 4.4d shows that the rural, farm and informal groups use mostly firewood as fuel when cooking. Paraffin, gas and electricity are used less by these three groups. Electricity is the only means of cooking used by the formal group.

### 4.3 THE INTERVENTION STUDY

This section will be described per FBDGs. Due to the small sample size, all the statistical significant differences between base line and after intervention results are also of practical significance ( $d \approx 0.8$ ) for this group. Therefore the P-values are reported although these results are not representing the total Tsonga people.

Table 4.5 shows the number and the percentage of participants who answered “yes” or “no” to each question with regard to the FBDG: “Enjoy a variety of foods”. No significant increase of knowledge was measured between before and after the intervention. However, replies to question 18 show a slight increase in knowledge, especially with the formal group, with an increase from 81.25% to 100% after the intervention, although it was not a significant increase in knowledge ( $p=0.08$ ) and also of no practical significance. The results of the answers to question 40 also indicate a slight, but not significant ( $p=0.08$ ) increase in knowledge, within the farm group with 43% before and 6.25% after the intervention programme answered “yes” to the question if they only buy cheap food. This response however, was also of no practical significance.

**Table 4.5 Baseline and intervention study per stratum for the FBDG: “Enjoy a variety of foods”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 13</b> I think that healthy food will help me not to get sick so easily.	Yes	100% n=16	100% n=16	93.75% n=15	100% n=16	100% n=16	100% n=16	93.75% n=15	100% n=16
	No	n=0	n=0	6,25% n=1	n=0	n=0	n=0	6,25% n=1	n=0
<b>Question 18</b> Our daily diet should include a lot of different foods.	Yes	93.75% n=15	100% n=16	93.75% n=15	100% n=16	93.75% n=15	100% n=16	81.25% n=13	100% n=16
	No	6,25% n=1	n=0	6,25% n=1	n=0	6,25% n=1	n=0	18.75% n=3	n=0
<b>Question 25</b> I don't care what I give my family to eat, just as long as they get their stomachs full.	Yes	75% n=12	81.25% n=13	87.5% n=14	100% n=16	81.25% n=13	100% n=16	56.25% n=9	75% n=12
	No	25% n=4	18.75% n=3	12.5% n=2	n=0	18.75% n=3	n=0	43.75% n=7	25% n=4
<b>Question 34</b> Our daily diet should include vegetables and starch only.	Yes	31.25% n=5	43.75% n=7	31.25% n=5	50% n=8	25% n=4	25% n=4	18.75% n=3	31.25% n=5
	No	68.75% n=11	56.25% n=9	68.75% n=11	50% n=8	75% n=12	75% n=12	81.5% n=13	68.75% n=11
<b>Question 40</b> I only buy food that is cheap.	Yes	12.5% n=2	12.5% n=2	43.75% n=7	6,25% n=1	6,25% n=1	75% n=12	6,25% n=1	43.75% n=7
	No	87.5% n=14	87.5% n=14	56.25% n=9	37.5% n=6	25% n=4	37.5% n=6	37.5% n=6	56.25% n=9
<b>Question 49</b> Our daily diet should include foods of one type, e.g. starchy foods only.	Yes	50% N=8	68.75% N=11	81.25% N=13	81.25% N=13	87.5% N=14	68.75% N=11	87.5% N=14	68.75% N=11
	No	50% N=8	31.25% N=5	18.75% N=3	18.75% N=3	12.5% N=2	31.25% N=5	12.5% N=2	31.25% N=5

a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)

**Table 4.6 Baseline and intervention study per stratum for the FBDG: “Be active”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 16</b> It is healthy to be physically active.	Yes	93.75% n=15	87.5% n=14	100% n=16	100% n=16	93.75% n=15	93.75% n=15	100% n=16	93.75% n=15
	No	6.25% n=1	12.5% n=2	n=0	n=0	6.25% n=1	6.25% n=1	n=0	6.25% n=1
<b>Question 20</b> Being active has nothing to do with being healthy.	Yes	43.75% n=7	50% n=8	62.5% n=10	81.25% n=13	31.25% n=5	43.75% n=7	56.25% n=9	81.25% n=13
	No	56.25% n=9	50% n=8	37.5% n=6	18.75% n=3	68.75% n=11	56.25% n=9	43.75% n=7	18.75% n=3

a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)

Table 4.6 shows the results on the questions for the FBDG: “Be active”.

There was no significant increase in knowledge regarding activity as a guideline to good health practices. However, more subjects in all the strata answered “yes” to Question 20 after the intervention. Before the intervention started, the majority of people in all the groups thought that being active has nothing to do with being healthy.

**Table 4.7 Baseline and intervention study per stratum for the FBDG: “Make starchy foods the basis of most meals”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 2</b> I like giving my family just pap.	Yes	56.25% a n=9	81.75% a n=13	100% n=16	93.75% n=15	93.75% n=15	93.75% n=15	56.25% n=9	43.75% n=7
	No	43.75% n=7	18.75% n=3	n=0	6,25% n=1	6,25% n=1	6,25% n=1	43.75% n=7	56.25% n=9
<b>Question 5</b> You need food such as pap or bread every meal, because it gives you energy for the day.	Yes	93.75% n=15	93.75% n=15	100% n=16	100% n=16	93.75% n=15	93.75% n=15	93.75% n=15	81.25% n=13
	No	6,25% n=1	6,25% n=1	n=0	n=0	6,25% n=1	6,25% n=1	6,25% n=1	18.75% n=3
<b>Question 21</b> I prefer to eat white bread even though brown bread is healthier.	Yes	62.5% n=10	81.25% n=13	87.5% n=14	81.25% n=13	81.25% n=13	81.25% n=13	87.5% n=14	81.25% n=13
	No	37.5% n=6	18.75% n=3	12.5% n=2	18.75% n=3	18.75% n=3	18.75% n=3	12.5% n=2	12.5% n=2
<b>Question 48</b> Starchy foods will supply energy to the body.	Yes	81.25% n=13	81.25% n=13	87.5% n=14	93.75% n=15	93.75% n=15	87.5% n=14	75% n=12	93.75% n=15
	No	18.75% n=3	18.75% n=3	12.5% n=2	6,25% n=1	6,25% n=1	12.5% n=2	25% n=4	6,25% n=1
<b>Question 54</b> Starchy food should fill a large portion of my plate.	Yes	50% n=8	25% n=4	68.75% n=11	50% n=8	81.25% n=13	37.5% n=6	68.75% n=11	43.75% n=7
	No	50% n=8	75% n=12	31.25% n=5	50% n=8	18.75% n=3	62.5% n=10	31.25% n=5	56.25% n=9

**a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)**

Table 4.7 shows the results of the questions regarding the FBDG: “Make starchy foods the basis of meals”. The only significant difference in knowledge between the before and after measurements was in the rural stratum on question 2 (p=0.04). Before the intervention 56.3% answer “yes” to the statement “I like to give my family just pap”, while 81.8% answer “yes” to the same question after the intervention.



**Table 4.8 Baseline and intervention study per stratum for the FBDG: "Eat plenty of vegetables and fruit"**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 9</b> A healthy diet should include a lot of vegetables and fruit daily.	Yes	100% n=16	87.5% n=14	93.75% n=15	81.25% n=13	81.25% n=13	81.25% n=13	81.25% n=13	68.75% n=11
	No	n=0	12.5% n=2	6.25% n=1	18.75% n=3	18.75% n=3	18.75% n=3	18.75% n=3	31.25% n=5
<b>Question 11</b> When boiling green vegetables, bicarbonate of soda must be added.	Yes	68.75% a n=11	87.5% a n=14	93.75% n=15	100% n=16	62.5% n=10	87.5% n=14	87.5% n=14	100% n=16
	No	31.25% n=5	12.5% n=2	6.25% n=1	n=0	37.5% n=6	12.5% n=2	12.5% n=2	n=0
<b>Question 19</b> Tomatoes are rich in proteins, they can be used instead of meat.	Yes	25% n=4	43.75% n=7	37.5% n=6	43.75% n=7	25% n=4	18.75% n=3	31.25% n=5	31.25% n=5
	No	75% n=12	56.25% n=9	62.5% n=10	56.25% n=9	75% n=12	81.25% n=13	68.75% n=11	68.75% n=11
<b>Question 23</b> Vegetables should be cooked in a little water for a short time.	Yes	87.5% n=14	93.75% n=15	56.25% <sup>b</sup> n=9	93.75% <sup>b</sup> n=15	93.75% n=15	87.5% n=14	87.5% n=14	87.5% n=14
	No	12.5% n=2	6.25% n=1	43.7% n=7	6.25% n=1	6.25% n=1	12.5% n=2	12.5% n=2	12.5% n=2
<b>Question 35</b> Vegetables cooked in just a little water will protect against illness better than cooked in a lot of water.	Yes	87.5% n=14	93.75% n=15	56.25% n=9	93.75% n=15	93.75% n=15	87.5% n=14	87.5% n=14	87.5% n=14
	No	12.25% n=2	6.25% n=1	6.25% n=1	6.25% n=1	6.25% n=1	12.25% n=2	12.25% n=2	12.25% n=2
<b>Question 41</b> Fruit and vegetables will help protect the body.	Yes	100% n=16	100% n=16	100% n=16	93.75% n=15	100% n=16	100% n=16	100% n=16	100% n=16
	No	n=0	n=0	n=0	6.25% n=1	n=0	n=0	n=0	n=0
<b>Question 43</b> Drinking a lot of fruit juice is harmful to your body.	Yes	50% n=8	43.27% n=7	75% n=12	93.75% n=15	50% n=8	43.27% n=7	50% n=8	62.5% n=10
	No	50% n=8	56.25% n=9	25% n=4	6.25% n=1	50% n=8	56.25% n=9	50% n=8	37.5% n=6
<b>Question 46</b> Vegetables must be cooked in a lot of water for a long time.	Yes	75% n=12	93.75% n=15	100% n=16	81.25% n=13	93.75% n=15	87.5% n=14	68.75% n=11	87.5% n=14
	No	25% n=4	6.25% n=1	n=0	6.25% n=1	6.25% n=1	12.5% n=2	31.25% n=5	12.5% n=2
<b>Question 50</b> Vegetables help protect my body against illness.	Yes	100% n=16	100% n=16	93.75% n=15	100% n=16	100% n=16	87.5% n=14	87.5% n=14	100% n=16
	No	n=0	n=0	6.25% n=1	n=0	n=0	12.5% n=2	12.5% n=2	n=0
<b>Question 52</b> Cooked vegetables must be left lying in water after they are cooked.	Yes	56.2% n=9	50% n=8	68.75% c n=11	37.5% c n=6	81.25% n=13	75% n=12	68.78% n=11	75% n=12
	No	43.75% n=7	50% n=8	31.25% n=5	62.5% n=10	18.75% n=3	25% n=4	31.25% n=5	25% n=4

a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)

Most people agreed with the statement put in question 5, which stated that “you need food such as pap or bread every meal because it gives you energy for the day”. The knowledge on question 21 remained almost at the same level in all the groups. The subjects still preferred to eat white bread even though brown bread is healthier.

The results of question 54 showed that the subjects were confused after the intervention as more subjects in each stratum felt it was wrong to have starchy food filling a large portion of their plates.

Table 4.8 shows the response of the subjects on the relevant issues regarding the FBDG: “Eat plenty of vegetables and fruits every day”.

The majority of people in all strata believed that a healthy diet should include a lot of vegetables and fruit daily because it protects the body against ill health.

Question 23 was the only item where a significant increase in knowledge was found, especially within the farm stratum ( $p=0.009$ ). All participants agreed with the statement that vegetables should be cooked in a little water for a short time. Replies to question 35 showed no significant gain in knowledge after the intervention. Most people in all the groups believed that vegetables cooked in just a little water, would protect them against illness better than vegetables cooked in a large quantity of water. However, the answers to Question 46 indicated that participants in all the strata felt that vegetables must be cooked in a lot of water for a long time. More subjects from all the strata and significantly more from the farm stratum ( $p=0.05$ ) disagreed with the statement that cooked vegetables must be left lying in water after it has been cooked.

The increase in numbers of subjects responded positively to the statement that bicarbonate of soda should be added to green vegetables if cooked (Question 11). In all the strata it indicates that this aspect in the intervention was not effectively

understood by the subjects. It is also true for question 19. The majority of people in all groups indicated that they still believed that tomatoes are rich in proteins, and therefore, they can be used instead of meat.

**Table 4.9 Baseline and intervention study per stratum for the FBDG: “Eat dry beans, peas, lentils and soy beans regularly”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 14</b> Soy beans are rich in protein.	Yes	87.55% n=14	81.25% n=13	81.25% n=13	100% n=16	93.75% n=15	81.25% n=13	68.75% a n=11	93.75% a n=15
	No	12.5% n=2	18.75% n=3	18.75% n=3	n=0	6.25% n=1	18.75% n=3	31.25% n=5	6.25% n=1
<b>Question 28</b> Dried beans should not be eaten more than once a week.	Yes	31.25% n=5	56.25% n=9	43.75% <sup>b</sup> n=7	75% <sup>b</sup> n=12	43.75% n=7	56.25% n=9	56.25% n=9	68.75% n=11
	No	68.75% n=11	43.75% n=7	56.25% n=9	25% n=4	56.25% n=9	43.75% n=7	43.75% n=7	
<b>Question 31</b> Dried beans can be used instead of meat.	Yes	81.25% n=13	87.5% n=14	87.5% n=14	93.75% n=15	75% n=12	56.25% n=9	62.5% <sup>c</sup> n=10	87.5% <sup>c</sup> n=14
	No	18.75% n=3	12.5% n=2	12.5% n=2	6.25% n=1	2.5% n=2	43.75% n=7	37.5% n=6	12.5% n=2
<b>Question 37</b> Dried beans are a cheap alternative for meat.	Yes	81.25% n=13	81.25% n=13	62.5% <sup>d</sup> n=10	87.5% <sup>d</sup> n=14	50% n=8	43.75% n=7	56.25% n=9	68.75% n=11
	No	18.75% n=3	18.75% n=3	37.5% n=6	12.5% n=2	50% n=8	56.25% n=9	43.75% n=7	32.21% n=5
<b>Question 47</b> Dried beans are just as healthy for the body as meat.	Yes	93.75% n=15	87.5% n=14	75% n=12	93.75% n=15	75% n=12	68.75% n=11	81.25% n=13	87.5% n=14
	No	6.25% n=1	12.5% n=2	25% n=4	6.25% n=1	25% n=4	31.25% n=5	18.75% n=3	12.5% n=2

**a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)**

Table 4.9 shows the answers to the FBDG: “Eat dry beans, peas, lentils and soy beans regularly”.

Answers to question 14 indicate that there was an increase in knowledge, significantly within the formal (p=0.04) stratum and a definite indication of knowledge gain in the farm stratum (p=0.08). In both groups the majority of people indicated that soy beans are rich in proteins.

Response to question 28 showed that more subjects in all strata (significantly more in the farm stratum with  $p=0.05$ ) agreed that dried beans should not be eaten more than once a week. This is an indication that this item was also not correctly understood by the subjects through the intervention.

The answers to question 31 indicated that there were significantly more subjects in the formal stratum ( $p=0.04$ ) who indicated that beans could be used instead of meat. Significantly more subjects in the farm stratum after the intervention indicated that dried beans are a cheap alternative for meat (question 37).

Table 4.10 shows the results for the FBDG: "Chicken, fish, meat, milk or eggs could be eaten daily".

The results of only questions 22 and 29 indicate that the intervention had an effect on the knowledge of the subjects. After the intervention significantly more subjects from the farm stratum ( $p=0.009$ ) realized that eggs are just as good as meat.

For all the other questions no significant difference between base and end knowledge of the subjects regarding this FGDB was found.

**Table 4.10 Baseline and intervention study per stratum for the FBDG: “Chicken, fish, meat, milk and eggs could be eaten daily”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 8</b> A healthy diet should include chicken, meat, eggs and cheese in large quantities daily.	Yes	37.5% n=6	43.75% n=7	62.5% n=10	37.5% n=6	50% n=8	56.25% n=9	25% n=4	43.75% n=7
	No	62.5% n=10	56.25% n=9	37.5% n=6	62.5% n=10	50% n=8	43.75% n=7	75% n=12	56.25% n=9
<b>Question 17</b> Red meat is healthier than chicken.	Yes	37.5% n=6	37.5% n=6	75% n=12	75% n=12	68.75% n=11	56.25% n=9	68.75% n=11	75% n=12
	No	62.5% n=10	62.5% n=10	25% n=4	25% n=4	31.25% n=5	43.75% n=7	31.25% n=5	25% n=4
<b>Question 22</b> As a grown up, I do not need to drink milk every day.	Yes	56.25% a n=9	93.75% a n=15	75% n=12	75% n=12	43.75% n=7	68.75% n=11	68.75% n=11	62.5% n=10
	No	43.75% n=7	6.25% n=1	25% n=4	25% n=4	56.25% n=9	31.25% n=5	31.25% n=5	37.5% n=6
<b>Question 27</b> Meat, fish, chicken and milk are good sources of protein.	Yes	87.5% n=14	93.75% n=15	75% n=12	93.75% n=15	100% n=16	87.5% n=14	93.75% n=15	100% n=16
	No	12.5% n=2	6.25% n=1	25% n=4	6.25% n=1	n=0	12.5% n=2	6.25% n=1	n=0
<b>Question 29</b> Eating eggs is just as good as eating meat.	Yes	56.25% n=9	75% n=12	50% b n=8	87.5% b n=14	18.75% n=3	31.25% n=5	68.75% n=11	75% n=12
	No	43.73% n=7	25% n=4	50% n=8	12.5% n=2	81.25% n=13	68.75% n=11	31.25% n=5	25% n=4
<b>Question 33</b> Fish is just as healthy as red meat.	Yes	25% n=4	12.5% n=2	12.5% n=2	6.25% n=1	12.5% n=2	12.5% n=2	n=0	12.5% n=2
	No	75% n=12	87.5% n=14	87.5% n=14	93.75% n=15	87.5% n=14	87.5% n=14	100% n=16	87.5% n=14
<b>Question 39</b> I rather eat meat than cheese because meat is healthier than cheese.	Yes	62.5% n=10	43.75% n=7	68.75% n=11	81.25% n=13	62.5% n=10	43.75% n=7	62.5% n=10	56.2% n=9
	No	37.5% n=6	56.25% n=9	31.25% n=5	18.75% n=3	37.5% n=6	56.25% n=9	37.5% n=6	43.75% n=7

**a,b,c,d = Percentages with the same symbol differ significantly ( $p \leq 0.05$ )**

Table 4.11 shows the results for the FBDG: “Use sugar and sugar containing foods and drinks in moderation”.

Answers to question 3 show that there was a significant difference in the number of subjects before (56.3%) and after (93.8%) the intervention in the farm stratum ( $p=0.009$ ) who disagreed with the statement that it is good to drink a lot of soft drinks daily.

Replies to question 24 show that there was a significant increase in the number of subjects after the intervention in the formal stratum ( $p=0.04$ ) who agreed to the statement that eating a lot of food rich in sugar daily will cause bad teeth.

For all the other questions no significant difference between base and end knowledge of the subjects regarding this FGDB was found.

**Table 4.11 Baseline and intervention study per stratum for the FBDG:  
“Use sugar and sugar containing food and drinks in moderation”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 3</b> It is good to drink a lot of soft drinks daily.	Yes	68.75% n=11	62.50% n=10	43.75% a n=7	6.25% a n=1	18.75% n=3	25% n=4	31.25% n=5	18.75% n=3
	No	31.25% n=5	37.5% n=6	56.25% n=9	93.75% n=15	81.25% n=13	75% n=12	68.75% n=11	81.25% n=13
<b>Question 24</b> Eating a lot of food rich in sugar daily will cause bad teeth.	Yes	87.50% n=14	87.50% n=14	87.50% n=14	87.50% n=14	87.50% n=14	93.75% n=15	62.50%b n=10	87.50%b n=14
	No	12.50% n=2	12.50% n=2	12.50% n=2	12.50% n=2	12.50% n=2	6.25% n=1	37.50% n=6	12.50% n=2
<b>Question 36</b> Brown sugar is better than white sugar.	Yes	6.25% n=1	12.50% n=2	6.25% n=1	6.25% n=1	n=0	6.25% n=1	12.50% n=2	18.75% n=3
	No	93.75% n=15	87.50% n=14	93.75% n=15	93.75% n=15	100% n=16	93.75% n=15	87.50% n=14	81.25% n=13
<b>Question 44</b> A healthy diet should include many foods containing a lot of sugar.	Yes	93.75% n=15	100% n=16	93.75% N=15	100% N=16	100% N=16	100% N=16	87.50% N=14	87.50% N=14
	No	6.25% n=1	n=0	6.25% n=1	n=0	n=0	n=0	12.50% n=2	12.50% n=2
<b>Question 55</b> It is healthier to eat an apple instead of sweets.	Yes	93.75% n=15	100% n=16	87.50% n=14	93.75% n=15	100% n=16	100% N=16	93.75% N=15	93.75% N=15
	No	6.25% n=1	n=0	12.50% n=2	6.25% n=1	n=0	n=0	6.25% n=1	6.25% n=1

**a,b,c,d = Percentages with the same symbol differ significantly ( $p \leq 0.05$ )**

**Table 4.12 Baseline and intervention study per stratum for the FBDG: “Eat salt sparingly”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 6</b> I usually put salt on my food when it is on my plate.	Yes	31.25% n=5	50% n=8	68.75% n=11	75% n=12	100% n=6	87.50% n=14	87.50% n=14	87.50% n=14
	No	68.75% n=11	50% n=8	31.25% n=5	25% n=4	n=0	12.50% n=2	12.50% n=2	12.50% n=2
<b>Question 12</b> It is not necessary to limit salt when cooking.	Yes	62.50% n=10	62.50% n=10	62.50% n=10	50% n=8	31.25% n=5	50% n=8	43.75% n=7	56.25% N=9
	No	37.5% n=6	37.5% n=6	37.5% n=6	50% n=8	68.75% n=11	50% n=8	56.25% n=9	43.75% n=7
<b>Question 30</b> It is a good practice to eat a packet of Simba’s every day.	Yes	62.50% n=10	56.25% n=9	81.25% a n=13	43.75% a n=7	43.75% n=7	50% n=8	75% n=12	75% n=12
	No	37.5% n=6	43.75% n=7	18.75% n=3	56.25% n=9	56.25% n=9	50% n=8	25% n=4	25% n=4
<b>Question 51</b> I put salt in all the foods that I cook.	Yes	56.25% n=9	75% n=12	87.5% b n=14	62.5% b n=10	68.75% n=11	68.75% n=11	68.75% n=11	68.75% n=11
	No	43.75% n=7	25% n=4	12.50% N=2	37.5% n=6	31.25% n=5	31.25% n=5	31.25% n=5	31.25% n=5

**a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)**

Table 4.12 shows the results for the FBDG: “Eat salt sparingly”.

From Table 4.12 it is clear that it was only the farm stratum who experienced a significantly increase in knowledge regarding the use of salt. Less subjects in this stratum indicated that it is good to eat a packet of Simba chips every day (p=0.028) and to put salt in all the food they cook (p=0.04).

**Table 4.13 Baseline and intervention study per stratum for the FBDG: “Eat fat sparingly”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 1</b> A healthy diet should include a lot of fatty foods.	Yes	75.0% n=12	87.50% n=14	93.75% n=15	100% n=16	81.25% n=13	100% n=16	93.75% n=15	87.50% n=14
	No	25.0% n=4	12.50% n=2	6.25% n=1	n=0	18.75% n=3	n=0	6.25% n=1	12.50% n=2
<b>Question 10</b> It is healthy to be fat.	Yes	68.75% a n=11	93.75% a n=15	93.75% n=14	87.50% n=13	62.50% n=10	81.25% N=13	87.50% N=14	81.25% N=13
	No	31.25% n=5	6.25% n=1	6.25% n=1	12.50% n=2	37.50% n=6	18.75% n=3	12.50% n=2	18.75% n=3
<b>Question 32</b> It is not necessary to use fat or oil when cooking vegetables.	Yes	93.75% n=15	93.75% n=15	93.75% n=15	93.75% n=15	68.75% n=11	75.0% n=12	87.5% n=14	100% n=16
	No	6.25% n=1	6.25% n=1	6.25% n=1	6.25% n=1	31.25% n=5	25.0% n=4	12.5% n=2	n=0
<b>Question 45</b> It is not healthy for you to eat lots of fat.	Yes	56.25% n=9	50% n=8	87.50% n=14	93.75% n=15	68.75% n=11	75% n=12	81.25% n=13	87.50% n=14
	No	43.75% n=7	50% n=8	12.50% n=2	6.25% n=1	31.25% n=5	25% n=4	18.75% n=3	12.50% n=2

**a,b,c,d = Percentages with the same symbol differ significantly (p<=0.05)**

Table 4.13 shows the results for the FBDG: “Eat fat sparingly”.

The only significant difference between the base and end answers of the participants was found in the rural stratum for question 10. After the intervention more participants were certain that it is healthy to be fat (p=0.04). This was also the idea of all other participants except for those in the farm stratum, however, with no practical significance.



**Table 4.14 Baseline and intervention study per stratum for the FBDG: “Drink lots of clean, safe water”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
<b>Question 4</b> It is important to drink a lot of water daily.	Yes	87.5% n=4	100% n=16	100% n=16	100% n=16	100% n=16	100% n=16	87.5% n=4	87.5% n=4
	No	12.5% n=2	n=0	n=0	n=0	n=0	n=0	12.5% n=2	12.5% n=2
<b>Question 15</b> Drinking a lot of water is harmful to your body.	Yes	62.5% n=10	68.75% n=11	87.5% n=14	100% n=16	75% n=12	81.25% n=13	75% n=12	87.5% n=4
	No	37.5% n=6	31.25% n=5	12.5% n=2	n=0	25% n=4	18.75% n=3	25% n=4	12.5% n=2
<b>Question 38</b> It is not necessary to put a cloth or lid on a bucket of clean water.	Yes	87.5% n=4	87.5% n=4	87.5% n=4	81.25% n=13	87.5% n=4	81.25% n=13	75% n=12	87.5% n=4
	No	12.5% n=2	12.5% n=2	12.5% n=2	18.75% n=3	12.5% n=2	18.75% n=3	25% n=4	12.5% n=2
<b>Question 53</b> Water drawn from rivers, wells and dams has to be boiled before use.	Yes	100% n=16	87.5% n=4	100% n=16	100% n=16	100% n=16	87.5% n=4	93.75% n=15	100% n=16
	No	n=0	12.5% n=2	n=0	n=0	n=0	12.5% n=2	12.5% n=2	n=0

**a,b,c,d = Percentages with the same symbol differ significantly ( $p \leq 0.05$ )**

Table 4.14 shows the results for the FBDG: “Drink lots of clean, safe water”.

The overall impression was that the subjects in all strata well understood this guideline and no significant differences were found between the base and end knowledge of the participants.

**Table 4.15 Baseline and intervention study per stratum for the FBDG: “If you drink alcohol, drink sensibly”**

Questions	Possible Answers	Rural		Farm		Informal		Formal	
		Before	After	Before	After	Before	After	Before	After
Question 7 Your body needs alcohol to stay healthy.	Yes	93.75% n=15	100% n=16	87.50% n=14	93.75% n=15	100% n=16	100% n=16	68.75% n=11	93.75% n=15
	No	6.25% n=1	n=0	12.50% n=2	6.25% n=1	n=0	n=0	31.25% n=5	6.25% n=1
Question 26 Drinking a lot of beer is harmful to your body.	Yes	87.50% n=14	62.50% n=10	100% n=16	93.75% n=15	68.75% n=11	81.25% n=13	75% n=12	87.50% n=14
	No	12.50% n=2	37.5% n=6	n=0	6.25% n=1	31.25% n=5	18.75% n=3	25% n=4	12.50% n=2
Question 42 It is healthy to take alcoholic drinks daily.	Yes	93.75% n=15	100% n=16	93.75% n=15	100% n=16	93.75% N=15	81.25% n=13	93.75% n=15	100% n=16
	No	6.25% n=1	n=0	6.25% n=1	n=0	6.25% n=1	18.75% n=3	6.25% n=1	n=0

**a,b,c,d = Percentages with the same symbol differ significantly ( $p \leq 0.05$ )**

Table 4.15 shows the results for the FBDG: “If you drink alcohol, drink sensibly”.

Although not of any practical significance, more subjects in all the strata indicated at the end of the intervention that your body needs alcohol to stay healthy.

## **CHAPTER 5: DISCUSSIONS**

### **5.1 INTRODUCTION**

In this chapter, the results of the interviews will be discussed, interpreted and compared to literature. As already explained in Chapter 1, the aim of this study was to determine the comprehensibility of the South African food-based dietary guidelines to Tsonga women, so as to identify constraints in understanding and implementation of the food-based dietary guidelines and to improve their nutrition knowledge through focus group discussions by making use of the FBDGs messages.

### **5.2 FOOD-BASED DIETARY GUIDELINES**

#### **5.2.1 “Enjoy a variety of foods”**

From the results it seems as if all the participants had a good understanding of this guideline. However, the reality of poverty had an influence on the outcome of this research. Although more subjects realised after the intervention that they should not only look at the price of food answers on questions 25 and 40 such as *“I don’t care what I give my family to eat , just as long as they get their stomachs full”* and *“I only buy food that is cheap”*, were common. To support the FBDGs “enjoy a variety of foods” Maunder *et al.* (2001), state that variety is important in order to accommodate the taste preferences of the household members, as well as ensuring that the family enjoys their food. It is therefore important to take into consideration the socio-economic status of people when explaining this guideline to them and come up with constructive plans to accommodate it.

#### **5.2.2 “Be active”**

Although all the groups showed an understanding of this guideline during the focus group discussion, there was no indication of an increase in knowledge of practical importance in any group after the intervention. Participants showed that they feel it is important to be physically active because it benefits the body. Lack

of physical exercise especially with the formal group, who might be doing only light household chores because of labour-saving devices, might influence their way of thinking. Lack of facilities in their areas where they can do physical exercises, might be another factor which contributed to the decrease in knowledge. Lack of time to do physical exercises might be another contributory factor. Laziness to do physical exercises can also be another factor.

There is a large volume of literature supporting this FBDG. According to Van Baak (1999) and Lambert *et al.* (2001) a moderate to high level of physical activity reduces the risk of weight gain, regain and obesity and this makes it important for people to engage in regular exercise. Astrup (1999) indicates that the increasing physical activity and reducing dietary fat content may be more effective in combination than separately in preventing weight gain and obesity. According to Gibney (1999b), the adverse effects of high-fat diets are compounded by largely sedentary life-styles and its effects can be overcome by modest levels of physical activity. Fox (1999) is also supporting the idea that to be physically active is beneficial to the body by indicating that there is growing evidence demonstrating that exercise can be effective in improving the mental well-being of the public, largely through an improved mood and self-perception.

### **5.2.3 “Make starchy foods the basis of most meals”**

In general, this guideline was well understood by the participants. However, their tradition and habits could have been a contributory factor in the understanding of this FBDG, because traditionally it is believed that the intake of large quantities of starch helps to give energy to the body. The results of question 54 showed, however, that the subjects were a bit confused after the intervention as more subjects in each stratum felt it was wrong to have starchy food filling a large portion of their plates. The formal group earned the most income and Shetty (2002), indicates that the change in socio-economic status caused by urbanisation can be associated with a reduced intake of coarse grains and increased reliance on highly polished varieties, which may reduce intakes of dietary fibre. This shows

that people sometimes avoid eating their traditional foods because they start enjoying other cultures food. This can indirectly affect the intake of their traditional foods.

#### **5.2.4 “Eat plenty of vegetables and fruits every day”**

The problem of personal preference, the availability and affordability of the foods and maybe also ignorance, influenced the outcome of this guideline. The latter may be the reason for the mixed success found after the intervention on the understanding of the subjects of this guideline, for instance, all participants agreed with the fact that vegetables cooked in just a little water will protect them against illness better than when cooked in a lot of water. However, the answers to Question 46 indicated that participants in all the strata felt that vegetables must be cooked in a lot of water for a long time. But, more subjects from all the strata and significantly more from the farm stratum ( $p=0.05$ ) disagreed with the statement that cooked vegetables must be left lying in water after it has been cooked.

The increase in numbers of subjects responded positively to the statement that bicarbonate of soda should be added to green vegetables if cooked (Question 11) in all the strata, indicates that this aspect in the intervention was not efficiently understood by the subjects. It is also true for question 19. The majority of people in the rural and farm strata indicated that they still believed that tomatoes are rich in proteins, and therefore, they can be used instead of meat.

#### **5.2.5 “Eat dry beans, peas, lentils and soy beans regularly”**

The farm and the formal groups showed an increase in knowledge which was of practical importance after the intervention when considering the results of the following questions: 14 “Soy beans are rich in protein”, question 31: “Beans can be used instead of meat”, question 37: “Dried beans are a cheap alternative for meat” and question 47: “dried beans are just as healthy for the body as meat”. The increase in knowledge might have been influenced by availability of beans,

especially to the farm group who receive packets of beans from their employer as part of their monthly ration.

To show the importance of legumes in the diet, Venter and Van Eyssen (2001) indicates that they are unique foods because of their rich nutrient content, including starch, vegetable protein, dietary fibre and minerals.

#### **5.2.6 “Chicken, fish, meat, milk or eggs could be eaten daily”**

This guideline was well understood by all the groups. After the intervention significantly more subjects from the farm stratum realized that eggs are just as good as meat.

This might have been influenced by their personal preference as well as affordability. The fact that there are cheaper brands of fish, as well as cheaper brands of meat such as offal and bones might have influenced the participant’s way of thinking. Some of the participant’s might be having an opportunity of rearing chicken in their yards, especially the rural and the informal groups.

#### **5.2.7 “Use sugar and sugar containing foods and drinks in moderation”**

This guideline was well understood by most participants. In the farm stratum the number of subjects who disagreed with the statement that it is good to drink a lot of soft drinks daily, after the intervention was of practical importance. Personal preferences and ignorance might have influenced this slight increase in knowledge in the other strata, because even though they know that a lot of sugar in the diet has a harmful effect on the body, they still feel that they should consume food rich in sugar on a daily basis.

#### **5.2.8 “Eat salt sparingly”**

This guideline was not well understood by the participants, as was reflected in the results of the following questions: question 12: “It is not necessary to limit salt when cooking”, question 30: “It is a good practice to eat a packet of Simba chips

every day” and 51: “I put salt in all the foods that I cook”. After the intervention only the farm group reflected a slight increase in knowledge of practical importance on the use of Simba chips daily. This might have been influenced by their personal preferences and their habits. It became clear during the focus group discussions that some participants had the habit of putting salt in their food even before they taste it.

To substantiate the fact that high salt intake is harmful to the body, Charlton and Jooste (2001) indicate that an excessive salt intake leads to an increase in blood pressure in genetically susceptible persons and if high intake is maintained for a long term, it ultimately lead to sustained hypertension.

#### **5.2.9 “Eat fat sparingly”**

The message of the guideline was not well understood by most participants in all the groups. This might have been influenced by their personal preferences and convenience. Some families enjoy eating vegetables that have been cooked in fat. The fact that cheaper cuts of meat, which they can afford as low income groups, is available, might also have caused the slight increase in knowledge. Convenience is another factor which might also have contributed, because most people feel that frying is a quick method of cooking and will therefore prefer it, in spite of the food ending up with an increased amount of fat that is harmful to the body.

#### **5.2.10 “Drink lots of clean, safe water”**

From the questionnaire as well as during the focus group discussion most participants indicated that they understand the message that they should drink lots of clean and safe water. Bourne and Seage (2001) indicate that water is an essential nutrient and is the most pervasive compound in the human body.

#### **5.2.11 “If you drink alcohol, drink sensibly”**

This guideline was not well understood by the participants in all the groups. This was reflected in the results of the following questions: question 7: “Your body

needs alcohol to stay healthy”, question 26: “Drinking a lot of beer is harmful to your body” and question 42: “It is healthy to take alcoholic drinks daily”. These results reflected a decrease in knowledge in all the groups. This might have been influenced by their habits and personal preferences, as well as ignorance. Their persistent attitudes must also have influenced their attitude towards the answering of these questions, despite the fact that they were aware of the harmful effects of alcoholic beverages to the body.

To support the statement that alcoholic drinks are harmful to the body, Van Heerden and Parry (2001) indicates that detrimental effects on adult health, teratogenic effects on the foetus and negative social and economic effects can be the results if the consumption of alcohol is too high.



## **CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 INTRODUCTION**

The literature indicates that comparing our health services with those of other countries at similar levels of economic development, South Africans are not using their resources optimally (Vorster *et al.*, 1997). This may be due to lack of education, especially amongst people in rural areas. It became clear during the focus group meetings that the majority of people did not know the difference between nutrients and foodstuff. They also did not have an idea as to how nutrients could be saved.

In this chapter, conclusions about the understanding of the food-based dietary guidelines by consumers, as well as the recommendations to use the FBDGs as an education tool for future education in good nutrition practises will be given.

### **6.2 CONCLUSIONS**

The overall conclusion reached was that most of the messages of the guidelines were well understood by the participants and that the FBDGs per se can be used as an education tool to educate consumers in good nutrition practises. However, from this study it seems as if there are five guidelines that need to be addressed with specific care if used in future education programmes:

1. "Be active"
2. "Make starchy foods the basis of most meals"
3. "Use salt sparingly"
4. "Use fat sparingly"
5. "If you drink alcohol, drink sensibly"

The conclusions reached for each FBDG will be given next.

### **6.2.1 “Enjoy a variety of foods”**

Although the messages that the diet should include a lot of different foods and that a variety of foods protect against illness were understood by participants, it is very important to advocate this message in the context of the income of the consumer. Emphasis should be placed on cheap, but nutritious food and plans to make use of available money.

### **6.2.2 “Be active”**

Although the message of being active was understood by the participants in all the groups, it is important to take into account their ignorance and the availability of facilities where they can do physical exercises within their areas. Some might not have time enough to do so because they have other things to attend to. Through ignorance and laziness some participants, especially those who are using labour saving devices, are not active. It is also important to regard physical work as exercise and not only exercise in a gym.

### **6.2.3 “Make starchy foods the basis of most meals”**

The message about this guideline was not so well understood by all participants. This might have been influenced by their level of education. It should be realized that when presenting an intervention programme to a heterogeneous group of people, a simple way of presentation should be used in order to let participants from different levels of education understand the message.

The problem of urbanisation might also be another factor to keep in mind when educating people. When people move to urban areas, they more easily adopt other people's cultures and sometimes end up abandoning their own cultures, for example traditionally Tsonga people are fond of using whole grain maize to prepare dishes such as “tintshuntshu”. This is unprocessed dry whole grain of maize, boiled until tender with a little salt added and then eaten as a snack. Bran

that is removed from the whole grain of maize is also used to prepare either sour soft porridge or stiff porridge. When people become urbanized, they get used to eating finely processed products because they are easy to prepare and also save electricity, time and labour.

#### **6.2.4 “Eat plenty of vegetables and fruit every day”**

Even though all the groups understood the meaning of this guideline, there was little increase in knowledge. It is important to take into consideration that their food preferences, the availability and affordability of, especially fruit as well as their ignorance, can form barriers when it comes to the practical application of the acquired knowledge.

#### **6.2.5 “Eat dry beans, peas, lentils and soybeans regularly”**

This guideline was well understood by the participants after the intervention. This is a known commodity to most of them and can be associated with the availability as well as household taste. Emphasis should be on the importance of legumes in the diet because they can be used instead of meat, especially in situations where funds are not always available to purchase the more expensive meat.

#### **6.2.6 “Chicken, fish, meat, milk or eggs could be eaten daily”**

Participants showed an understanding of this guideline. All groups reflected an increase in knowledge. This indicates that even though it might be difficult for people to acquire certain foodstuffs because of being unaffordable, their personal preferences play a role. Emphasis should not only be on “cheaper and affordable”, because the real cheap meats are high in fat.

#### **6.2.7 “Use sugar and sugar containing foods and drinks in moderation”**

Although all the groups reflected an increase in knowledge, it is not certain whether they are going to practice what the guideline says, because the increase in knowledge is based upon their personal preferences and ignorance. The harmful

effects caused by the consumption of foods containing large amounts of sugar must be emphasised.

#### **6.2.8 “Use salt sparingly”**

This guideline was not well understood by the participants as reflected in the results of questions 12, 30 and 51 in Chapter 5. Habits and personal preferences contributed to the slight increase in knowledge. Emphasis must be placed on the harmful effects that are brought about by the consumption of food containing a lot of salt. The bad habit of adding salt in food that has already been salted must be discouraged.

#### **6.2.9 “Eat fat sparingly”**

The guideline was not well understood by the majority of the participants. This might have been influenced by their personal preferences and convenience. It is therefore important to make sure that personal preferences and convenience do not become barriers to leading a healthy life.

#### **6.2.10 “Drink lots of clean, safe water”**

Participants showed an understanding of the message of this guideline. It is important to stress to the participants that the drinking of lots of clean and safe water is desirable to keep the body healthy.

#### **6.2.11 “If you drink alcohol, drink sensibly”**

This guideline was not so well understood by the participants in all the groups. Their unacceptable habits and their persistent attitudes might have influenced the lack of understanding of this guideline. It is important to make sure that the participants realize that alcoholic beverages have a damaging effect on the body. Those who might be having a drinking problem should receive proper counselling by people who are qualified to do so.

### **6.3 RECOMMENDATIONS**

More time should be spent on focus group discussions, especially when dealing with people with a low education level. More sessions can be scheduled to include all the FBDGs (not all guidelines at one session) and should be repeated after some time. Specific caution should be taken to make sure that the way FBDGs are explained to the consumer fell within the experience field of the consumer. In this regard the socio-economic status of participants in the project should be taken into consideration, because their low income status can serve as a barrier to the success in the understanding of the messages. Traditions and the use of indigenous foods and the availability thereof, as well as the affordability of the other foods must also be taken into account. Foods that are used to explain the guidelines should be foods that the consumers are familiar with in order to avoid any misunderstanding when trying to interpret the message carried by the guidelines.

From this study it is evident that the FBDGs can be used as an education tool to improve the consumer's knowledge regarding good nutrition practises. The implementation of the FBDGs was set as the next challenge by Gibney and Vorster (2001). If the FBDGs being integrated in nutrition education programmes, it will enhance the implementation thereof and all South Africans will adopt the messages much easier.

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**ANNEXURE I**

**TRANSLATION OF THE FOOD-BASED DIETARY  
GUIDELINES**

## Translation of the Food-Based Dietary Guidelines

ENGLISH		TSONGA	
1	Enjoy a variety of foods.	1	Tiphine hi swakudya swa tinxakaxaka.
2	Be active!	2	Vana ni tinghitse!
3	Make starchy foods the basis of most meals.	3	Vona leswaku swakudya leswi ngani xitachi swi kona eka swakudya swa minkarhi you tala.
4	Eat plenty of vegetables and fruits every day.	4	Dyana matsavu ni mihandzu yo tala siku rinwana na rinwana.
5	Eat dry beans, peas, lentils and soya beans regularly.	5	Dyana tinyawa ta ku omisiwa, tierekisi tilentile ni tinyawa ta soya minkarhi hinkwawo.
6	Chicken, fish, meat, milk or eggs could be eaten daily.	6	Nyama ya huku, nhlampfi, nyama, mandza swi nga dyiwa masiku hinkwawo.
7	Use sugar and sugar containing food and drinks in moderation.	7	Tirhisa chukele ni swakudya leswi nga ni chukele ni swa kunwa hi mpimo wo ringanela.
8	Eat fat sparingly.	8	Tirhisa mafurha hi vukheta.
9	Eat salt sparingly.	9	Tirhisa munyu hi vukheta.
10	Drink lots of clean, safe water.	10	Nwana mati ho tenga ya xitalo.
11	If you drink alcohol, drink sensibly.	11	Loko u nwa swakunwa swa xihoko nwana hi ku pima.

**ANNEXURE II**

**QUESTIONNAIRES**

RESEARCH STUDY ON FOOD-BASED DIETARY GUIDELINES

SECTION 1

DEMOGRAPHIC INFORMATION

Focus Group	1
Questionnaire	2

1. Interviewee Number

2. Name

3. Date

Please mark with an X

4. Interviewer

Researcher	1
Assistant	2

5. Questions

Baseline	1
Impact	2

6. Group

Rural	1
Farm Laborer	2
Informal	3
Formal	4

7. How old are you?

10 – 20 Years old	1
21 – 30 Years old	2
31 – 40 Years old	3
41 – 50 Years old	4
51 – 60 Years old	5
60 Years and older	6

8. What is your education level?

Lower than Grade 3	1
Grade 4 to Grade 6	2
Grade 7 to Grade 9	3
Grade 9 to Grade 12	4
Higher than Grade 12	5

9. How many family members are staying with you in your house? (including yourself)
- |                     |   |
|---------------------|---|
| 2 Member            | 1 |
| 3 – 5 Members       | 2 |
| 6 – 8 Members       | 3 |
| More than 8 members | 4 |
10. How many family members do you cook for daily?
- | Total | Adults | Children |
|-------|--------|----------|
|       |        |          |
11. What is your employment status?
- |                    |   |
|--------------------|---|
| Unemployed         | 1 |
| Employed Part-time | 2 |
| Employed Full-time | 3 |
12. What is your own income?
- |                  |   |
|------------------|---|
| None             | 1 |
| R1 – R100        | 2 |
| R101 – R500      | 3 |
| R501 – R1 000    | 4 |
| R1 001 – R2 000  | 5 |
| R2 001 – R3 000  | 6 |
| More than R3 001 | 7 |
13. What is your household's total income?
- |                  |   |
|------------------|---|
| R1 – R100        | 1 |
| R101 – R500      | 2 |
| R501 – R1 000    | 3 |
| R1 001 – R2 000  | 4 |
| R2 001 – R3 000  | 5 |
| More than R3 001 | 6 |
14. Do you have electricity?
- |     |   |
|-----|---|
| Yes | 1 |
| No  | 2 |
15. What source of water does your household use?
- |                        |   |
|------------------------|---|
| River                  | 1 |
| Well                   | 2 |
| Communal outside tap   | 3 |
| Tank                   | 4 |
| Individual outside tap | 5 |
| Indoor tap             | 6 |
16. What source of energy do you use for preparing food? (if you use more than one please mark the source you use most often)
- |             |   |
|-------------|---|
| Firewood    | 1 |
| Paraffin    | 2 |
| Gas         | 3 |
| Electricity | 4 |
| Coal        | 5 |

## 2. QUESTIONS RELATED TO THE FOOD-BASED DIETARY GUIDELINES

I will now read out statements to you. Please tell me if you think the statement is true or false.

	True	False	Don't know
2.1 A healthy diet should include a lot of fatty foods.			
2.2 I like giving my family just pap.			
2.3 It is good to drink a lot of soft drinks daily.			
2.4 It is important to drink a lot of water daily.			
2.5 You need a food such as pap or bread with every meal, because it gives you energy for the day.			
2.6 I usually put salt on my food when it is on my plate.			
2.7 Your body needs alcohol to stay healthy.			
2.8 A healthy diet should include chicken, meat, eggs and cheese in large quantities daily.			
2.9 A healthy diet should include a lot of vegetables and fruit daily.			
2.10 It is healthy to be fat.			
2.11 When boiling green vegetables, bicarbonate of soda must be added.			
2.12 It is not necessary to limit salt when cooking.			
2.13 I think that healthy food will help me not to get sick so easily.			
2.14 Soy beans are rich in protein.			
2.15 Drinking a lot of water is harmful to your body.			
2.16 It is healthy to be physically active.			
2.17 Red meat is healthier than chicken.			
2.18 Our daily diet should include a lot of different			
2.19 Tomatoes are rich in protein, thus they can be used instead of meat.			
2.20 Being active has nothing to do with being healthy.			
2.21 I prefer to eat white bread even though brown bread is healthier.			
2.22 As a grown up, I do not need to drink milk every			
2.23 Vegetables should be cooked in a little water for a short time.			
2.24 Eating a lot of food rich in sugar daily will cause bad teeth.			
2.25 I don't care what I give my family to eat, just as long as they get their stomach full.			

2.26 Drinking a lot of beer is harmful to your body.			
2.27 Meat, fish, chicken and milk are good sources of protein.			
2.28 Dried beans should not be eaten more than once a week.			
2.29 Eating eggs is just as good as eating meat.			
2.30 It is a good practice to eat a packet of Simba's every day.			
2.31 Dried beans can be used instead of meat.			
2.32 It is not necessary to put fat or oil when cooking vegetables.			
2.33 Fish is just as healthy as red meat.			
2.34 Our daily diet should include vegetables and starch only.			
2.35 Vegetables cooked in just a little water will protect me against illness better than vegetables cooked for a			
2.36 Brown sugar is better than white sugar.			
2.37 Dried beans are a cheap alternative for meat.			
2.38 It is not necessary to put a cloth or lid on a bucket of clean water.			
2.39 I rather eat meat than cheese, because meat is healthier than cheese.			
2.40 I only buy food that is cheap.			
2.41 Fruits and vegetables will help build the body.			
2.42 It is healthy to take alcoholic drinks daily.			
2.43 Drinking a lot of fruit juice is harmful to your body.			
2.44 A healthy diet should include many foods containing a lot of sugar.			
2.45 It is not healthy for you to eat lots of fat.			
2.46 Vegetables must be cooked in a lot of water for a long time.			
2.47 Dried beans are just as healthy for the body as			
2.48 Starchy foods will supply energy to the body.			
2.49 Our daily diet should include foods of one type, e.g. starchy foods, only.			
2.50 Vegetables help protect my body against illness.			
2.51 I put salt in all the foods that I cook.			
2.52 Cooked vegetables must be left lying in water after they are cooked.			

2.53 Water drawn from rivers, wells and dams has to be boiled before use.			
2.54 Starchy food should fill a large portion of my plate.			
2.55 It is healthier to eat an apple instead of sweets.			

Thank you very much for participating in this interview.



Which question belongs with which guideline:

**1. Enjoy a variety of foods**

6 questions: 13, 18, 25, 34, 40, 49

**2. Be active!**

2 questions: 16, 20

**3. Make starchy foods the basis of most meals**

5 questions: 2, 5, 21, 48, 54

**4. Eat plenty of vegetables and fruits every day**

10 questions: 9, 11, 19, 23, 35, 41, 43, 46, 50, 52

**5. Eat dry beans, peas, lentils and soya regularly**

5 questions: 14, 28, 31, 37, 47

**6. Chicken, fish, meat, milk or eggs could be eaten daily**

7 questions: 8, 17, 22, 27, 29, 33, 39

**7. Use sugar and sugar-containing foods and drinks in moderation**

5 questions: 3, 24, 36, 44, 55

**8. Eat fats sparingly**

4 questions: 1, 10, 32, 45

**9. Use salt sparingly**

4 questions: 6, 12, 30, 51

**10. Drink lots of clean, safe water**

4 questions: 4, 15, 38, 53

**11. If you drink alcohol, drink sensibly**

3 questions: 7, 26, 42

**ANNEXURE III**

**GUIDELINES TO CONDUCT**

**FOCUS GROUPS**

***FBDG/FOOD GUIDE STUDY***

## FOCUS GROUPS: TOPIC GUIDE

Observer/recorder – to do name tags

### Phase 1: OPENING – 5 minutes

- focus group moderator
  - **introduces herself**
  - **thanks participants for coming**
  
- focus group moderator explains the *general* purpose of the group discussion  
**This morning/afternoon I would like to speak to you about food. I am going to be asking a few questions and I am interested in your ideas and opinions about these questions. These questions will be about food and different nutrition messages.**
  
- focus group moderator explains the “ground rules”
  - **there are no right or wrong answers**
  - **answers/opinions, whether negative or positive, will in no way affect the moderator, and are therefore welcome**
  - **all answers/opinions will be treated with confidentiality**
  - **participants are to speak one at a time**
  - **participants can disagree with one another, but should let others finish what they are saying – no interrupting**
  
- focus group moderator explains procedure  
**I am going to be asking general, broad questions that I’d like you to discuss. As we have a lot to get through, I may change the subject or move ahead, but please feel free to stop me at any time if you want to add something.**  
**I would like to tape record the discussion as this makes it easier for me to remember what everyone has said. Would this be acceptable to everyone here? Please remember that these tapes will be treated with confidentiality and will be erased when we have finished with them.**  
**Please do not feel intimidated by the tape recorder. Please speak one at a time so that the tape recorder can pick up everything clearly.**  
**I also have an observer(s) with me this morning/afternoon (introduce this person(s)). She/they will be helping me to take notes during the discussion. Our discussion will take about 2 hours. After an hour or so, we will have a break for some refreshments, and then continue.**

### Phase 2: ICE-BREAKER – 5 minutes

- everyone to introduce themselves (moderator to start)
  - use first letter of name to describe self
  - what work do you do

- how many children do you have

### STARTER QUESTION – 5-10 minutes

I would like to start today's discussion by asking you about yourself:

- how many people do you prepare/cook food for (children/adults)?
- who or what influences/decides what foods you should buy? e.g. mother-in-law, money
- who or what influences/decides how you should prepare/cook the food? e.g. children, time

### Phase 3: MAIN DISCUSSION – 5 minutes per question = 5x11 = 55minutes

I am now going to ask you some specific questions about different nutrition messages:

#### 3.1 – “Enjoy a variety of foods” [put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “enjoy” mean to you?
  - What does the word “variety” mean to you?
  - {Variety – means eating as many different foods each day as you can afford}
- Do you and your family enjoy a variety of foods?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons – personal preference, cost/affordability, availability, seasonality, convenience, time, storage/preparation facilities, etc)
    - What do you mean by.....(ask for each reason given)
    - If you weren't concerned about these, would you and your family enjoy a variety of foods?
      - YES
      - NO – Why do you say this? What do you mean by this?
- Do you think it is important to enjoy a variety of foods?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**3.2 – “Be active!”** [put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “active” mean to you?  
*{Active – means doing some activity for at least 10mins that makes you puff, pant and sweat}*
- Are you and your family active?
  - YES – What makes you say this?  
What (physical) activity do you / does your family do?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, facilities, time, etc)
    - What do you mean by.....(ask for each reason given)
    - If you weren't concerned about these, would you and your family be active?
      - YES
      - NO – Why do you say this? What to you mean by this?
- Do you think it is important to be active?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**3.3 – “Make starchy foods the basis of most meals”**

[put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What do the words “starchy foods” mean to you?  
{*Starchy foods – include foods like potatoes, mealie meal and bread*}
  - What does the word “basis” mean to you?
  - What does the word “meal” mean to you?
- What “starchy foods” do you and your family usually eat? [put up food pictures]
  - Do you have another name for these foods?
- Do you and your family make starchy foods the basis of most meals?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, availability, seasonality, convenience, time, storage/preparation facilities, etc)
    - What do you mean by.....(ask for each reason given)
    - If you weren’t concerned about these, would you and your family make starchy foods the basis of most meals?
      - YES
      - NO – Why do you say this? What do you mean by this?
- Do you think it is important to make starchy foods the basis of most meals?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

### 3.4 – “Eat plenty of fruits and vegetables every day”

[put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “plenty” mean to you?
- What “fruits” do you and your family usually eat? [put up food pictures]
  - Do you have another name for these foods?
- What “vegetables” do you and your family usually eat? [put up food pictures]
  - Do you have another name for these foods?
- Do you and your family eat plenty of fruits and vegetables every day?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, availability, seasonality, convenience, time, storage/preparation facilities, etc)
      - What do you mean by.....(ask for each reason given)
      - If you weren't concerned about these, would you and your family eat plenty of fruits and vegetables every day?
        - YES
        - NO – Why do you say this? What to you mean by this?
- Do you think it is important to eat plenty of fruits and vegetables every day?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

3.5 – “Eat legumes regularly”

[put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “legumes” mean to you?  
{*Legumes – include foods like lentils, dry beans and nuts*}
  - What does the word “regularly” mean to you?
- What “legumes” do you and your family usually eat? [put up food pictures]
  - Do you have another name for these foods?
- Do you and your family eat legumes regularly?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, availability, convenience, time, storage/preparation facilities, etc)
    - What do you mean by.....(ask for each reason given)
    - If you weren't concerned about these, would you and your family eat legumes regularly?
      - YES
      - NO – Why do you say this? What to you mean by this?
- Do you think it is important to eat legumes regularly?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?



**3.6 – “Foods from animals can be eaten every day”**

[put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What do the words “foods from animals” mean to you?  
{*Foods from animals – include foods like meat, cheese and eggs*}
  - What do the words “can be eaten every day” mean to you?
- What “foods from animals” do you and your family usually eat? [put up food pictures]
  - Do you have another name for these foods?
- Do you and your family eat foods from animals every day?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, availability, convenience, time, storage/preparation facilities, etc)
      - What do you mean by.....(ask for each reason given)
      - If you weren't concerned about these, would you and your family eat foods from animals every day?
        - YES
        - NO – Why do you say this? What to you mean by this?
- Do you think it is important that foods from animals can be eaten every day?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**IF PARTICIPANT DOES NOT MENTION DAIRY PRODUCTS AS A FOOD FROM ANIMALS:**

**3.6 (i) – “Dairy Products”**

- Do you think of milk, maas, cheese and yoghurt as “foods from animals”? [put up flash card]
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- Do you have a name for these foods?
- Do you and your family eat milk, maas, cheese and/or yoghurt everyday?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, availability, convenience, time, storage/preparation facilities, etc)
      - What do you mean by.....(ask for each reason given)

- If you weren't concerned about these, would you and your family eat milk, maas, cheese and/or yoghurt everyday?

- YES

- NO – Why do you say this? What to you mean by this?

- Do you think it is important to eat milk, maas, cheese and/or yoghurt everyday?

- YES – Why do you say this? What do you mean by this?

- NO – Why do you say this? What do you mean by this?

### 3.7 – “Use fat sparingly”

[put up flash card]

- Have you heard or read this message before?

-What does this message say to you?

- What does the word “sparingly” mean to you?

- Of the foods that you and your family usually eat, which ones do you think contain fat?

{Fats – include foods like margarine and oil}

[put up food pictures]

- Do you and your family use fat sparingly?

- YES – How do you do this?

- NO – Why do you say this?

- What are some of your reasons for feeling the way you do?

(possible reasons – personal preference, cost/affordability, availability, convenience, time, storage/preparation facilities, etc)

- What do you mean by.....(ask for each reason given)

- If you weren't concerned about these, would you and your family use fat sparingly?

- YES

- NO – Why do you say this? What to you mean by this?

- Do you think it is important to use fat sparingly?

- YES – Why do you say this? What do you mean by this?

- NO – Why do you say this? What do you mean by this?

- How would you explain this message to your family?

**3.8 – “Use salt sparingly”**

[put out flash card]

- Have you heard or read this message before?
- What does this message say to you?
- Of the foods that you and your family usually eat, which ones do you think contain salt?  
{*Salt-containing foods – include foods like salt and aromats*} [put up food pictures]
- Do you and your family use salt sparingly?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons – personal preference, cost/affordability, availability, convenience, time, storage/preparation facilities, etc)
      - What do you mean by.....(ask for each reason given)
      - If you weren't concerned about these, would you and your family use salt sparingly?
        - YES
        - NO – Why do you say this? What to you mean by this?
- Do you think it is important to use salt sparingly?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**3.9 – “Drink lots of clean, safe water”** [put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “lots” mean to you?
  - What do the words “clean, safe water” mean to you?
- From where do you and your family get your drinking water?
  - Do you consider this water supply to be clean and safe? – Why/why not?
- Do you and your family drink lots of clean, safe water?
  - YES – How do you do this?
    - How many cups/glasses of water to you/family members drink each day?
    - What else do you/family members drink during the day? [put up food pictures]
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons – personal preference, cost/affordability, availability, time, etc)
      - What do you mean by.....(ask for each reason given)
      - If you weren't concerned about these, would you and your family drink lots of clean, safe water?
        - YES
        - NO – Why do you say this? What to you mean by this?
- Do you think it is important to drink lots of clean, safe water?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**3.10 – “If you drink alcohol, drink sensibly”** [put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “alcohol” mean to you?
  - What do the words “drink sensibly” mean to you?
- Do other people living with you drink alcohol?
  - Who?
  - What do you think the words “drink sensibly” would mean to them?
- What do you/other people living with you drink that contains alcohol? [put up food pictures]
- Would you say that you/other people living with you who drink alcohol, drink it sensibly?
  - YES – Why do you say this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons – no money left for food, cause arguments, have accidents, etc)
    - What do you mean by.....(ask for each reason given)
- Do you think it is important that, if you drink alcohol, you should drink sensibly?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**3.11 – “Eat healthier snacks”** [put up flash card]

- Have you heard or read this message before?
- What does this message say to you?
  - What does the word “healthier” mean to you?
  - What does the word “snacks” mean to you?
- What “snacks” do you and your family usually eat? [put up food pictures]
- Do you and your family eat healthier snacks?
  - YES – How do you do this?
  - NO – Why do you say this?
    - What are some of your reasons for feeling the way you do?  
(possible reasons - personal preference, cost/affordability, availability, convenience, time..)
    - What do you mean by.....(ask for each reason given)
    - If you weren't concerned about these, would you and your family eat healthier snacks?
      - YES
      - NO – Why do you say this? What to you mean by this?
- Do you think it is important to eat healthier snacks?
  - YES – Why do you say this? What do you mean by this?
  - NO – Why do you say this? What do you mean by this?
- How would you explain this message to your family?

**REFRESHMENTS – juice and biscuits – 15 minutes**

**MAIN DISCUSSION – ACTIVITY – 10-15 minutes**

**3.12 – “Meal Planning”**

We are now going to use all these foods {food pictures} that you have mentioned during our discussion and all these nutrition messages {flash cards} that we have been discussing, to plan meals for your family for one day.

*{moderator to lead discussion towards a day's meals – breakfast, lunch, dinner, in-between snacks}*

- How many meals would you plan for your family for the day?
- What foods would you choose for each of these meals?

- *Did you find it easy or difficult to use the nutrition messages to plan meals?*
- *Why do you say this?*

**Phase 4: SUMMARY – 10 minutes**

(allow participants to alter, clarify, add on to their previous opinions)

If I understand you correctly, you feel that the message:

- “enjoy a variety of foods” means.....(summary of discussion)
- “make starchy foods the basis of most meals” means.....(summary of discussion)
- “eat plenty of fruits and vegetables every day” means.....(summary of discussion)
- “eat legumes regularly” means.....(summary of discussion)
- “foods from animals can be eaten every day” means.....(summary of discussion)
- “use fat sparingly” means.....(summary of discussion)
- “use salt sparingly” means.....(summary of discussion)
- “drink lots of clean, safe water” means.....(summary of discussion)
- “if you drink alcohol, drink sensibly” means.....(summary of discussion)
- “eat healthier snacks” means.....(summary of discussion)

THANK-YOU – 5 minutes

- give out food hampers

- TRANSPORT PARTICIPANTS BACK HOME